

EnergyAustralia Yallourn
**Social and Environmental
Performance Summary 2018**



A Message from the Head of Yallourn

The following report, covering 2018, provides information relating to the EnergyAustralia Yallourn Social and Environmental performance.

2018 saw significant work undertaken as part of the EPA Licence review process. A community forum, organised by the EPA and supported by all the Latrobe Valley Generators, provided an opportunity for community members to express their concerns and engage one on one with generator representatives on issues relating to the management of EPA Licences and potential future direction of those licences.

EnergyAustralia Yallourn considered the forum an opportunity to discuss issues directly with key stakeholders and to provide scientific information regarding the real impacts of the generators within the community air shed which allowed for some erroneous assertions to be addressed.

Yallourn also held its first public Environment Review Committee (ERC) meeting where members of the public were able to see the ERC group in action. This was a great success and will be repeated in the future.

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 and EnergyAustralia Yallourn's submission for the Mine Plan approval has been centred around a full lake rehabilitation scheme.

EnergyAustralia Yallourn continue to be actively involved in the Latrobe Valley Regional Rehabilitation Strategy group which is run by DEDJTR and which seeks to set a safe, stable and sustainable landform for the Latrobe Valley coal mine voids and surrounding areas. This group is due to provide their report to Government, by the middle of 2020.

2018 again saw EnergyAustralia Yallourn involved in community programs including the SPARK reading program, School Breakfast program, Community Grants and Sponsorships and Latrobe Catchment Landcare Network. 2018 also saw the introduction of EnergyAustralia's Reconciliation Action Plan which will be further developed in coming years.

While being a relatively dry year, 2018 was one where we were, thankfully, spared from any significant fire events around the Yallourn Mine. Preparation for the event of fire, through covering of exposed coal area or ash deposit areas along with clearing of land around our boundary, are key activities taken very seriously by the Yallourn Mine teams and our Emergency Services group.

From a Health and Safety view, 2018 was a very sad year. The death of our long term colleague, Graeme Edwards, while performing electrical switching duties has had profound impacts on many at Yallourn. This incident cast a long shadow over 2018 and outweighs any other events of the period.

As in previous years 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



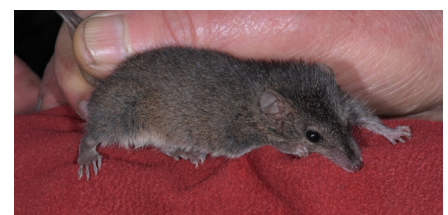
Pictured above L-R: Short-beaked Echidna; Black Rock Skink; and Spotted Pardalote
(We would like to acknowledge Craig Boase from Indigenous Design Environmental Management and Peter Homan from Peter Homan Fauna Consultancy for providing the various fauna photos throughout this report. All photos were taken on the Yallourn site.)

Our Performance at a Glance

In 2018, our safety and environment systems performance at a glance shows:

DESCRIPTION	RATING	COMMENTS	MEASURED AGAINST
How we do business			
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
Our Operations			
Coal Rate	★ ★ ★	Target achieved	Internal
Coal Supply Reliability	★ ★ ★ ★ ★	Target achieved	Internal
Electricity Sent Out	★ ★	Target not achieved	Internal
Our Employees			
Training – Safety, Health and Environment	★ ★ ★ ★	Target achieved	Internal
Employee Availability	★ ★	Target not achieved	Internal
Our Safety and Health			
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
WorkSafe Improvement Notice (PIN)	★	17 WorkSafe improvement notices received	External
Our Environment			
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	★ ★ ★ ★ ★	Improved Performance	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	★ ★	Worsening performance trend	External
PM<10um Dust Emissions To Air	★ ★ ★	Met target but worsening performance trend	Internal
EPA Licence Breach	★ ★	One notification for CO emissions to air	External
Public Enquiries	★ ★ ★	10 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



Agile Antechinus- CMP 5

Sustainable Business Operation

Production

- Yallourn production was below target with an extended outage on Unit 3 following fatal incident on 12th November 2018.

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 27,101 ML is only 74% of the annual Bulk Water Entitlement of 36,500 ML.
- Reduced water discharge (due to reuse and evaporation) of 10,948 ML, which is 37% of the EPA Licence wastewater volume limit of 29,383 ML.
- The water consumption rate was 2.66 megalitres/giga watt hour (ML/GWh) generated, well below the internal business target for water use.
- Rainfall across the region in 2018 decreased by 21% from 2017 levels.

Land

- 33.2 hectares of Mine rehabilitation.
- Achieved target to rehabilitate more land than disturbed by mining.

Air

- Average particle emissions of 0.092 g/m³ was below the annual business target of 0.1 g/m³ and well below the EPA licence limit of 0.22 g/m³.
- Upgrade of char collectors on Unit 1 and Unit 2 electrostatic precipitators to improve particle emissions to air. 9 out of 12 completed with remaining 3 to be completed in 2019.
- Annual performance statement (APS) on licence compliance together with the licence are publicly available on the EPA website. The APS for 2018 financial year was submitted to EPA in September 2018.

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 rehabilitation works across the Latrobe Catchment Landcare Network, including the Moe Rail Trail, Gippsland Plains Rail Trail, along the Blue Rock lake walking track and local school grounds. The

continuation of support for National Tree Day events across Newborough, Willow Grove, Churchill, Glengarry and Toongabbie.

- This year EnergyAustralia also supported the Girl Guides Camp situated on Rintouls Creek through our partnership support with Latrobe Landcare Network. The activities included removal of weeds, revegetating with indigenous plants and installing nesting boxes.

W340 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 undertaken during 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. During a major outage many of these degradation 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 W340 (Unit 3) were:

- Rectifying many leaks in air and fuel 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, was replaced in places 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.

Brown Coal Developments

The Latrobe Valley, including Yallourn power station and mine, is home to a very large resource of brown coal. While high in moisture, brown coal is well suited to a variety of non-power station uses, for example, the manufacture of fuels and chemicals, including hydrogen.

EnergyAustralia continues to work with a number of companies that are investigating these non-power station uses of brown coal, using efficient technologies that have

the potential to deliver environmentally sustainable projects that would underpin significant investment and jobs for the Latrobe Valley.

EnergyAustralia also continues to support related R&D activities, partnering with research institutions such as Federation University, CSIRO and Monash University.

Batter Stability Research Project (DEDJTR)

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 continue to support the project with management of the bore hole samples in the cold storage facility.

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. Coal supply to the power station was maintained via the two level coal system, with two feeder breakers operating on each coal level.

Overburden operations have continued via Dredger 13 and the fixed overburden system, supported by the overheight truck and shovel operation during the summer period. Six million cubic metres of overburden was excavated in 2018 with the majority being conveyed to the East Field overburden dump. A significant amount of overburden is used annually to support the mine's geotechnical stability and environmental programs for activities including buttressing, coal coverage for fire prevention and dust control, and progressive rehabilitation as per the Rehabilitation and Closure Plan.

A mining license extension was approved by Earth Resources Regulation this year to allow continued coal production to 31 December 2032 and provision for mine rehabilitation works to 2051.



Striped Marsh Frog

EPA Power Station Environment Licence Review

Environment Protection Authority (EPA) launched the brown coal fire power station licence review in early 2018. The EPA PS Licence review is a routine program by EPA of reviewing licences by industry sector once every five years. The review considers;

- Monitoring and reporting requirements;
- Air and water discharge limits;
- Land and groundwater protection conditions, and
- Waste management conditions.

EPA have been provided with information to support the review. This included modelling reports and community/stakeholder consultations.

Due to community interest in the review, EPA held a community conference (under section 20B of the EP Act) in August 2018 to discuss views raised in submissions lodged by community and external stakeholders. The conference was a platform for the power station owners to provide their response to the submissions. Overall stakeholder input will be considered by the EPA regarding any licence amendments, modified or new conditions and/or new discharge limits.

The conference explored key themes such as:

- The adoption of best practice being required by EPA or implemented voluntarily.
- Alternative views of the information and data presented by power stations at the conference.
- The potential health impacts of emissions that sit below the national standards and the potential for health impacts over the long term.

- The social cost of carbon emissions.
- The measurement of carbon emissions.
- The release of emissions data in real time.
- Climate pollution limits being considered as part of the licence review process.
- Continuous improvement that has been implemented over the last 20-25 years to control pollution and reduce pollution overall.
- EPA expectations about greenhouse gas emissions.
- Top of stack emissions monitoring and reporting of real time data.
- Gaps in data collection.
- Health impacts of emission exceedances.
- The adequacy of standards for sulphur dioxide.
- The components of PM2.5 and the adequacy of the current standard.
- Actual levels of mercury emissions.
- Licences keeping up with emerging technologies.
- Pollution data used to compare the Latrobe Valley with other parts of the State.

The PS Licence review is currently still underway, and EPA are consolidating all information to prepare for the process of making recommendations and negotiations with licence holders in 2019.

EPA Notification

In July 2018, EnergyAustralia Yallourn notified EPA of high Carbon Monoxide (CO) in emissions recorded in Stage 1 stack. Emissions to air exceeded the Yallourn EPA licence 'bubble' limit condition LI_DA1 which sets a maximum discharge rate on parameters including CO.

An investigation found the cause to be due to unintentional closing of air dampers on an in-service pulverised fuel mill.

Actions to prevent this from occurring via automation of this system operation have been implemented.



View of Yallourn Power Station facing North

EnergyAustralia Landfill Financial Assurance

In 2017, EnergyAustralia Yallourn (EA) submitted a Financial Assurance (FA) proposal to Victorian EPA (EPA) for the three operational landfills located at EA Yallourn. The three landfills include an ash landfill, a hard waste landfill and an asbestos landfill. The FA Proposal included cost estimations for the operational, closure and aftercare components of the landfills and was approved by EPA in December 2018.



Yallourn Landfill

Major Industries Assessment

An EPA Major Industries Assessment close out meeting was conducted on 21 June 2018. Major industries are classified as those that generate large volumes of waste, discharge high volumes of emissions or treated effluent, or store or process large volumes of chemicals or hazardous materials. The assessment process includes a detailed review of the duty holders environmental management systems (EMS),

with a focus on environmental risks identified, together with associated controls. The focus of the assessment is to ensure that the duty holder has adequately identified environmental risks and has appropriate controls in place to prevent harm to the environment. EPA are satisfied all matters have been completed or in the case of the 2019 recommendations, are progressing well.

Climate Change

EnergyAustralia considers climate change in our decision-making process to meet the needs of the future. As a business, our commitment is to ensure that we lead the way in the next generation of energy. This is underpinned in our four strategic business pillars:

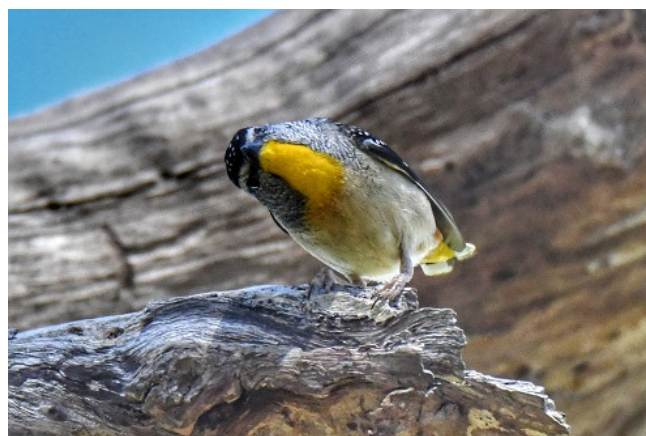
1. We will optimise our position in centralised generation,
2. We will develop a sustainable, low-cost operating model,
3. We will lead in next generation energy products and solutions, and
4. We will make EnergyAustralia into a world-class retailer.

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.

In April 2018, EnergyAustralia acquired Ecogen Energy's Newport power station (510MW) in Melbourne's West and Jeeralang power station (440MW) in the Latrobe Valley. These flexible gas-fired power plants will help to serve

reliable energy sources as intermediate and peaking plants, brought into operation when demand is high or as a short-term replacement while other plants are serviced.

These acquisitions are a great complement to our existing fleet of generation assets. EnergyAustralia also progressed projects on demand side response and battery storage.



Spotted Pardalote

Waste Water

Full compliance with the EPA licence was maintained for wastewater discharges to Morwell River in 2018.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Discharge (ML)	1048.6	955.1	799.3	697.3	1037.3	989.8	921.2	918.1	1440.4	1563.4	460.9	1495.4
Year to Date (ML)	1048.6	2003.7	2803.0	3500.3	4537.6	5527.45	6448.65	7366.8	8807.2	10370.5	10831.4	12326.8
Max Discharge Allowed YTD (ML)	2061	3961	5764	7937	10545	12960	15826	18917	21751	24601	27225	29383

Wastewater discharges to Morwell River

Mine Closure & Rehabilitation Planning

Yallourn has continued to work closely with the Latrobe Valley Regional Rehabilitation Strategy (LVRRS), Rehabilitation Commissioner and the other Latrobe Valley Coal Mines with regard to Mine Closure & Rehabilitation Planning. Whilst Yallourn is planned to continue coal mining until 2032, significant planning is already well advanced for the eventual mine closure and rehabilitation options.

This year Yallourn was granted a mining licence extension which approves coal mining until 2032 and has provision for mine closure and rehabilitation works to 2051. An updated Rehabilitation and Closure Plan (RCP) has also been developed presenting a flooded mine concept as the preferred final landform. The RCP was submitted to Earth Resources Regulation (ERR) for approval with the Work Plan Variation application.

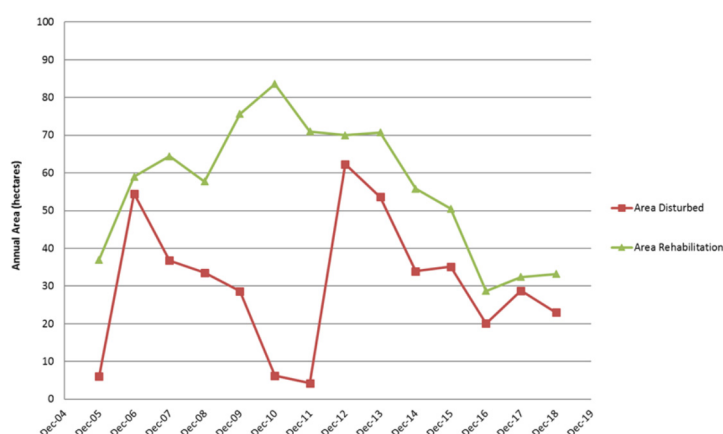
The RCP will be re-visited once the recommendations of the LVRRS are published in 2020 and further community engagement sessions will be scheduled.



Southern Boobook

Mine Progressive Rehabilitation

The progressive rehabilitation program continued in compliance with the Mineral Resources Sustainable Development Act, Work Plan, Risk Assessment Management Plan and internal business requirements, completing 33 hectares against a disturbance of 23 hectares. This is the 14th consecutive year in which the Yallourn Mine has rehabilitated more land than the annual disturbance. The figure below shows the historical annual disturbance and rehabilitation areas.



Yallourn Mine Annual Rehabilitation and Disturbance

The largest progressive rehabilitation project for 2018 was on the East Field Overburden (EFOB) Dump with 15 hectares of grass sown. Without vegetation establishment, the overburden dump is a potential major source of dust, especially from high wind events. In addition, vegetation provides surface stabilisation which limits erosion, leading

to improved water quality in our internal water storages and an enhanced visual amenity.

Alongside the EFOB Dump rehabilitation, a small section of clay capped batter was successfully direct seeded to grass on the East Field Northern Batter. Typically, we would import topsoil to allow successful rehabilitation on batter slopes, however, the early results show that clayey material may be an appropriate soil medium for allowing successful rehabilitation, especially on interim stabilisation areas.

A five-hectare section of the Maryvale Eastern Batters was successfully stabilised by reusing subsoil and topsoil before seeding to grass. The in-situ material was highly sandy and erosive, therefore being inadequate for rehabilitation especially in this area which is to a final landform standard. A series of rock weirs were constructed to slow drainage flows and minimise erosion within the surface water drain.

Another section of batter rehabilitation was completed at the Maryvale Western Batter on the overburden slope. 240,000 cubic metres of fill material was reused and placed above this batter to increase the overall geotechnical stability. Part of this geotechnical surcharge was topsoiled and grassed whilst the remainder will be completed as part of the 2019 program. In addition, a section of highly eroded land caused by the Morwell River Diversion (MRD) failure on the Mid Field Dump was reshaped, topsoiled and grassed to match the adjacent landscape. Two major drainage pipes were buried and a new surface drain with appropriate rock drainage protection installed. The surface water drain that runs through the centre of this area was planted out using common reeds to assist in erosion control and sediment capture.



Morwell West Drain diversion plantings



East Field Overburden Batter (EFOB) Prior at the Beginning of Grass Seeding (April 2018)

East Field Overburden Batter (EFOB) After Grass Establishment (September 2018)





East Field Northern Batter Prior to Tractor Sowing (February 2018)

East Field Northern Batter After Grass Establishment (September 2018)





Mid Field Dump During Earthworks and Shaping (February 2018)

Mid Field Dump Post Progressive Rehabilitation (September 2018)



Mine Rehabilitation Monitoring

Landscape Function Analysis (LFA) surveys continued this year with surveys conducted across 21 transects including:

- Yallourn East Field Extension Batters (4);
- Old Yallourn Northern Batters (2);
- Yallourn Township Field Northern Batters (3);
- Yallourn Township Western Batters (3);
- Yallourn North Open Cut (2);
- East Field External Overburden Dump (2);
- Conservation Management Plan Blocks (4).

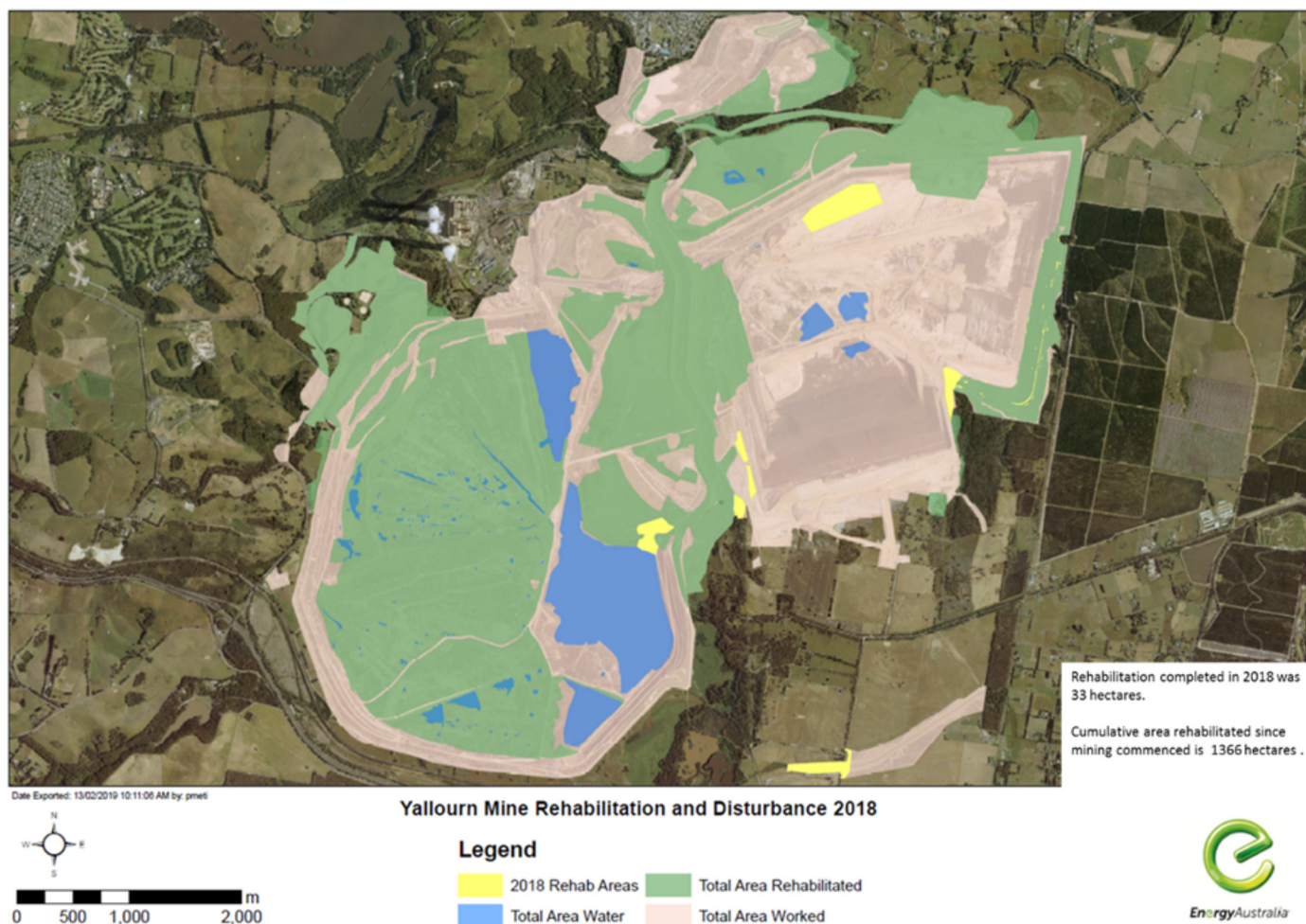
A majority of the assessed transects have either improved in patch size or remain unchanged. However, the increases in patch size have not always contributed to improvements in landscape function with decreases in soil cover, litter cover and cryptogam cover observed. This is likely due to low rainfall during 2018, with similar results found in previous

assessments. Once conditions improve the rehabilitated landscapes have the capability to recover quickly.

Areas within the Yallourn North Open Cut where a paper pulp soil conditioner was incorporated into the rehabilitation work are proving to be more resilient against drought conditions with the physical barrier maintaining soil moisture. Additionally, breakdown of the pulp product provides a more neutral soil pH and organic matter which assists plant growth.

Shown below is a Geographical Information System (GIS) representation of the key Yallourn Mine rehabilitation and disturbance areas including:

- Total Area Worked.
- Total Area Rehabilitated.
- Annual Rehabilitation for 2018.
- Total Area Water Bodies.



Geographical Representation of Yallourn Mine Rehabilitation Areas

Conservation Management Plan

The Yallourn Conservation Management Plan (CMP) incorporates the offsetting of 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); and
- EPBC 2008/4454 and accompanying DSEWPC Offset Management Plan (2011).

As a subset of the Environment Protection and Biodiversity Conservation Act (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) during 2015. These approvals allow Strzelecki Gum habitat to be managed in accordance with Federal and State native vegetation requirements.

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 2018 program focussed on meeting the DELWP Land Owner Agreement planting targets with 9,916 plantings completed within Strzelecki Gum habitat zones. In addition, the 2018 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.

SCIENTIFIC NAME	COMMON NAME	2018 CMP PLANTINGS
<i>Acacia dealbata</i>	Silver Wattle	304
<i>Acacia mearnsii</i>	Black Wattle	90
<i>Acacia melanoxylon</i>	Blackwood	90
<i>Acacia stricta</i>	Hop Wattle	250
<i>Acacia verticillata</i>	Prickly Moses	150
<i>Eucalyptus angophoroides</i>	Apple-topped box	25
<i>Eucalyptus considensiana</i>	Yertchuk	25
<i>Eucalyptus obliqua</i>	Messmate	85
<i>Eucalyptus strzeleckii</i>	Strzelecki Gum	684
<i>Eucalyptus viminalis</i>	Manna Gum	293
<i>Eucalyptus yarraensis</i>	Yarra Gum	100
<i>Leptospermum continentale</i>	Prickly Tea-tree	678
<i>Leptospermum lanigerum</i>	Woolly Tea-tree	475
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	5997
<i>Melaleuca ericifolia</i>	Swamp Paperbark	491
<i>Olearia lirata</i>	Snowy Daisy-bush	127
<i>Pomaderris aspera</i>	Hazel Pomaderris	52
Totals		9916



Black-tailed Wallaby



Weasel Skink

Fauna Monitoring

Bird surveys were also conducted by the Latrobe Valley Field Naturalists periodically throughout the year at the Block G Wetland Site with over 65 bird species recorded for 2018. Over 160 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.

Wildlife surveys were conducted in the remnant Morwell West Drain (MWD) adjacent to East Field Extension and the Morwell River Wetlands. In the MWD, 71 vertebrate species were recorded which included 19 mammals, 47 birds, four reptiles and one amphibian. 28 of these species were recorded for the first time within the area showing good signs of recovery from the 2014 bushfire. In the Wetlands, 86 species were recorded with rare and threatened species including the Blue-billed Duck, Lewin's Rail, Australian Little Bittern, Royal Spoonbill, Hardhead and Nankeen Night-Heron.

Safety

EnergyAustralia Yallourn has a strong commitment to Safety aiming to achieve zero injuries at our work locations.

EnergyAustralia uphold safety as an integral part of what we do, and we stress that safety is a value that is never to be compromised. EnergyAustralia Yallourn strive for zero injuries and take all incidents and injuries very seriously. Following the tragic death of Graeme Edwards on 12th November, EnergyAustralia personnel have considered deeply the approach to safety. In 2019, Process Safety application will be applied to our key identified hazards, considering those high consequence and low probability events with the aim of ensuring they are effectively managed.

The health and safety performance for 2018 was (graph below) the targeted goals. The Total Injury Frequency Rate (TIFR) for 2018 of 8.9, was above the target of < 5.85. There was a major outage in 2018, increasing the exposure to the safety risks associated with heavy maintenance work. A focus on the Safety Circle Program is a key element of the 2019 plans moving ahead in a cultural change journey.

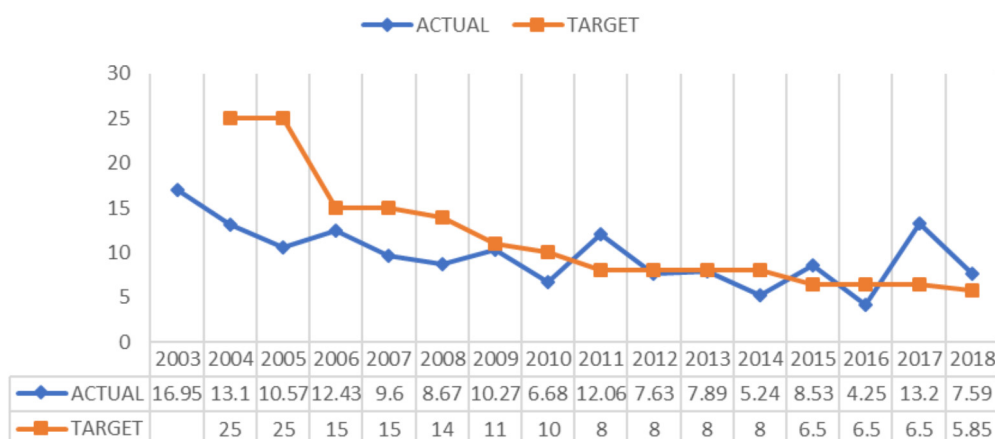
The historical record of Total Injury Frequency Rate (TIFR) is tabled below which demonstrates that 2018 was moving back to an improving trend.

Safety and Health Achievements

Significant safety and health achievements in 2018 were:

- Launch of the Safety circle Program and the first round of cultural surveys;
- Introduction of a Life Saving Rules checklists;
- Outage Drug and Alcohol Random Testing Procedure;
- Health Awareness Program;
- There were 7 significant emergency exercises during the year, including a major part 7A exercise involving the EnergyAustralia Yallourn Crisis Management Team, Incident Response Team and Government Agencies;
- One of the key successful programs was the W340 Outage induction initiative which saw the induction of upwards of 500 employees and contractors who completed an 8 hour outage interactive induction by site leaders and the Health & Safety Team. The health and safety Forum conducted each Thursday during the outage period pulled together each of the HSE safety representatives to discuss the week in review and action items from the outage. The forum ran a donation system for local community charities which were based of 5 key criteria of health and safety targets during the outage. A total of \$16, 000 was donated to various community projects after the outage KPI's were reached.

YALLOURN TIFR PERFORMANCE 2003 TO 2018



Yallourn TIFR Performance

Fire Preparedness

The mine has continued to actively monitor and manage the fire hazards associated with operating an open cut coal mine. The hot and dry fire season conditions forecast for the region focussed Yallourn on early preparation and testing of all fire systems. Vegetation management works were completed as early as practical via a combination of slashing and mulching. Whilst some significant fire activity was experienced in the region over the summer period Yallourn's Bushfire Mitigation Plan developed in consultation with CFA had the site well prepared and ready to respond to an external fire threat.

Yallourn supported CFA with a planned fuel reduction burn in the native bush reserve below the Yallourn North township in May 2018. CFA had previously identified this land as a high risk to the township in the event of a bushfire due to the dense concentration of ground fuel and close proximity to residential homes. Following the burn, the area was re-assessed and the residual risk was reduced to Low.

Below is a summary of the key activities that have been completed this year to enhance the site's fire prevention systems.

Fire Service Capital Works & Water Mains Extensions – over \$1M was invested to extend the fire service infrastructure into the newly developed sections of Maryvale to ensure reliable supply of water for fire-fighting and fire prevention activities.

Coverage of Exposed Coal – as Maryvale Field progresses the mined-out floor is progressively covered with overburden to reduce the fire risk by minimising the total area of exposed coal.

Clearing of Bluegum Plantation – 25 hectares of Bluegum plantation was cleared on the south-west boundary of the mine site to reduce the fuel loading in the event of an external bushfire.

Thermography Camera trial – to improve the fire detection capability within the Raw Coal Bunker a thermography camera was setup to monitor the drive unit of Y319 conveyor. The camera is able to detect the early ignition of fire via a change in operating temperature and raise an alarm in the control centre.

Procurement of Large Diameter Coated Pipe – the mine maintains a forward looking 5 Year Plan for the development of the fire service system as Maryvale Field progresses. A large quantity of long lead time 900mm, 750mm and 600mm diameter coated pipe has been procured to cater for the planned works.

Mines Rescue Competition

The 2018 Minerals Council of Australia Victorian Divisions annual mines rescue competition was held at Fosterville Gold mine in Bendigo over three days in October. Nine 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, Fosterville provided nine challenging and realistic events for the competition. Most of the events this year were conducted underground using procedures foreign to Estate Services Yallourn. This made our results in the competition extremely pleasing.

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

- 1st in Breathing Apparatus;
- 2nd in Rope Rescue;
- 3rd in Search and Rescue;
- 3rd in First Aid;
- 5th in Firefighting;
- Russell Masters the team captain came 2nd in the Captain's judging.

Estate Service Fire & Rescue team at the Victorian Minerals Council Mines Rescue Competition participating in the Skill competition which involved transferring a patient via stretcher.



Community Partnership and Engagement

Throughout 2018, EnergyAustralia Yallourn continued to run two community support programs – our grant program providing funding for projects up to \$10,000, and our small funding (sponsorship) program providing funding of up to \$1,000.

In line with the broader EnergyAustralia business, our priority areas for funding were again Education and Social Inclusion, with the following areas receiving support through our grant program to help them make a real difference in our local community:

- Quantum Support Services - \$10,000 – towards the purchase of a new bus to transport program participants;
- Olivia's Place - \$10,000 – to provide families with support during pregnancy and early parenting;
- Newborough Primary School - \$10,000 – towards the purchase of STEM educational materials to complement the major rebuild of their facilities;
- Newborough Men's Shed - \$4,900 – to assist with rewiring of their new facility (an old industrial complex) in Newborough;
- Walhalla Goldfields Railway - \$3,249 – to provide more modern and interactive equipment to assist with the training of their volunteers.

Smaller sponsorships were provided to a range of community organisations, including:

- Scouts Australia – to assist with running the Gippsland Coroboree held at Carungal Camp;
- Latrobe's Biggest Ever Blokes BBQ – raising awareness and funds with regard to prostate cancer;
- Yallourn North Kindergarten – funding to assist with the installation of a watering system for the vegetable garden and fruit trees;
- Moartz – sponsorship of their annual amateur theatre production;
- Moe Apex/Lions – support for their annual community carnival and fireworks display.

Our two external community representatives continued to provide additional community knowledge and advice during our selection process for both the grant and small funding programs.



Pictured above with a working model of a dredger are Newborough Primary School Leading Teacher Carolyn Boothman, Meredith Bowden from EnergyAustralia, and School Captains Emerson Skee and Ryan Heily.

Health and Wellbeing

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

With the diversity of people at our site, we try 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, to enhance worker health and prevent work related injuries and illness.

In 2018, there were several Health and Wellbeing initiatives undertaken:

- The Influenza vaccination program was again conducted with the largest number of employees participating this year with 270 employees immunised, an increase of 31.7% on 2017;
- 35 internal 'Kettle Report' articles covering health topics and advice, whilst eight newsletters were distributed throughout the year to inform and keep site personnel up-to-date on health matters;
- A skin check program was offered to all Power Station and Mine employees. 110 employees took advantage of this service;
- EnergyAustralia again was a participant in the Latrobe Valley Blood Drive with 24 employees donating blood and blood products, which equated to 72 lives saved.
- Overall presentations to the OH&S Centre saw a 1.3% decrease in overall visits over the year from 2017, even though the number of new injuries/illness visits rose by 30%. There was a marked increase of 209% in blood pressure checks in 2018, and this is largely due to the health promotion days and programs run in 2018.
- Foreign bodies in eyes continue to be the most common injury with a 35.5% increase on 2017. This was followed by patients being struck by an object with an increase of 15.6% on 2017, and muscle strains and sprains a decrease of 23.2% on 2017;
- 52 employees were referred off site for further treatment to various facilities such as Emergency Departments of Local and City Hospitals, GP clinics, and the Optometrists, a 1.2% decrease on 2017 in overall employees sent off site;
- Three teams of 10 employees participated in the Latrobe 10,000 Step Challenge, run by Latrobe Community Health Services. There were 96 teams from various places of employment in the Latrobe Valley competing and one of the EnergyAustralia Alliance teams 'The Blistering Pacers' from Ventia finished in the top 10;
- Healthy morning teas were held to coincide with Men's Health Week and Women's Health Week. The Occupational Health and Wellbeing Coordinator and an Emergency Service Officer were available to check blood pressures and blood glucose levels at these sessions and show bags with relevant health information were given out, and these were well attended with recommendation for further programs offered by staff.

One of the recommendations actioned was providing on site head and shoulder massages for any interested staff.

EnergyAustralia Yallourn has committed to the ongoing health and wellbeing of its employees by joining the Achievement Program. The Achievement Program is a Victorian Government Program recognising companies participating to create healthier workplaces and achieving best practice health and wellbeing benchmarks. Participants will be recognised by the Victorian Government and will receive a certificate and electronic icons, which can be used to promote achievements locally and state-wide. The program focuses on five areas of Health and Wellbeing;

- Smoking;
- Alcohol and Other Drug Use;
- Mental Health and Wellbeing;
- Physical Activity;
- Healthy Eating.

In 2018 we reached Recognition Point 1 in the Healthy Eating and Physical Activity Modules of the program. We participated in the 10,000 Step Challenge, and the Premiers Active April Program.

In 2018 we offered an information session on the Life Program run by Latrobe Community Health Services in conjunction with Diabetes Australia. We had over 20 staff who attended the initial session.

EnergyAustralia Environmental Community Projects

EnergyAustralia is proud to have continued its partnership with Latrobe Catchment Landcare Network (LCLN).

We continue to work and support LCLN environmental projects in our communities because it strongly aligns to our core values and goals; to protect and sustain fauna and flora in the West Gippsland catchment area through sponsorship in our community.

EnergyAustralia sponsor programs run by LCLN involve our community members including; private land owners, primary schools, high schools and other organisations such as the Rail Trail Networks. Programs serve to educate land owners and community, as well as work actively on the ground to manage and remediate land.

What do we achieve by planting trees and shrubs in the landscape? Shelter, amenity, habitat, food supply, filtration, carbon fixing, sustaining the natural microclimate conditions, among many other environmental benefits.

We know it is a united effort to get things off the ground but more importantly to ensure it is sustainable for the future.

In 2018, the theme was to educate and involve our next generation. As they will be the future land owners and carers. Educating primary school and high school children allows them to appreciate the land better and connection to the purpose of looking after our environment.

We were successful in delivering fourteen environmental events across the LCLN for National Tree Day collaborating with fourteen school groups and the Burnet Park Girl Guides.

We also continued work with the Rail Trail Committee to improve environmental works along the Moe Rail Trail Network, Gippsland Plains Rail Trail, and along the Blue Rock lake walking track.

A snap shot:

- 5900 trees were purchased and planted.
- 517 school aged children (both primary and secondary) got their hands dirty during National Tree Day Activities.
- 65 community volunteers, 25 Landcare volunteers and 4 EnergyAustralia staff assisted with tree planting during National Tree Day Activities.



Latrobe Catchment Landcare Trailer display

EnergyAustralia Environment Review Committee (ERC)

Report of Independent Chairman 2018 Year

The Environment Review Committee met on four occasions during 2018 in the process of ensuring that Energy Australia has fulfilled its responsibilities to the Community under its licence granted by the Government to ensure that its operations have met the standards set to respect the impact on the environment and the local community in accordance with its charter.

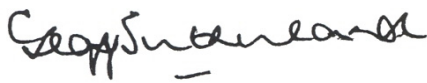
A salutary reminder of the importance of their work was the loss of one of the ERC original members, Mr Max Williamson who until his recent death was an ever vigilant, well informed and constant questioner of the operations of the Yallourn operations he knew so well, to ensure they presented absolutely no risk to his beloved Morwell community. This coincided with a recent EPA review of Latrobe Valley coal-fired power stations, air dispersion modelling and the release of an Energy Australia Report to the Community on licence compliance in respect of discharges to air and water.

Consistent with the recent approval of the extension of the Yallourn operation Mining Licence, the ERC in its site inspections and discussions dealt in particular with Mine Work Plan variations, and the construction of a new ash saline water return basin.

The regular review of performance revealed the continued compliance to be well within budgeted and statutory limits with all ten public reports being investigated and closed out by EnergyAustralia and the EPA. The single environmental exception was a limit exceedance of carbon monoxide emissions to air of short duration in 2018.

During reviews of the progress of the steady flow of mine rehabilitation management plans, the ERC was struck by the advanced thinking shown in the input of both the senior managers and of the younger engineers, resulting in minimisation of re-working to accommodate the environmental demands and community needs and allowing their coincidence close to the final stages of production. The committee members noted the wisdom of supporting inspection visits by staff to overseas European open-cut mines and close cooperation with Earth Resources Regulation authorities.

In their regular plant tours to assess progress of mining rehabilitation and conservation areas the committee noted the extension of the Morwell West now open to the community.



(Dr) Geoff Sutherland OAM
(Independent Chair ERC)



Ring-tailed Possum

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	2018	2017	2016
1. Operation				
Electricity sent out ⁽¹⁾	GWh	9,371	9,946	10,483
Coal consumed	TJ	144,351	152,901	158,761
Oil consumed	TJ	353	365	324
Thermal efficiency	%	23.5	23.6	23.9
Equivalent availability factor (EAF) ⁽²⁾	%	77.24	83.00	87.79
2. Air Emissions				
CO ₂ e (Scopes 1 & 2)	kT	13,731	14,412	15,298
SO ₂ ⁽³⁾	kT	16.7	18.2	21.0
NO _x ⁽³⁾	kT	14.3	14.5	14.6
Particulate (Total) ⁽⁵⁾	kT	6.6	5.9	6.2
3. Water				
Water Withdrawal	Mm ³	29.7	29.3	28.8
from marine water resources	Mm ³	0	0	0
from freshwater resources	Mm ³	28.4	28.0	27.4
from municipal sources	Mm ³	1.298	1.288	1.397
Water Discharged	Mm ³	14.146	14.225	15.243
treated wastewater discharged to sea	Mm ³	0	0	0
treated wastewater discharged to freshwater bodies	Mm ³	12.327	12.306	13.617
wastewater discharged to sewerage	Mm ³	1.8	1.9	1.6
Water Reused / Recycled	Mm ³	0.0	0.0	0.0
4. Environmental Compliance				
Regulatory non-compliance resulting in fines or prosecutions	No.	0	0	0
Licence limit exceedance & other non-compliance	No.	1	0	0
5. By-products & Waste Management				
Ash produced	kT	251	275	272
Ash recycled / sold	kT	0	0	0
Hazardous waste ⁽⁶⁾				
produced	T (solid) / kl (liquid)	227 / 176	130 / 177	108 / 315
recycled	T (solid) / kl (liquid)	11 / 174	0.2 / 177	0.4 / 255
disposed	T (solid) / kl (liquid)	226 / 2.1	129 / 0.1	107 / 60.8
Non-hazardous waste ⁽⁶⁾				
produced	T (solid) / kl (liquid)	4880 / 0	3239 / 0	1990 / 0
recycled	T (solid) / kl (liquid)	1424 / 0	1318 / 0	766 / 0
disposed	T (solid) / kl (liquid)	3456 / 0	1922 / 0	1225 / 0
6. Safety				
Employee - Fatalities	No.	1	0	0
Employee - Days lost / charged	No.	20	47	1
Employee - Lost Time Injuries	No.	2	6	1
Employee - Occupational Disease	No.	0	0	0
Employee - Total Work Hours	No.	621185	569081	383794
Contractor - Fatalities	No.	0	0	0
Contractor - Lost time Injuries	No.	2	3	1
Contractor - Total Work Hours	No.	955034.5	866593	791998
7. Employee Development				
Employees ⁽⁷⁾	No.	196	204	199
Safety, health and environment training ⁽⁸⁾	Hours	14,863	11,476	5,041

Notes:

- (1) Sent out, with mine.
 (2) Data aligned with local regulatory reporting requirements.
 (3) SO₂ and NO_x 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 has been independently verified by V&C Environment Consultants Pty Limited. Verification statement is available upon written request.



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More Information

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