



Renewable Electricity Production in the **Hunter Valley**

Project Introduction and Request
for Community Input



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% waste wood residues to fuel its operations.

The power station commenced operations in July 2001 using coal tailings from the adjacent mine to create electricity.

What does the development involve?

Verdant is aiming to recommission its facility and transition to sustainable waste wood residues as its feedstock.

To replace the use of coal, 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:

01

Two minor changes to the conveyor belts to enable them to support waste wood residues

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 waste wood residues

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 mid-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 2050¹.

Verdant estimates this project will create 800-900 direct and indirect jobs for the regional and state economy.



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 waste wood residues 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. This proposal will seek to extend the approval life of the plant to enable it to operate beyond 2031 using only waste wood residues as its feedstock. This will make the Verdant Power Station one of Australia's largest green baseload generators (outside of hydro).

¹NSW Government (2020). Net Zero Plan Stage 1: 2020-2030. March 2020. Internet publication [https://www.environment.nsw.gov.au/topics/climate-change/netzero-plan](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 waste wood residue feedstock that meets the specification of the NSW Eligible Waste Fuels Guidelines and the Energy from Waste Policy Statement.

Waste wood residues from the timber industry will be used at the power station. Instead of letting these residues decay in the forest (creating high bushfire risks), or be piled up and burnt (all of which release uncontrolled CO₂), 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, including forestry and timber milling 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 waste wood residues left over from forestry operations to be used as a sustainable fuel.

Where will the feedstock come from?

Verdant is committed to confining its feedstock to waste wood from lawful harvest operations. That means only using waste wood left behind after normal harvest operations. No trees will be harvested for use as fuel.

This includes industrial wood-based waste, sawmill and wood processing residues and low-quality forest resources not suitable for timber product manufacturing or other market applications.

Verdant's feedstock will be sourced from several locations within NSW, depending on scheduling and the areas nominated by Forests NSW or owners of private plantation forests.

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

Whilst the plant is currently approved to use coal tailings from an adjacent mine (Warkworth Mine) until 2031, the proposal will seek to fully transition to using sustainable waste wood residues as a feedstock on an ongoing basis (now and beyond 2031).

What does this feedstock really look like?

Only specific 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:



Forestry waste obtained in accordance with private native forestry property vegetation plans or integrated forestry operations approvals under the Forestry Act 2012 (e.g. pulp wood logs, thinning trees, heads and off cuts) and waste wood residues cleared under a relevant approval;



Sawdust and other sawmill waste;



Uncontaminated wood waste like pre-consumer manufacturing and processing waste materials (e.g. offcuts, sawdust, wood shavings, untreated packaging crates, untreated pallets and engineered timbers made with urea formaldehyde or phenol formaldehyde resins only).

What are the benefits?

Repurposing the Redbank Power Station to use 100% waste wood residues 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 CO₂ 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).



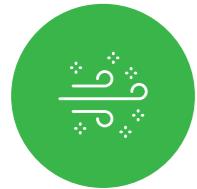
Assistance to the waste recycling industry by reducing landfill reliance.



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 is preparing an Environmental Impact Statement (EIS). The EIS will be available for public review and will explain 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.



Air quality

Initial 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 2021.

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 is being prepared. Preliminary analysis shows that the quality of stormwater 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 runoff from the site.

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



Traffic

About 70 trips per day will be needed to haul the required waste wood residues to the site. This will occur via road, primarily using B-Double trucks during the day (12-hour shift).

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 is being done to understand the potential impacts of the proposal on air quality and human health.

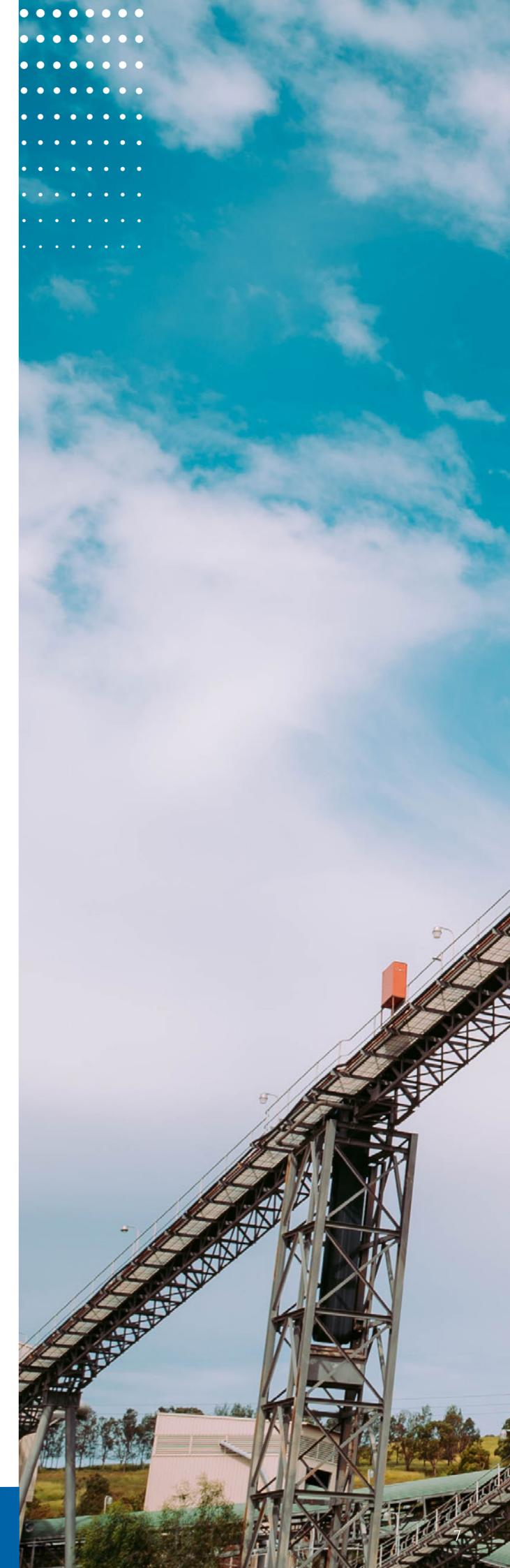
Air emissions from the plant are expected to be lower than existing strict limits operating at the plant, and this will be assessed regularly to ensure there is no negative impact on regional air quality and people living in the region.



Sustainability

Using waste wood residues that would have otherwise been left in the forest to burn and/or decay for bioenergy generation results in positive outcomes, especially when it is displacing the use of coal.

In a sustainable harvest system, the CO₂ released from the use of waste wood residue is reabsorbed by the growing trees, negating the impact of emissions over relatively short timeframes (Figure 2).





Next steps

The NSW Department of Planning, Industry and Environment issued the Secretary's Environmental Assessment Requirements (SEARs 1596) for the proposed project on 10 August 2021. A development application and Environmental Impact Statement are currently being prepared to address the SEARs and enable the use of waste wood residues as a fuel for the Redbank Power Station. The application will also seek approval to operate the plant on an ongoing basis beyond 2031 on sustainable waste wood residues only.

The proposed project is considered a Designated Development under Clause 18(1c) of Schedule 3 of the Environmental Planning and Assessment Regulation 2000.

The project will be assessed by Singleton Council and determined by the Hunter and Central Coast Regional Planning Panel.

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 comment on the proposal?

The planning team at Jackson Environment and Planning Pty Ltd will be hosting an information session. Given the current COVID pandemic, the information session will be done via video conference.

We encourage neighbours and the community to attend. The session will be recorded and available online if you cannot attend.

The information session is scheduled for live viewing via Zoom on Tuesday 7th December 2021 between 6:30 and 7:30pm.

To register, you can:

Call **02 8056 1849** or email

admin@jacksonenvironment.com.au



We will send you an invite and link to the Zoom video conference session.

Comments on the project would be appreciated by the closing date of Friday 17th December 2021.

We encourage the community to provide feedback on the project, and to identify areas that are of concern to you. These matters will be fully considered in the development application.



How can I provide feedback?

You can provide feedback to the project team in the following ways:

Phone

02 8056 1849

Email

admin@jacksonenvironment.com.au

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 Scoping Report, which is available at

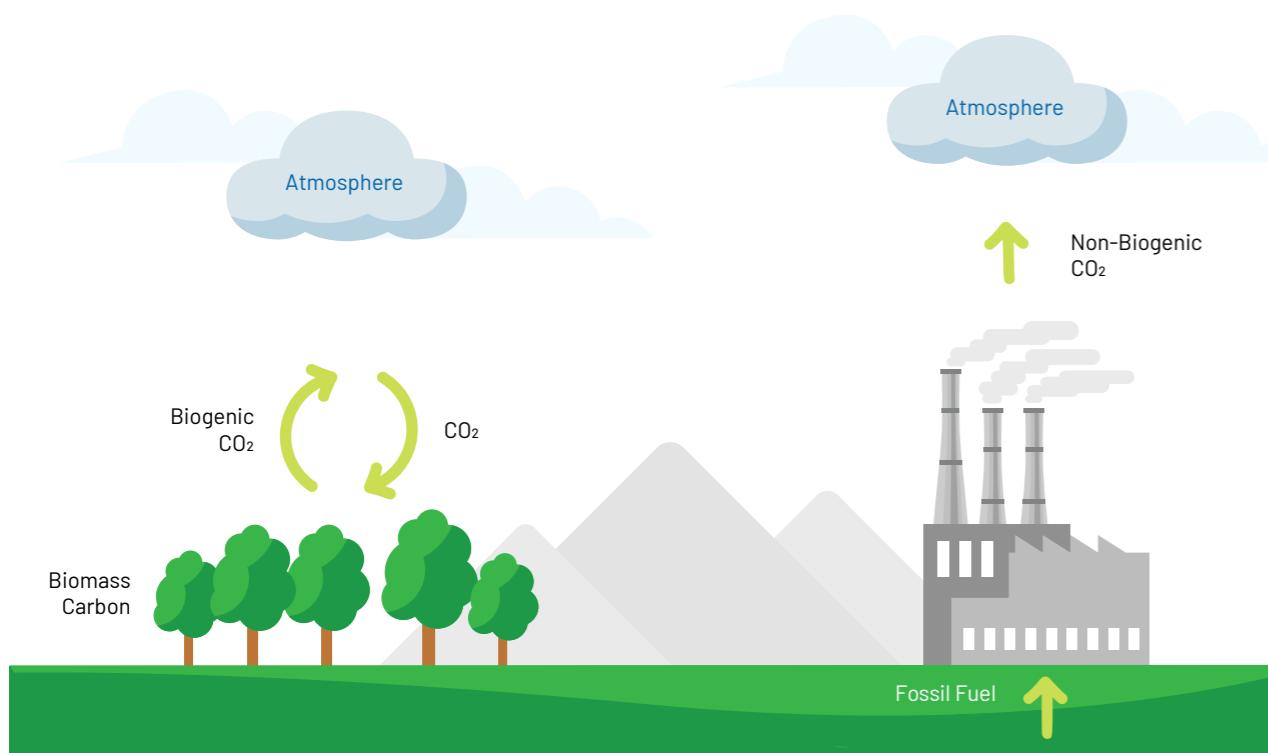
www.jacksonenvironment.com.au

We welcome your questions and comments.



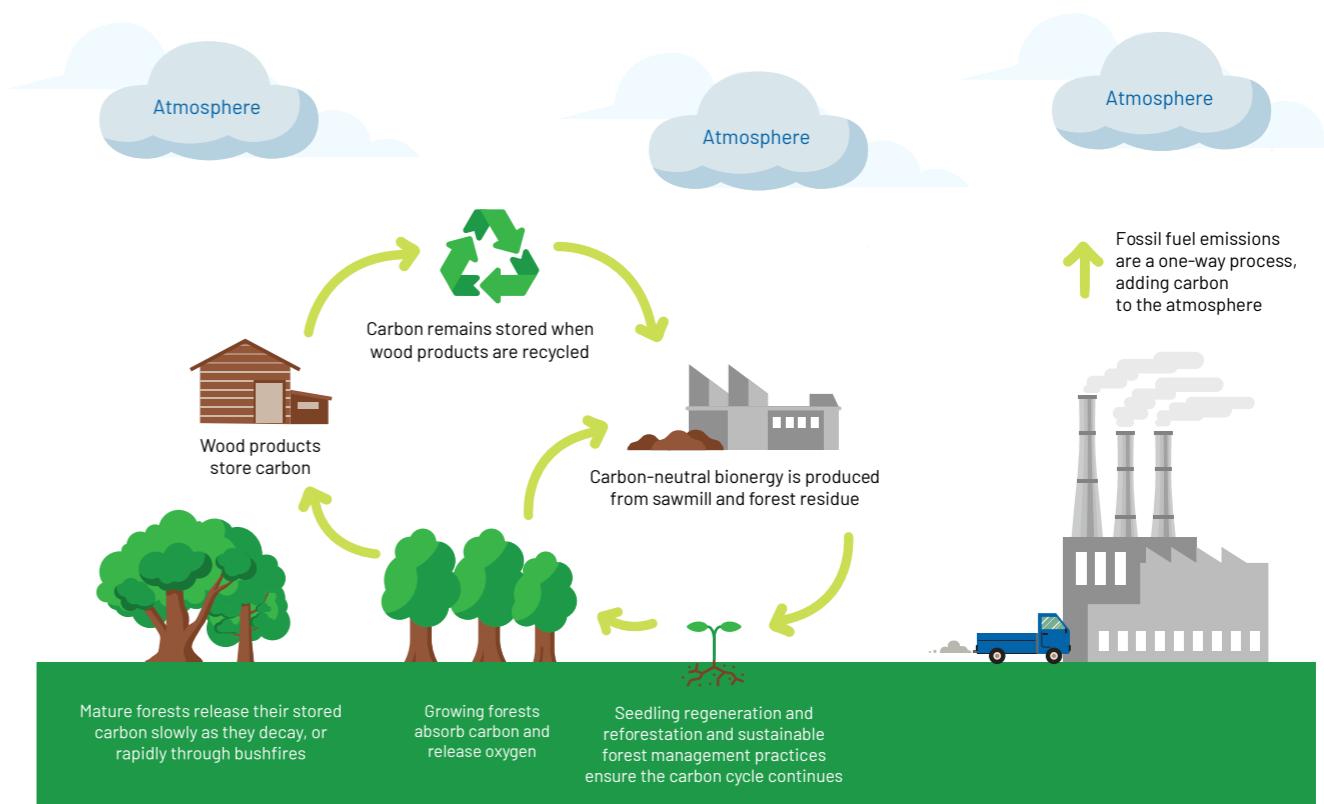


Figure 1 Fossil versus waste wood residue carbon cycles.



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 Forestry and forest industry-based carbon cycle.





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