

EnergyAustralia Yallourn Social and Environmental Performance Summary 2020



A Message from the Head of Yallourn

In preparing this message, I reflected on what an incredible year 2020 was. Who would have thought at the start of the year that we would be plunged into restrictions and lockdowns, unable to travel between states within our own country, trying to stem the tide of the COVID-19 pandemic.

This had a huge impact on all of us, both personally and professionally. As an essential service, we could not just shut down. EnergyAustralia encourages flexible working arrangements, and this was certainly tested as we set up as many people as possible to work from home. However we still had people who had to continue working on site, and a major outage that was scheduled and still needed to be completed. At the peak of the outage we had around 1200 people a day on site—a lot of planning went into making sure we had everything in place to keep them as safe as possible.

Our work throughout the year, especially in relation to safety, environment and our community, had to continue. Our 2020 report gives you an insight into our activities, and I hope that you find the information provided in this document informative.

Julian Turecek Head of Yallourn



Above—a Fan-tailed Cuckoo and a Common Eastern Blue-tongued Lizard found during active searching in CMP Block 37 (photos C. Boase 04/03/2020)

Cover—a Golden Whistler observed during active searching in CMP Block 37 (photo C. Boase 03/03/2020)

Our Performance at a Glance

In 2020, our safety and environment systems performance at a glance shows:

DESCRIPTION	RATING	COMMENTS	MEASURED AGAINST
How we do business			
All Planned Audits Completed	****	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 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
Safe Work Observations	****	Target exceeded	Internal
Hazardous Material and Storage Assessments	****	Target achieved	Internal
Lost Time Injuries	****	Zero target not achieved	Internal
Total Injury Frequency Rate	****	Target achieved	Internal
NorkSafe Improvement Notice (PIN)	**	9 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	****	Improved performance trend	External
Oxides of Nitrogen Emissions To Air	****	Improved performance trend	External
Carbon Monoxide Emissions To Air	****	Improved performance trend	External
PM<10um Dust Emissions To Air	****	Improved performance trend	Internal
EPA Licence Breach	****	Zero licence breaches target achieved	External
Public Enquiries	****	16 enquiries received	Internal

 $\star \star \star \star$ Exceed Internal Performance Indicator or Improved Performance

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



A Bush Rat in CMP Block 37 (photo C. Boase 03/03/2020)

Production

• Yallourn production was below target, due to a number of planned outages and offloading to complete essential maintenance.

Water

- Waste water quality was fully compliant with EPA Licence conditions (including: suspended solids, colour, total dissolved solids, turbidity and pH).
- Wastewater discharges to Morwell River at an average daily rate 38 ML/day were below the licence limits of an annual daily mean of 80.5 ML/day and maximum daily rate of 150 ML/day whilst meeting all required water quality standards for discharge.
- Efficiency in water use meant that water consumption of 23,082 ML is only 63% of the annual Bulk Water Entitlement of 36,500 ML.
- Water discharge (due to reuse and evaporation) of 13,526 ML, was 46% of the EPA Licence wastewater volume limit of 29,383 ML.
- The water consumption rate was 2.51 megalitres/giga watt hour (ML/GWh) generated, well below the internal business target for water use of <2.7 (ML/GWh).
- Rainfall across the region in 2020 (838 mm) increased by 9.5% from 2019 levels, continuing the upward trend.

Land

- Completed 38.7 hectares of Mine rehabilitation, exceeding the planned rate of 25 hectares for the year.
- Achieved target to rehabilitate more land than disturbed by mining.
- Reduced coal footprint for the fifth consecutive year to reduce risk of dust and fire. Total area reduced to 305 hectares.

Air

 Average particle emissions of 0.077 g/m was slightly less than 2019. It remains below the annual business target of 0.1 g/m³ and well below the EPA licence limit of 0.22 g/m³, following completion of the char collector upgrades in 2019.

EPA Licence Compliance

• EPA annual performance statement (APS) on the Environment Protection Licence 10961 compliance together with the Licence 10961 are publicly available on the EPA website. The EPA APS for 2019 financial year was submitted to EPA in November 2020.

Community Engagement

- The Environmental Review Committee (Agencies and Community stakeholder group) met two times, in February and November, to review environmental performance. A further two meetings were cancelled due to COVID-19 restrictions, with performance information sent to all ERC members for the cancelled May and August 2020 meetings.
- 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.
- Successful launch of the EnergyAustralia Yallourn Facebook page - facebook.com/ EnergyAustraliaYallourn.
- Stakeholder and regular meetings with community.

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.

In addition, EnergyAustralia is supporting a project being developed by Latrobe Magnesium to utilise ash from Yallourn to manufacture 3000 tonnes per annum of magnesium plus a cement substitute material. Magnesium is a light and strong metal that has a variety of applications, including use in the car industry to make cars lighter and more fuel efficient, thereby reducing carbon emissions.

Latrobe Magnesium is seeking to reach an investment decision for the \$50 million project in 2021 that would create up to 54 on-going direct jobs. If the project is successful, EnergyAustralia and Latrobe Magnesium will consider an expansion of the project to increase magnesium production to 40,000 tonnes per annum.

Power Station Asset Program 2020

Each of the four Yallourn operating units has a planned major outage every 4 years.

There was one major outage on Unit 1 planned for calendar year 2020, and essential maintenance was conducted during a number of minor outages on all units.

Key works completed:

- Rotary Air Heater Pack, plate replacement and seal replacement;
- Expansion joint replacement;
- Boiler door replacement;
- Condenser expansion joint replacement;
- Super Heater and Reheater sprayer valves replacement;
- Fabrication of boiler tubes and replacement program;
- Burner rebuilds;
- Condenser Vacuum improvements;
- Majority of works completed for the relocation of the eastern return water basin.

2020 Unit Outages

An outage or plant shutdown is an opportunity to carry out inspections, repairs and modifications to 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 24 hours 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 larger, 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. Outages also present an opportunity for modification or retrofitting works that can further increase the performance and efficiency of the plant beyond the original design levels. Work carried out during the 2020 Unit 1 major outage included:

- 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 the power station;
- 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 and replaced where necessary 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 inspected and where necessary sections were repaired or replaced;
- The boiler was thoroughly cleaned to ensure heat exchange processes would occur as required, maximising efficiency.



Works completed as part of the Arc Flash upgrade



Replacing corroded sections of the boiler burner tubes

EPA Power Station Environment Licence Review

Environment Protection Authority (EPA) launched the brown coal fired power station licence review in early 2018. The EPA Power Station 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 was provided by EnergyAustralia with information to support the review. This included modelling reports and community and 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. Overall stakeholder input is considered by the EPA regarding any licence amendments, modified or new conditions and/or new discharge limits.

Climate Change

The Yallourn Power Station generates enough electricity every day to supply 2 million Australian homes.

More than 500 people work at the plant and it spends millions of dollars every year with local businesses.

We're working hard to make Yallourn more efficient. We successfully completed Unit 1 major outage in 2020, improving its efficiency and ensuring its reliability into the future. The Yallourn Power Station's efficiency is the highest recorded for the last five years and annual greenhouse gas emissions the lowest since 2013.

At the same time, we continue to talk to stakeholders, including our workers and the community, to support opportunities and plan for the transition already underway in the Latrobe Valley. And we're investing to modernise Australia's energy system with new, cleaner power generation.

Australia's shrinking capacity to generate reliable energy has been a major cause of rising household power prices.

Losing Yallourn's electricity supply would, without careful planning, compound the problem and impact the local community.

Our plans are to run the plant for as long as policy and regulation permit, and there's not a substantial change in the market.

Emissions to air and water performance data for the previous seven years was provided to EPA in February 2019 as part of the review.

The review is ongoing with EPA consolidating all information to assess any amendments required for finalisation in March 2021. The amended licence will then transition to an 'Operating Licence' following the commencement of the new Environment Amendment Act on 1 July 2021.

We have promised our workers and the local community that, should things change and circumstances remain within our control, we will give at least five years' notice before closing Yallourn.

EnergyAustralia are committed to delivering new economic opportunities to the communities we are part of.

Generation opportunities could be developed within the Latrobe Valley and wider Gippsland region, providing new job opportunities to a whole new generation. Latrobe Valley has an unrivalled competitive advantage in power generation in this state. The Latrobe Valley sites offer the following benefits:

- Existing transmission infrastructure;
- Existing gas pipeline to the region, minimal extension/ upgrade to site required;
- Existing access to fresh water for cooling that could be reallocated to a new station on the site;
- Vacant land available;
- Talented pool of highly-trained and skilled power industry workers.

Future opportunities will require the support of government.

Batter Stability Research Project

In response to a recommendation to the then 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 studies to establish a robust platform to manage geotechnical risks in the Victorian brown coal mines. Department of Jobs, Precincts and Regions (DJPR) has funded the project and has engaged the Geotechnical and Hydrogeological Engineering Research Group (GHERG) from Federation University to undertake the research and provide specifications for the field work.

The project has been completed and the work submitted to all stakeholders.

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. Approximately 5.5 million cubic meters of overburden was excavated in 2020 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 licence extension was approved by Earth Resources Regulation to allow continued coal production to 31 December 2032 and provision for mine rehabilitation works to 2051.



A Sourthern Bullfrog observed during active searching in CMP Block 37 (photo C. Boase 05/03/2020)

Mine Closure & Rehabilitation Planning

Best practice internationally and nationally for mine closure, is to undertake closure planning and progressive implementation during mine operations. As such, Yallourn is actively reviewing its mine closure planning and implementation throughout its operational mine life.

The development of a conceptual Rehabilitation and Closure Plan (RCP) was completed in 2018. It presented a flooded mine concept as the preferred final landform. The RCP was submitted and approved by Earth Resources Regulation (ERR), as part of the 2018 Work Plan Variation.

In 2019 and 2020, Yallourn continued to advance and commenced a number of technical studies required to demonstrate that the mine will be "safe, stable, nonpolluting and sustainable" in the long term, and provide information to enable the development of defensible closure designs. These include:

- Preliminary closure water balance study, to assist in understanding water flows, storages and deficits over the long term;
- Geotechnical batter stability under a variety of end land conditions:
 - Empty void;
 - Partial pit lake;
 - Full pit lake.
- Hydrogeological Modelling to provide an understanding of:
 - Floor heave/ weight balance over the long term:
 - Long term groundwater flow conditions:
 - Inputs into the batter stability project:
 - Inputs into lake quality studies.

- Investigation into the geochemical qualities of material placed within Township Field Northern Overburden Dump, which will provide an understanding of:
 - Inputs into the lake quality studies;
 - Define the requirement, or not, for an engineered cover for the material in the Township Field Dump.
- Commencement of the Pit Lake Water Quality Conceptual Model, that is the first part of the series of studies required for determining the pit water quality over the long term;
- Commencement of the Surface Water Management Plan, which assists in joining operational and closure planning for surface water on the site together.

Throughout 2021, Yallourn will continue to work closely with the Latrobe Valley Regional Rehabilitation Strategy (LVRRS), the Rehabilitation Commissioner and the other Latrobe Valley Coal Mines with regard to Mine Closure and Rehabilitation Planning.

The Declared Mine Rehabilitation Plan will be reviewed and updated in accordance with the new Declared Mine Regulations. It is expected that the new Declared Mines Regulation will be released by 30 June 2021.

Mine Progressive Rehabilitation

The progressive rehabilitation program continued in compliance with the Mineral Resources Sustainable Development Act 1990, Work Plan, Risk Assessment Management Plan and internal business requirements, completing 38.7 hectares of new rehabilitation against a disturbance of 31.8 hectares. This is the 16th consecutive year in which the Yallourn Mine has rehabilitated more land than the annual disturbance. Refer to the figure on page 11 for the historical annual disturbance and rehabilitation trends.

Progressive rehabilitation is an environmental key performance indicator as works primarily reduce the coal footprint, limiting exposure to fire and dust. Once coal is covered by site overburden material, vegetation is essential to protect the cover from washing or eroding away. Vegetation profiles differ depending on where the rehabilitation is taking place. In some cases, normally on steep areas, we need to spread topsoil to allow successful vegetation growth. However, on flatter areas native vegetation or grassy profiles can be established directly on overburden. The sum of progressive rehabilitation environmental benefits include lower fire risk, reduced dust emissions, improved water quality, increased habitat area, and a more visually appealing landform.

We are continually exploring ways to integrate the operational mine development with the final rehabilitation flooded lake plan. During 2020, a number of progressive rehabilitation improvements were made to the mine design and operation including:

- strategic overburden dumping for mine stability and coal coverage;
- final coal batter designs incorporating a shoaling zone at the future flooded lake level;
- and new topsoil stockpiling locations for future rehabilitation works.

Summaries of the individual progressive rehabilitation projects completed during 2020 are on Page 9.

Interim stabilization of the East Field Overburden Dump

The East Field Overburden Dump (EFOB) Dump is a storage for the largely sandy material which is mined out above the coal. The EFOB Dump provides approximately 32 metres of vertical coal coverage and is growing at approximately 30 hectares of surface area each year. This significantly lowers risk from coal fire and, if planned correctly, can make the post mining landform more stable. During 2020, progressive rehabilitation of the EFOB Dump included an eight hectare section of native habitat and 17 hectares of grass seeding. This vegetation provides the erosion protection needed to control dust emissions whilst also providing water quality benefits.



North East Pond Development

A new pond in the north-east corner of East Field was formed by the EFOB Dump blocking the natural drainage pathway on the floor of the mine. Both the overburden and water in the pond give significant additional coal coverage. Rehabilitation works in 2020 included the stabilization of one hectare of shoreline and sloping ground with native vegetation. Further stabilization will be completed in the years ahead as the pond embankment progresses.



Flocculation Pond Batter Rehabilitation

The Flocculation Pond Batter is in an old section of the mine in the south-west of the site. The area was mined in the 1960's and 70's with only some minor shaping and capping occurring in the past decade. In 2019, a significant program of coal excavation, shaping and carting of capping and topsoil material began with the work finishing in May 2020. Post topsoil spreading, five hectares of grass was successfully sown into the landform.

The Flocculation Pond Batter Rehabilitation design included a 10 metre wide shoaling zone at the projected final rehabilitation lake level which allows for future shoreline works.



Flocculation Pond Western Embankment

The Flocculation Pond Western Embankment had been previously shaped and topsoiled, but rehabilitation works were never completed. These works were completed in 2020, with erosion protection and a significant weed control and non-indigenous tree removal program undertaken across six hectares.



Maryvale Western Batter Haul Rd

A small 1.5 hectare section of the Maryvale Western Batter Haul Road was topsoiled and grassed during 2020. Works also included rock lining of steep drainage sections to mitigate erosion.



Landscape Function Analysis (LFA) surveys continued this year with surveys conducted across 12 transects within rehabilitated and undisturbed areas of the mine.

Results for 2020 were mixed, with some batter sections showing improvement, whilst other long grassed batter slopes are showing declining performance. Success is being demonstrated on the Southern Overburden Dump 2018 native vegetation seeding area with stability, infiltration and nutrient cycling indices returning similar results to successful seeding programs of the early 2010's. Lifeform diversity of the Southern Overburden Dump plot is good, with five out of nine canopy tree types and nine out of fifteen middle story trees germinating at an early stage.

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 2020;
- Total Area Water Bodies.

Environmental conditions within the mine are vastly improved through the progressive rehabilitation program. The program has continually diminished the coal footprint which assists in reducing key environmental risks such as dust and fire.

Further to minimizing the area of exposed coal, stabilizing areas disturbed by mining prevents erosion and sediment from entering the drainage network and storage ponds. Through progressive rehabilitation, the quality of runoff water has significantly improved. Turbidity, a measure of water cloudiness, has continually decreased at the main water collection point of Yallourn Mine, the Fire Service Pond. This shows the water quality benefits of progressive rehabilitation.





Conservation Management

The Yallourn Conservation Management Plan (CMP) incorporates the offsetting of native vegetation losses caused by mining and protection of 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
- Environment Protection and Biodiversity Conservation Act (EPBC) Approval 2008/4454 and accompanying 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 protected 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 2020 program focussed on meeting the DELWP Land Owner Agreement planting targets with 10,100 plantings completed within Strzelecki Gum habitat zones. In addition, the 2020 program included significant campaigns of weed control maintenance and improvement, fencing and fence repairs. The Pest Management Program was also successfully implemented.

Yallourn Mine planted a total of 15,400 seedlings in 2020 of which the majority were placed within offset conservation zones and habitat improvement areas. 5,300 plantings were placed adjacent to the Morwell West Drain Walking Track to enhance the vegetation corridor between the Yallourn Morwell River Wetlands and existing Morwell West Drain plantings which continue through to Latrobe Road at the eastern extent.

BOTANICAL NAME	COMMON NAME	TOTALS	BOTANICAL NAME	COMMON NAME	TOTALS
Acacia brownii	Heath Wattle	900	Eucalyptus obliqua	Messmate	160
Acacia dealbata	Silver Wattle	250	Eucalyptus radiata	Narrow-leaf Peppermint	110
Acacia mearnsii	Black Wattle	175	Eucalyptus strzeleckii	Strzelecki Gum	150
Acacia melanoxylon	Blackwood	250	Eucalyptus viminalis	Manna Gum	95
Acacia mucronata	Narrow-leaf Wattle	80	Indigofera australis	Austral Indigo	80
Acacia paradoxa	Hedge Wattle	125	Kunzea ericoides	Burgan	585
Acacia stricta	Hop Wattle	430	Leptospermum continentale	Prickly Tea-tree	620
Acacia verticillata	Prickly Moses	545	Lomandralongifolia	Spiny-headed Mat-rush	1520
Austrostipascabra	Spear-grass	600	Melaleuca ericifolia	Swamp Paperbark	600
Banksia marginata	Silver Banksia	155	Olearia lirata	Snowy Daisy-bush	80
Bursaria spinosa	Sweet Bursaria	200	Ozothamnus ferrugineus	Tree Everlasting	125
Cassinia aculeata	Common Cassinia	720	Pomaderris aspera	Hazel Pomaderris	300
Dianellatasmanica	TasnmanFlax-lily	760	Pultenaea gunnii	Golden Bush-pea	150
Eucalyptus angophoroides	Apple-topped Box	35	Solanum aviculare	Kangaroo Apple	175
Eucalyptus consideniana	Yertchuk	110	Rytidosperma caespitosum	Common Wallaby-grass	3200
Eucalyptus fulgens	Green Scentbark	50	Themeda triandra	Kangaroo Grass	2000
Eucalyptus globulus	Southern Blue Gum	65		Total	15,400

Yallourn Mine Conservation Plantings completed for 2020

Biolink Support

EnergyAustralia Yallourn is working with Latrobe City Council to plan and assist in the creation of a Biolink that seeks to enhance important habitat corridors extending from the Strzelecki Ranges in the south to the Baw Baw Alpine ranges in the north. The flagstaff species the Biolink aims to help is the Strzelecki Koala. Studies have found that a population in the Strzelecki Ranges south of Churchill is one of the most genetically diverse, and therefore genetically resilient, koala populations remaining in south-eastern Australia. To ensure the survival of the species, populations need to spread from the Strzelecki Ranges in the south to the Alpine region to the north to lessen the risk of the population being wiped out by damaging events such as fire or disease.

The Strzelecki-Alpine Bio-link working group was formed through a recommendation of the 2017 Rural Land Use Strategy. The first stage of this recommendation involved a feasibility project that worked with stakeholders through the Biolink area to assess current passage ways used by species in the area. Additionally, the project included a biodiversity study through the Biolink which identified key endangered, vulnerable and rare species in the area in which the Biolink could assist.

The project is facilitated through the Latrobe City Council's Strategic Planners with the inclusion of key stakeholders including EnergyAustralia Yallourn, Engie, HVP and Landcare to name a few. There is also consultation with Baw Baw Shire Council and South Gippsland Shire Council since the Biolink extends across all three municipalities.

With the Yallourn Mine existing as a large land holder within the proposed Biolink, rehabilitation activities will be targeted to create vegetation corridors around the mine. The short and long-term benefits of the Biolink are not only great for biodiversity in Latrobe City, they will also have the potential to improve farming productivity and general human wellbeing through enhancing air, water and soil quality.

Fauna Monitoring

Fauna monitoring programs continued through 2020 with vertebrate surveys, bird surveys and aquatic surveys all completed across the mine and perimeter areas.

Land survey

A survey of vertebrates was completed in conservation zone 37 which is situated between Yallourn Mine and the Yallourn North township. 55 species were recorded with 12 mammals, 38 birds, two reptiles and three amphibians discovered. A majority of the species had been discovered in previous surveys with eight new discoveries. Bush rat was captured in significant numbers with juveniles and adults, confirming a healthy and breeding population.

Surveys of rehabilitated sections of the mine floor were also completed, with 68 species recorded. This specifically included seven mammals, 54 birds, two reptiles and five amphibians. There were 21 new species recorded on the mine floor with Lewin's Rail, a species listed as threatened under Victoria's Flora and Fauna Guarantee Act 1988, the most significant of the new sightings. Other significant findings included a possible sighting of a Glossy Grass Skink, listed as vulnerable on the Victorian Advisory list and the first bat sighting within the mining area.

Bird survey

The Yallourn Morwell River Wetlands were constructed in the early 2000's. The project consisted of over 100,000 plantings which have revegetated the area from grazing land to a quality habitat site. Bird surveys were conducted by the Latrobe Valley Field Naturalists periodically throughout the year with 83 bird species and over 900 individual birds recorded over four visits in 2020. In total, 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. The Victorian Flora and Fauna Guarantee Act 1988 listed Blue-billed Duck was again sighted during 2020, with the species being consistently sighted since 2018. Further success was demonstrated with the Scarlet Honeyeater being sighted for the first time.

Aquatic survey

An assessment of aquatic fauna, river health and erosion were completed on the Morwell River Diversion and Morwell River. The assessment included electrofishing, dipnetting, fyke nets and bait trapping of aquatic fauna and macroinvertebrate species Two protected fish species, Dwarf Galaxias and Flinders Pygmy Perch, were recorded in a wetland adjacent to the Yallourn section of the Morwell River. Dwarf Galaxias was also found within the Morwell River Diversion, although it was noted that water in the diversion flows faster than its preferred habitat. Follow up surveys will be completed to create a good baseline of information prior to the rehabilitation phase.



Mine Water Management

Water management was a key focus in 2020 due to high rainfall in the latter part of 2019 and early 2020. Yallourn Mine water storages reached levels not seen since 2013 with some pump systems needing to retreat from high flood levels. Noting these challenges, water quality was maintained at 100% compliance against the EPA Licence with continuous improvement visible largely due to the progressive rehabilitation program.

Further water management activities will be implemented in the operating areas of East Field and Maryvale Field with overburden dumping and future coal mining changing the water flow direction and pond storage sizes. A series of new pipelines will be constructed over the next few years to enable successful water management and continuous improvement of water quality.

A summary of our EPA Licence water discharge compliance is given in the table below.

INDICATOR	LIMIT TYPE	UNIT	LICENCE LIMIT	2020 CALENDAR YEAR
Flow Rate	Mean Daily Flow	ML/day	80.5	37.1
Colour	Annual Median	Pt-Co	50	35
	Maximum	Pt-Co	70	55
Suspended Solids	Annual Median	mg/L	20	13
	Maximum	mg/L	50	36
Total Dissolved Solids	Annual Median	mg/L	450	420
	Maximum	mg/L	700	480
Turbidity	Annual Median	NTU	25	16.5
	Maximum	NTU	60	46
рН	Maximum	рН	8.5	7.3
	Minimum	рН	6	6.6

EnergyAustralia Environmental Community Projects

EnergyAustralia stands behind our community and is proud to have continued support of the Latrobe Landcare Network (LCLC) for community-based conservation projects in 2020.

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

Annually, EnergyAustralia provides funding for National Tree Day activities, however due to COVID-19 restrictions, the normal 2020 programs with schools and other organizations were cancelled. The 10,000 trees that were ordered were redirected to local landcare groups for planting at Blue Rock Dam, Narracan and Woorabinda School Camp.





Community Partnership and Engagement

While the year commenced on a positive note with our sponsorship of the EnergyAustralia Classic Singles lawn bowls event at Newborough Bowling Club and the running of another successful event, COVID-19 certainly affected our sponsorship and engagement activities for the rest of the year.

Many events were cancelled, and applications for our smaller sponsorships (up to \$1,000) were well down on previous years.

We still supported a number of organisations and events, including:

- Rotary Club of Moe annual Gippsland Rotary Golf Classic which raises money to enable Rotary to assist with the education of local students in leadership, community awareness and involvement, project courses, public speaking, community needs recognition and attention;
- Latrobe Valley Beekeepers Association to help them establish the Tyers Primary School Apiary Yard to provide students and the wider school community with a unique learning experience;
- Moe Yallourn Rail Trail contribution towards the establishment of an Art Trail along the existing rail trail. A collaboration of artists involved and working to bring uplifting and inspiring art work to the general public;
- Morwell Historical Society contribution towards the Society's bathroom refurbishment project;
- Latrobe Valley & District Cricket League Umpires support for the 2020/21 cricket season to assist with the recruitment and training of new and existing umpires and provision of uniforms and sun smart hats;
- Moe Cricket Club support for the club's Junior Development Program for the 2020/21 cricket season;
- Moe United Soccer Club contribution towards the upgrade of seating for elderly spectators at the club;
- Morwell Baseball Club contribution towards the purchase of a generator to assist with the shortage of electrical power at the club's fields in Morwell.

Our grant program still received a significant number of applications over two rounds throughout the year, although numbers were down slightly in this area as well. Grants were allocated to the following organisations:

- Yallourn Yallourn North Football Netball Club \$10,000

 contribution towards new coaches boxes for their netballers;
- Edward Hunter Heritage Bush Reserve \$3,500 towards their Calendar Project – a photograph and art competition for school students, culminating in the production of a 2021 calendar promoting the Edward Hunter Bush Reserve and highlighting its unique conservation value;

- Moe Traders Association \$5,000 towards the 2020 Moe Community Christmas Carols event. It was hoped this would be an opportunity to bring the community together at the end of a difficult year, but with COVID restrictions still in place the event moved to being held on line, still attracting significant interest from the local community;
- Dymocks Children's Charities \$10,000 towards the provision of books to a number of our local primary students and schools;
- Narracan Landcare \$1,600 towards the Narracan Creek Platypus eDNA survey;
- Yallourn North Primary School \$5,000 towards the school's Stronger Mathematical Reasoning program;
- Newborough Men's Shed \$6,395 to assist with the upgrade of tools used by those attending the Shed;
- Latrobe Valley Hockey Association \$4,000 towards the purchase of a set of junior goals;
- Latrobe Valley Beekeepers Association \$2,496 towards the purchase of equipment to develop a series of education videos as part of their "Bees on Film" project;
- Scouts Association of Victoria \$10,000 towards the purchase if iPads for nine local scouting groups to assist with their participation in Outdoor Adventure Skills and recording of their milestones.

Towards the end of the year, restrictions had eased enough for the annual Gippsland Motorcyclists Toy Run to take place. In spite of the difficult year and many employees still working from home, this was one of our best toy collections to date – hopefully helping to ease the burden for a number of local families in need.

Unfortunately volunteering activities had to be put on hold and, with many people working from home, events we would have supported at a local level were also unable to take place.

We did, however, ensure the EnergyAustralia Yallourn Facebook page kept the local community up to date with what was happening at Yallourn. Our posts were well received and our following is growing!

We are very much looking forward to getting back to some sort of normality in 2021, especially with regard to our engagement with our local community.

Safety

The health and safety performance for Yallourn during 2020 was challenging due to the emergence of COVID-19.

The challenges of the pandemic and conducting the Unit 1 Major Outage took us on a safety journey never before experienced in the life of outages at Yallourn Power Station. The total amount of manhours and exposure hours were far in excess to any other outage undertaken. The total amount of hours worked was 460,000 manhours—nearly double the amount of working hours on any previous maintenance outage. This required working with a cross section of our experienced people and external consultants to establish our key hazards and critically review site processes and systems to ensure we had a high level of controls in place to manage these hazards.

In total, the site worked 1.93 million hours during 2020, which exceeded all previous years worked at site.

Some of the COVID-19 related issues which presented challenges to the site required the introduction of controls which included:

- Implementation of a site COVID Safety Plan which included the requirement for personnel to remain at home if unwell or waiting for test results—upwards of 100 employees and immediate family members were tested throughout the year;
- Temperature testing stations (around 150,000 temperature tests were conducted at site);
- Segregated shifts and work groups;
- Extra brew rooms;

- Construction of three Alimaks (personal access lifts) and a plan for use of our normal passenger lifts;
- Separate control rooms for Operations personnel.

In 2020 there were three Lost Time Injuries (LTI) which was an increase on 2019. The historical record of Total Injury Frequency Rate (TIFR) is tabled below, and the rate is below 5.85 that the Yallourn site had traditionally measured as the target established over time.

The positive indicator targets have changed with the introduction of the software Integrum, which measures positive indicators such safe work observations, leadership walks and manager walkdowns.

One of the key initiatives has been the Safe System of Work program including the operation of high voltage and low voltage circuit breakers and earthing devices. This program has included a comprehensive technical and operations review on the operation and maintenance of the high voltage and low voltage circuit breakers used throughout the station to establish a robust safe system of work.



Fire Preparedness

Yallourn Mine has continued to manage the fire prevention program in close consultation with CFA, Latrobe City Council and other external parties. The key achievements for 2020 include:

- Review and update of the Yallourn Mine fire hazards risk assessment;
- Completion of capital projects totaling in excess of \$1M to extend the coverage of the fire service network into Maryvale field;
- Construction of an extension to the existing fire service spray lines for the protection of the fire service batters and Raw Coal Bunker batters;

- Completion of slashing and vegetation management activities;
- Trial and installation of new style water cannon spray to provide improved consistency of water coverage to exposed coal areas; and
- Procurement and setup of high flow long range ground monitors to provide additional coverage to coal batters. These monitors have been setup in trailers to enable quick deployment and setup within the mine. The monitors can also be used for the application of foam retardant.

Health and Wellbeing

Good health benefits everyone by strengthening engagement at work, having happier employees, which in turn makes a happier workplace with increased productivity.

At EnergyAustralia we appreciate that the individual needs of employees require a broad range of health and wellbeing initiatives.

People 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 try to facilitate as many activities as possible and provide resources to help improve their health and wellbeing. EnergyAustralia takes an integrated approach to 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.

This year was a challenging year with the COVID-19 pandemic and all the restrictions and lockdowns put in place across the State and at Yallourn. We had to change the way we did many things this year, while maintaining the high standard of care given at the Occupational Health Centre and throughout the entire site.

Achievement Program

EnergyAustralia Yallourn has committed to the ongoing health and wellbeing of its employees by joining the Achievement Program—a Cancer Council Australia and Victorian Government initiative which encourages participating companies to create healthier workplaces and achieve best practice health and wellbeing benchmarks.

The program focuses on five areas of health and wellbeing:

- 1. Smoking
- 2. Alcohol and Other Drug Use
- 3. Mental Health and Wellbeing
- 4. Physical Activity
- 5. Healthy Eating

We completed Foundations and the Physical Activity Benchmarks in 2019 and are still working toward the Healthy Eating in the Workplace Benchmark. The canteen was assessed by a nutritionist from LCHS and found the canteen at present has 47% of items in the red category, 37% in the amber category and 16% in the green category. The aim is to get to 50% of the foods and drinks available at the canteen into the green category, no more than 20% of the foods and drinks available in the amber category, with some red foods and drinks are promoted and/or prominently displayed. Several suggestions on how to start to do this were implemented, but the canteen was closed for part of the year due to COVID-19 restrictions, so in the new year we are looking forward to implementing more of the suggestions offered to get the canteen into the green category to complete the benchmark.

We had also started the Mental Health and Wellbeing Benchmark, with three two-day Mental Health First Aid Workshops with Lifeline Gippsland planned in November and December, but these have been postponed to the new year as they will be compulsory for team leaders, health and safety reps, and managers. As we went straight into the minor outage following the major outage there wasn't time to hold the courses at the end of this year.

Wellbeing Events

In April we promoted and took part in Premier's Active April Challenge again, which is a Victorian Government Challenge to be active for 30 mins a day. However as COVID-19 restrictions came into being in April, participation was unfortunately limited.

We took part in the Latrobe 10,000 Steps Challenge with six teams (55 employees) entered from EnergyAustralia Yallourn. This competition is designed to encourage people to improve their overall fitness while having a bit of fun. One of Yallourn's team was placed 10th overall out of 79 teams with over four million steps—a great effort!

For Breast Cancer Awareness Month in June one of our nurses, Kris Talbot, dyed her hair bright pink as part of the Go Pink Campaign to help raise money for Breast Cancer Research. Kris raised \$1600 for breast cancer research, which is a fantastic effort.

Targeted Programs

The influenza vaccination program was again conducted with 500 employees immunised in 2020 using a 'drive through' vaccination program. Given the success of this program, it has been adopted for future years.

Health awareness topics covered this year were Irritable Bowel Syndrome, Women's Mental Health, Mindfulness, Multiple Sclerosis and Bites and Stings.

In November of 2020 the Occupational Health Centre organised and conducted our onsite skin check program which was once again very well received by employees. Dr Mark Fontaine from Tanjil Place Medical Centre was on site over a 5 day period with 162 skin checks carried out.

At the beginning of 2020 the Occupational Health Centre purchased a new spirometer so the nursing staff could provide all staff with the opportunity to have a basic lung function test performed on site.

Occupation Health Centre

2020 saw a total of 243 presentations to the Occupational Health Centre, a 45.7% decrease in overall visits over the year from 2019 which is likely due to COVID as people weren't presenting for their regular blood pressure checks and hearing tests were suspended. There was an increase in new Occupational Health injuries at work by 20.3% which may have been a result of the extra staff on site during the major outage we had this year.

Foreign bodies in eyes continue to be the most common presentation to the Occupational Health Centre with 73 presentations in 2020, a marked increase of 55.2% on 2019. This was followed by struck by objects with 26 presentations; cuts, bruises and abrasions with 22 presentations; and sprains and strains with 19 presentations. At the beginning of the year, optometrists provided the nurses and ESO's an in-service lecture on correct procedures for removing foreign bodies from the eyes, using eye drops, and when to send someone straight to the optometrist or to the Eye and Ear Hospital.

30 employees were referred off site for further treatment to various facilities such as the emergency departments of local hospitals, GP clinics and optometrists. There was a slight increase of 7.1% in 2020.

The nurses who have completed the Immunisation Course can give immunisations pre overseas holidays, other services are removal of sutures, wound management and education for surgical wounds or wounds obtained at home, diabetic management and blood sugar testing, non-fasting cholesterol checks, CO monitoring, spirometry testing, blood pressure checks and a variety of other preventative health measures.

Despite the decrease in overall visits for the year, which would largely be contributed to the suspension of the hearing test program in 2020 due to the COVID-19 pandemic, there was an increase in the number of work-related injuries in 2020. This would largely be due to undertaking a major outage on Unit 1 with hundreds of extra staff on site during this time. There was a decrease in the home injuries or non-work-related injuries by 45.3%. This again could be due the COVID-19 pandemic as many employees were working from home during this time, reducing the number of staff on-site.

Over the past several years we have seen a steady increase in the number of home injury presentations at the Occupational Health Centre, which was indicative of employees becoming more aware that the Occupational Health Centre is available to all personnel for illnesses and injuries that aren't work related.

We hope to see a decrease in work related injuries and a further increase in the number of preventative health attendances in 2021 as the Occupational Health Team strive to be proactive in the promotion and education of preventive health and to maintain the mental and physical health of all employees in the coming year.

Demolition of Menzies Workshop and RTL Archives Building

Estate Services Alliance undertook the demolition of two buildings deemed unrepairable in 2020. The Menzies Workshop building had been onsite since the 1970's and had been riddled by termite damage. On investigation of the building it was determined that most of the wall and roof structure would need to be replaced to ensure the building was safe to continue to use as a workshop and office. After completion of the review, permits were submitted with Latrobe City Council for the demolition of building. It was determined that whilst we had a demolition company onsite it would also be an appropriate time to demolish the RTL Archives building which had been derelict for a period of time due to a structural fault in brick work.

Both buildings were removed by Crosby Contractors with works being completed to permit specifications and EnergyAustralia safety requirements.

Now that the RTL Archives building has been removed, a review of the roads and infrastructure from the old SECV Nursery will be undertaken to determine appropriate rehabilitation requirements.



Scrap Metal Recycling 2020

EnergyAustralia Yallourn arranged over 200 truckloads weighing over 1600 Tonne of scrap metal to be taken from site and be recycled in 2020.

Scrap metal came from several projects onsite such as – Rotary Air Heater Upgrades, Fuel Oil line replacement, Mine Idler replacement routines, Raw Coal Bunker Counterweight repairs, Mine Midfield Dump clean up and removal of Unit 1's Spring Hangers.

EnergyAustralia Environment Review Committee (ERC) Report of Independent Chairman 2020 Year

In many ways 2020 calls for the celebration of achievement of the ability of the Yallourn Mine to access the additional resources of coal and water and the physical space needed to meet the growth in projected needs of energy of Victoria and the nation's power grid. It also marks 20 years since the approval by the Victorian Government of the commencement of the Morwell River Diversion and the prescribed conditions governing inevitable impact upon the environment.

Such an important and demanding task has called for the highest standard of equipment to enable mining of the coal, deliver it to the power station generators to meet the inherent needs of water supply and control and distribution of the power through a controlled network. The challenges of risk management of hazards inherent in operating and maintaining equipment and obviating damage to the built and natural environment have required of management the selection, training, supervision, motivation and alertness of multi-skilled staff.

The quality of performance has been rigidly, but constructively encouraged, controlled and ensured by the Environment Protection Authority working with EnergyAustralia staff and management to the end that safety and respect for wild-life have been maintained throughout the community.

It is pleasing to note that the actual performance can be discerned in the 9 points noted in the official report below and reflects the performance and efforts of the staff and ERC as a whole and epitomised in the example of two recently retired managers, Ron Mether and Mark Pearson:

- Full compliance with all conditions of the EPA licence;
- Completion of a major outage on Unit 1;
- EPA approval of licence condition to allow waste leached ash to be provided to EPA licenced premises external to Yallourn;
- EPA approval of leached ash landfill capping design type for application at Yallourn;
- Improvement on all key performance indicators including less Latrobe River water use, less wastewater volume discharged, lower dust emissions and increased mine rehabilitation;
- Successful three yearly section 53V Audit of Landfill compliance with environmental obligations;
- Creation of a Victorian Mine Rehabilitation Commission and changes to the MRSD Act and regulations;
- Ongoing research program by LVRSS into final mine rehabilitation;
- Ongoing mine rehabilitation and Conservation Management Plan activities.

Seggisuteneard

(Dr) Geoff Sutherland OAM (Independent Chair ERC)



An Agile Antechinus in CMP Block 37 (photo C. Boase 05/03/2020)

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	2020	2019	2018
1. Operation				
Electricity sent out ⁽¹⁾	GWh	9,225	8,954	9,371
Coal consumed	ТЈ	124,417	135,096	144,351
Oil consumed	TJ	444	517	353
Thermal efficiency	%	24.1	24.0	23.5
Equivalent availability factor (EAF) (2)	%	79.09	74.56	77.24
2. Air Emissions				
CO ₂ e (Scopes 1 & 2)	kТ	11,799	12,763	13,731
SO ₂ ⁽³⁾	kT	15.5	15.6	16.7
NO _X ⁽³⁾	kT	11.4	12.1	14.3
Particulate (Total) ⁽⁵⁾	kТ	5.5	5.9	6.6
3. Water				
Water Withdrawal	Mm³	25.6	28.6	29.7
from marine water resources	Mm ³	0	0	0
from freshwater resources	Mm ³	24.4	27.3	28.4
from municipal sources	Mm ³	1.245	1.276	1.298
Water Discharged	Mm ³	14.991	15.971	14.146
treated wastewater discharged to sea	Mm ³	0	0	0
treated wastewater discharged to freshwater bodies	Mm ³	13.525	14.344	12.327
wastewater discharged to sewerage	Mm³	1.5	1.6	1.8
Water Reused / Recycled	Mm³	0.5	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.	0	0	1
5. By-products & Waste Management				
Ash produced	kТ	229	244	251
Ash recycled / sold	kТ	0	0	0
Hazardous waste (6)				
produced	T (solid) / kl (liquid)	645 / 196	359 / 214	227 / 176
recycled	T (solid) / kl (liquid)	1 / 192	1/198	1.1 / 174
disposed	T (solid) / kl (liquid)	644 / 3	358 / 17	226 / 2.1
Non-hazardous waste (6)				
produced	T (solid) / kl (liquid)	4441 / 1	5257 / 0	4880 / 0
recycled	T (solid) / kl (liquid)	1803 / 1	2914 / 0	1424 / 0
disposed	T (solid) / kl (liquid)	2638 / 0	2342 / 0	3456 / 0
6. Safety				
Employee - Fatalities	No.	0	0	1
Employee - Days lost / charged	No.	46	0	20
Employee - Lost Time Injuries	No.	4	0	2
Employee - Total Work Hours	No.	792145	523334	621185
Contractor - Fatalities	No.	0	0	0
Contractor - Lost time Injuries	No.	0	1	2
Contractor - Total Work Hours	No.	1140778	963863	955034.5
7. Employee Development				
Employees ⁽⁷⁾	No.	216	210	196
Safety, health and environment training ⁽⁸⁾	Hours	5966	11,522	14,863
-				

Notes:

(1) (2) (3)

Sent out, with mine. Data aligned with local regulatory reporting requirements. SO₂ and NO₄ data estimated using emission factors derived from plant emissions monitoring conducted every six months. Particulate emissions from power generation and mine sources from 2014. Prior to this from Power Station only. (5)

Waste categorised in accordance with local regulations. Contractor waste has been included.

 (6) Waste categorised in accordance with local regulations. Contractor methods
 (7) Full time equivalent.
 (8) Includes employees and contractors safety, health and environment training.
 (6) The time equivalent of the time equivalent of the time equivalent.
 (8) Includes employees and contractors safety. Data has been independently verified by V&C Environment Consultants Pty Limited. Verification statement is available upon written request.



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

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