VERDANT
EARTH TECHNOLOGIES

Renewable Electricity Production in the **Hunter Valley**

Restart of the Redbank Power Station

Project Introduction

About the development

Location

112 Long Point Rd, Warkworth, NSW 2330.

Founded in 2018, Verdant Earth Technologies is working to achieve net-zero emissions by developing green hydrogen and renewable energy assets.

Why? Because it's impossible to achieve net-zero emissions by 2050 if we continue to use our resources the way we do today.

Verdant believes the foundation of a net-zero economy is net-zero infrastructure.

With this in mind, Verdant plans to convert the existing Redbank Power Station into a renewable energy hub and aims to use 100% sustainable biomass (excluding native forestry residues from logging).

Verdant recognises there is community concern in using native forestry waste residues as fuel. Verdant has been working to address these concerns by developing alternate sources of biomass fuel and an alternate biomass fuel strategy.

Following the success of this strategy, Verdant is pleased to confirm it is not seeking approval to use and will not use native forestry bio-material waste from logging activities.

Please provide comments of support

A development application has been submitted to the Department of Planning, Housing and Infrastructure for the restart of the Redbank Power Station.

We would gratefully appreciate your comment of support to help communicate to government the need for the project. The deadline for comment is 5pm Thursday 4th April 2024.

To make a comment of support, please go to the Major Projects Website and click on **"Make a Submission"** on this page.

What does the development involve?

Verdant is aiming to recommission its facility and transition to sustainable biomass as its fuel. This will firstly involve maintenance, repair and recommissioning works within the power station to permit recommencement of electricity generation.

Secondly, the company will need to make some minor adjustments to the site's feedstock supply system and to extend the permitted life of the plant. There are four changes to be made to the fuel supply system:

01
Two minor changes to the conveyor belts to enable them to support biomass fuels

02
An alteration to the storage bins to improve the flow of materials into the boiler storage silos

03
A modification of logistics on-site to cater to the storage and supply of materials to the facility

04
Permit the plant to operate beyond 2031 only using biomass fuels

These reconfigurations will take 6 - 10 months to complete. They will be accompanied by extensions to the existing fire detection and dust collection systems as required.

With these changes, Verdant estimates the facility can generate energy as early as next year.

This fact sheet provides an overview of the development and what it means to the Hunter Valley.

Why is the power station still needed?

This project will reduce the risks of electricity supply interruptions (i.e. blackouts) during peak summer periods and assist in maintaining stable energy prices.

Importantly, the project will also help drive us towards NSW's goal of net-zero greenhouse gas emissions by 2050[1].

Verdant estimates this project will create 471 full-time equivalent (FTE) jobs, with the majority of these in the Hunter Region and the Singleton LGA. Restarting of Redbank will also create or support a large number of direct and indirect jobs in the fuel supply line over the plant's life.

Redbank Power Station.

How will it help us transition away from fossil fuels?

Verdant plans to transition the power station from using coal tailings to biomass fuels as its feedstock. This will save 950,000 tonnes of equivalent carbon dioxide emissions. That is, emissions that would have been produced if the power was made from coal (Figure 1).

The plant is currently permitted to use coal tailings until 2031. Verdant will relinquish the current approval to use coal tailings as a fuel at Redbank and will seek to extend the approval life of the plant to enable it to operate beyond 2031 using only biomass fuels as its feedstock. This will make the Verdant Power Station one of Australia's largest green baseload generators (outside of hydro).

[1] NSW Government (2020). Net Zero Plan Stage 1: 2020-2030. March 2020. Internet publication https://www.environment.nsw.gov.au/topics/climate-change/net-zero-plan

What does this mean for the natural environment?

Verdant is committed to protecting the natural environment, operating within the guidelines set by several regulatory bodies and government policy, sourcing only from biomass fuels that meets the definition of a Standard Fuel or an Eligible Waste Fuel.

Biomass to be used at the power station include purpose grown energy crops and waste biomass from invasive species control, approved clearing activities and agriculture. Verdant will also trial end of life waste woody biomass from untreated and engineered timber (subject to EPA approval as an eligible waste fuel). Verdant is recovering such waste to maximise its energy and reduce our reliance on fossil fuels (Figure 2).

Verdant's focus is on the best use of waste, through energy recovery. That's because better use of waste is critical to decarbonising our economy and progressing towards a circular economy.

Example of purpose grown energy crops to be used as a sustainable fuel.

What does this feedstock really look like?

Only Standard Fuels and Eligible Waste Fuels considered by the EPA to pose a low risk of harm to the environment and human health due to their origin, composition and consistency will be considered as feedstock for the Verdant facility.

This includes:

Standard Fuels

Purpose grown energy plantations, perennial grasses and energy crops. These crops will be grown locally and across the Hunter to provide the power station with ongoing biomass fuel.

Eligible Waste Fuels

Biomass with no higher order uses including: invasive native species control on agricultural land, approved land clearing activities (e.g. from approved civil infrastructure, road clearing works, right of ways), agricultural wastes, and other sources of eligible waste fuels.

Where will the feedstock come from?

Verdant will not use native forestry bio-material waste from logging activities or coal tailings as a fuel at Redbank.

The majority of the biomass to be sourced during initial start up of the power station will be from approved land clearing operations (from existing civil and road works), biomass from invasive native species on agricultural land as approved by Local Land Services NSW and potentially a limited amount of purpose grown biomass. As the feedstock becomes available and approved, biomass will be sourced mainly from purpose grown biomass and end of life woody biomass (referred to as 'Domestic Biomass Fuel').

Verdant's feedstock will be sourced from several locations within NSW, depending on scheduling and the source locations.

In addition, Verdant is building long-term partnerships with suppliers that share its values, promoting sustainable practices in their management and operations.

The Proposal will seek to fully transition to using sustainable biomass fuels now and beyond 2031.

What are the benefits?

Repurposing the Redbank Power Station to use 100% biomass fuels is a cost-effective and easy way to deliver renewable baseload power to the electricity grid.

The project is expected to provide:

- Reliable electricity generation with near net-zero CO_2 emissions.
- 1,000,000 MWh of renewable 24/7 baseload power.
- Support for NSW's transition to sustainable energy and less reliance on coal.
- An estimated reduction in greenhouse gas emissions of approximately 96% compared to the currently approved fuel (coal tailings).
- Assistance to the waste recycling industry by reducing landfill reliance.
- A boost to the economy by creating both long and short-term jobs.

What are the impacts of the change in fuel use?

As part of the development application, Verdant has prepared an Environmental Impact Statement (EIS). The EIS is now available for public review and explains potential impacts from the project, including measures and management plans that will be put in place to prevent and minimise risk to the environment and human health.

The full development application is on public exhibition and can be accessed from the **Major Projects Website.**

Air quality

Modelling indicates that pollutants will decrease through this project. Upon restart, sulfur dioxide, nitrogen dioxide, metallic compounds, volatile organics, volatile organic compounds, polycyclic aromatic hydrocarbons, dioxins/furans, particulate matter, and carbon monoxide concentrations will all fall below established criteria for the NSW Environment Protection Authority (EPA) and the Protection of the Environment Operations (Clean Air) Regulation 2022.

In fact, Verdant predicts its facility will have the lowest emissions in the country, compared to other coal-fired power plants.

Noise

Based on a noise assessment completed this year, and the relatively remote location of the facility, there are no predicted noise concerns that could arise from the project.

The noise assessment results show the project meets all NSW EPA operational and road noise policies and specific noise criteria.

Soil and Water

An evaluation of the existing stormwater management infrastructure, water balance, and analysis of water access and adequate water supply has been prepared.

The assessment found that the quality of storm-water coming from the site is unlikely to change with the proposed adjustments to the feedstock. The existing ponds will capture and reuse most of the run-off from the site.

As a result, very little stormwater is ever discharged from the site.

Traffic

About 56 return trips per day will be needed to haul the required biomass fuel to the site. This will occur via road, primarily using B-Double trucks deliveries may occur 24 hours, 7 days per week, however most deliveries will occur between 6am and 10pm Monday through to Sunday.

Traffic modelling concludes that these truck movements, along with staff, will have no significant impact on the operation of the Golden Highway / Long Point Road West intersection, nor on capacity limits or existing road configuration requirements.

Greenhouse gases (GHG)

Initial GHG emissions modelling - based on the current approved use of coal fuel tailings versus the proposed use of waste wood residues as feedstock - indicates that the feedstock changes would reduce GHG emissions from the Redbank Power Station by approximately 96% (equivalent emissions).

Human Health

A Human Health Risk Assessment has been done to understand the potential impacts of the proposal on air quality and human health.

The study found that the risks to human health will be negligible.

In addition, the study found that there will be no inhalation risk issues, no chronic risk issues and people will have negligible exposure to dust.

Sustainability

Using biomass fuels for bioenergy generation results in positive outcomes, especially when it is displacing the use of coal.

In a sustainable harvest system, the CO_2 released from the use of biomass fuels is reabsorbed by the growing trees, negating the impact of emissions over relatively short timeframes (Figure 2).

Next steps

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To make a comment of support please go to the Major Projects Website regulated by the EPA, and click on "Make a Submission" on this page.

Alternatively send an email to
mhaywood@verdantearth.com.au
and a link will be emailed directly to you.

Or use the QR Code

The proposed project is considered a State Significant Development under Clause 20(a) of Schedule 1 of the State Environmental Planning Policy (Planning Systems) 2021.

The Proposal will be assessed by the Department of Planning and Environment and determined by either the Minister for Planning or the Independent Planning Commission.

The NSW Environment Protection Authority (EPA) will play a role in reviewing the development application and EIS. If the project is approved, it will be licenced and regulated by the EPA.

How can I provide feedback?

Please make a comment of support through the **Major Projects Website**.

Thank you for supporting us and this important project for NSW.

Or visit the project web site

www.jacksonenvironment.com.au

How can I find out more information?

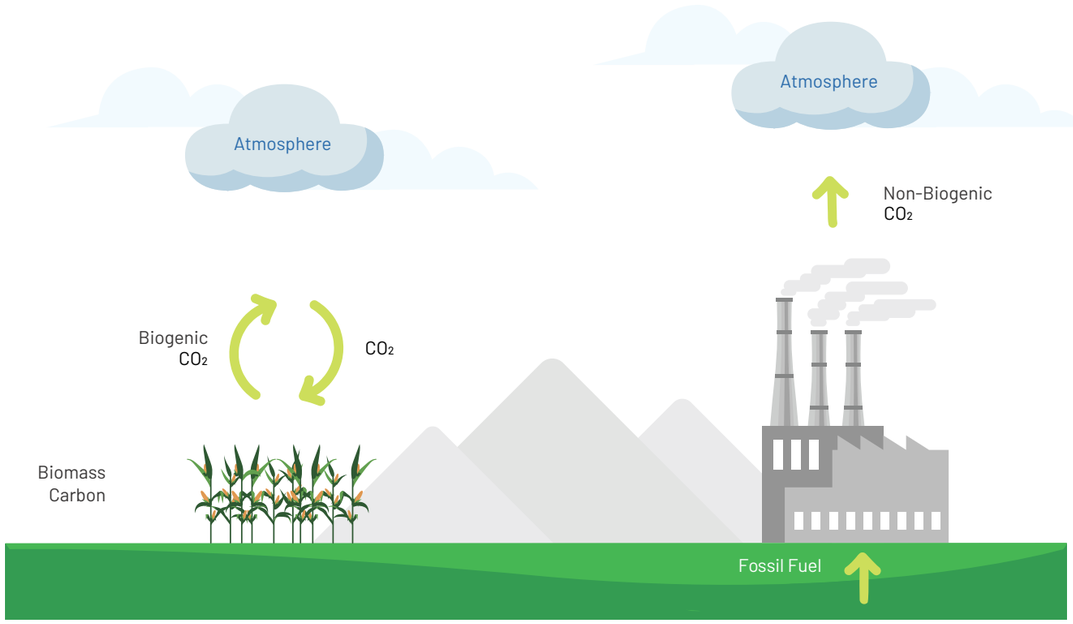
More detailed information on the proposed development is available in the development application.

This is available on the

Government Planning Portal

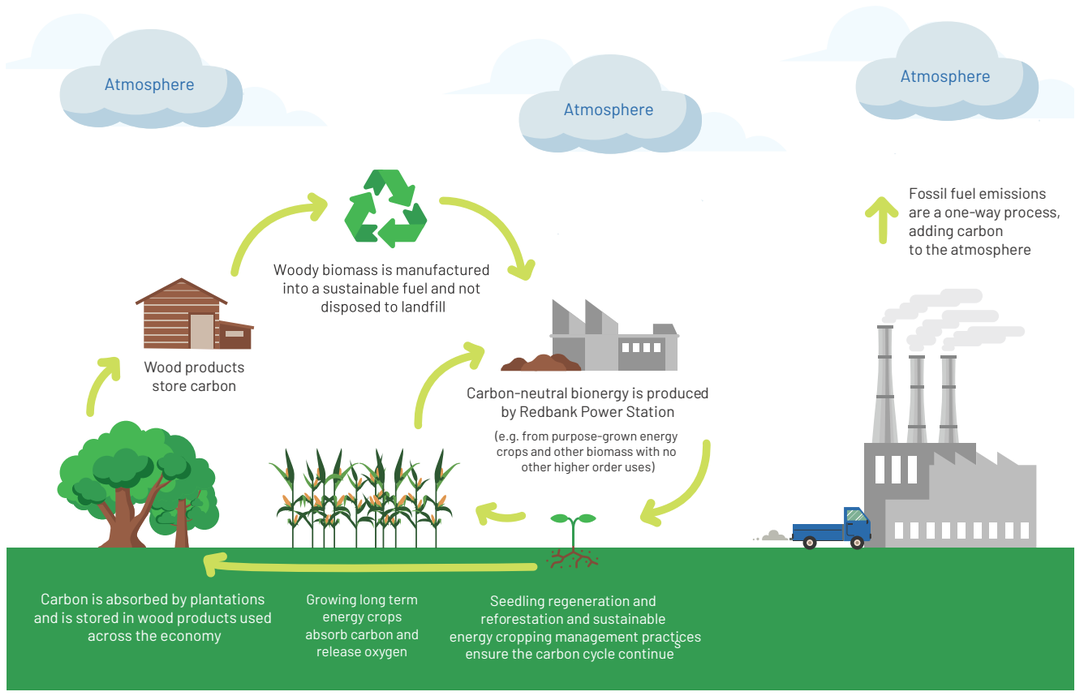
We welcome your questions and comments.

Figure 1 Fossil versus sustainable biomass carbon cycles.



Source: Adapted from National Council for Air and Stream Improvement. The IPCC distinguishes between the slow domain of the carbon cycle, where turnover times exceed 10,000 years, and the fast domain (the atmosphere, ocean, vegetation and soil), vegetation and soil carbon have turnover times in the magnitude of 1– 100 and 10– 500 years, respectively. Fossil fuel transfers carbon from the slow domain to the fast domain, while bioenergy systems operate within the fast domain.

Figure 2 Carbon cycle of a power station using sustainable biomass fuels (left) and a conventional coal fired power station (right).



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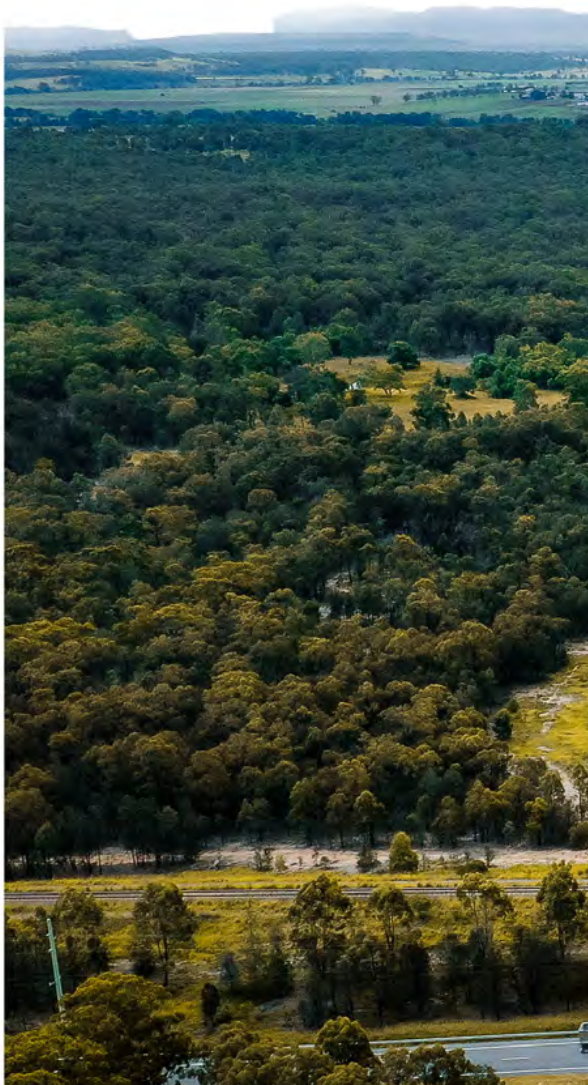

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