

North Coast Environment Council Inc

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Additional Submission re Restart of the Redbank Power Station (SSD-56284960).

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Following on from the Public Meeting in Singleton, we make the following points.

Landclearing figures

On July 29, Caitlin Fitzsimmons wrote an article in the Sydney Morning Herald titled ['Perverse outcomes': NSW a deforestation hotspot on par with Indonesia](#). The article was a discussion of the NSW Statewide Landcover and Tree Study (SLATS) released the previous week, that found a 40% increase in landclearing in 2024 over the 2023 figures. She quoted the Department of Climate Change, Energy, the Environment and Water as saying that two-thirds of the 9603 hectares cleared under the Local Land Services Act was for management of "invasive native species".

From this we can deduce that about 6200 ha of INS is cleared legally a year. The proponent claims they will get an average yield of 25 tonnes/ha. It's not clear if this is dry or wet weight. But 25 tonnes/ha should be considered a maximum. The simple maths is that to get 500,000 tonnes of biomass this would require the clearing of at least 20,000 hectares. A three-fold increase on the current INS clearing.

The proponent points out there are certificates to clear massive areas of INS. The reason this much clearing doesn't happen is because it is only the first step in being able to use this land for pasture or cropping. The follow-up treatments need to be carried out straight away before those pesky colonising species take over again, they are also expensive and with no guarantee that the soils will be suitable and the rains plentiful enough to guarantee success.

Providing an incentive for land clearing is dangerous to biodiversity and climate and a perverse outcome from a venture that claims to be 'green'. There has been no environmental impact assessment of the removal of this vegetation. Such an assessment should be made on the specific parcels of land to be cleared. As Professor David Watson pointed out, the country in question has numerous and unique environmental values and provides habitat for a significant number of threatened species. INS are not weeds, they are native plants, growing in suitable conditions and providing habitat for other species. Many are trees and nitrogen fixers.

Burning of Native Forest Wood

As stated in our presentation, despite paying lip service to not using native forest residues, this is contradicted in the document itself.

Table A1.1.1. Classification of proposed eligible waste fuels for use as a biomass fuel in the Redbank Power Station in accordance with the NSW EPA's Eligible

Waste Fuels Guidelines (2022) on page 233 of Appendix M- Fuel Supply Characterisation study.

States the plant will burn 'Eligible Waste Fuel Biomass with no higher order uses in accordance with the definitions provided in Table A.1.1.1.' and that "Key fuels that are part of the Proposal are underlined."

The following is underlined and copied directly from the proponent's document:

Uncontaminated, organic fibrous wood residues and
natural wood wastes that result from forestry and
sawmilling operations such as, heads, tree thinnings,
sawmill sawdust, shavings, chips, bark and other offcuts.

Most large biomass burners around the world burn wood from forests, because that is the only material available at scale and can be obtained without having to pay the costs of growing the trees.

[I do urge you to watch the 2017 documentary [Burned: Are Trees the New Coal](#). There are various version lengths available but it is a well researched exposé of the myth of the biomass industry that claims it burns waste. The CEO of Drax for examples talks about burning twigs, when the power station consumes 8 million tonnes of trees a year.]

The logging of native forests has been a contentious topic for decades. More forest dependent species are threatened than ever before, with logging acknowledged by the Independent Scientific Committee, as a key driver. Providing a market for trees that have no value as sawlogs drives wholesale cutting of forests where every tree can be sold. This is what led to the broadscale clearfelling of forests around the Eden chipmill which has all but wiped out the Koala and most hollow-dependent species from those forests.

If, as the proponent states, they are not going to use biomass from native forests, **this should be explicitly ruled out in the conditions.**

Besides, providing habitat and beginning the process of remediation is clearly a higher order use than being burnt for electricity.

Volumes likely to be serious underestimate of what is needed

As I stated in my presentation, the 2 north coast sugar mill co-generators (Condong and Broadwater) also proposed to burn weeds. They have largely needed to burn wood to keep the generators working. They have depended on wood from forestry operations, including clearing 20 year old Managed Investment Scheme eucalyptus plantations. Now that this supply has been largely exhausted they are looking elsewhere for fuel.

In 2021, the Condong power station (operated by Cape Byron Management) prepared a [Scoping Report for a Recovered Timber Project](#). They sought development consent to be allowed to add recovered timber from the Brisbane area to be used as fuel.

The description of their operation is interesting. The Overview says “*The Plant has the capacity to generate up to 30 megawatts (MW) of electricity, along with process steam, through the combustion of:*

(a) During the sugar cane crush season typically spanning June to December - up to 200,000 tonnes of bagasse and up to 120,000 tonnes of cane leaves from the adjacent Condong Sugar Mill annually and up to 70,000 tonnes of various wood-based materials annually; and

(b) During the non-crush season typically spanning January to mid-June – up to 130,000 tonnes of various wood -based fuel materials annually, including from weed eradication programs, timber mill and forestry operations and approved land clearing (for example, residential subdivision developments, road upgrade works).”

So this power station burns 130,000 tonnes of wood biomass every 6 months, (the other 6 months it burns sugar cane waste and wood) or 260,000 tonnes per annum and produces 30MW of electricity. The proponent plans to burn 850,000 tonnes and produce 150MW of electricity. The Condong and Broadwater biomass co-generators have been operating for almost 20 years. The figures on the volumes they use/need are based on that experience.

Clearly the figures on the amount of fuel needed by Redbank to produce 150MW of electricity are underestimated (or a complete fiction).

I asked ChatGPT: ‘How much dry weight biomass would be needed for a 150MW power station’
The response is very helpful.

To determine how much **biomass** is needed to power a **150 MW** power station, we need to know:

1. The **efficiency** of the power plant (how well it converts biomass energy into electricity).
 2. The **energy content** (calorific value) of the biomass fuel used.
 3. Whether you want the biomass needed **per hour, per day, or per year**.
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Step 1: Assumptions

Let's use typical assumptions:

- **Efficiency of biomass power plant:** ~25–30% (typical range for direct combustion or steam-cycle plants).
 - **Calorific value of biomass:**
 - Wood chips: ~10–15 MJ/kg
 - Let's assume a moderate value: **12 MJ/kg**
(You can adjust this based on the actual biomass used.)
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Step 2: Calculate Energy Output Needed

- A 150 MW power station produces:

$$150 \text{ MW} = 150,000 \text{ kW} \quad 150 \text{ MW} = 150,000 \text{ kW}$$

- Energy needed per **hour**:

$$150,000 \text{ kWh/hour} = 540,000,000 \text{ kJ/hour} \quad 150,000 \text{ kWh/hour} = 540,000,000 \text{ kJ/hour}$$

Step 3: Account for Efficiency

Let's assume **30% efficiency**, meaning only 30% of the biomass energy is converted into electricity. So, the **input energy** from biomass is:

$$540,000,000 \text{ kJ/hour} \times 0.30 = 1.8 \times 10^9 \text{ kJ/hour} \quad \frac{540,000,000 \text{ kJ/hour}}{0.30} = 1.8 \times 10^9 \text{ kJ/hour}$$

Step 4: Calculate Biomass Required

With a calorific value of **12 MJ/kg = 12,000 kJ/kg**:

$$\text{Biomass required per hour} = \frac{1.8 \times 10^9 \text{ kJ/hour}}{12,000 \text{ kJ/kg}} = 150,000 \text{ kg/hour} = 150 \text{ tonnes/hour}$$

Final Answer:

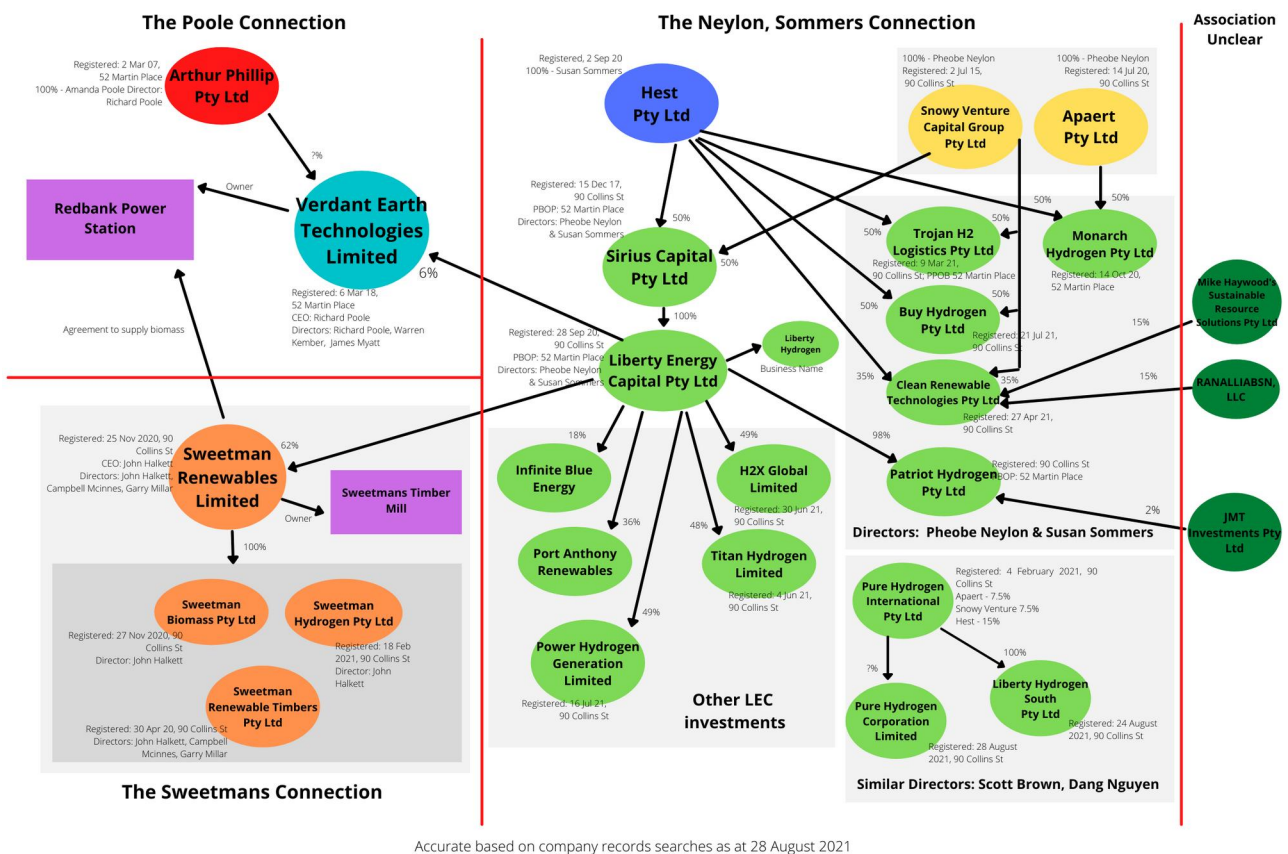
Timeframe	Biomass Needed
Per hour	~150 tonnes
Per day	3,600 tonnes (150 × 24)
Per year	~1.31 million tonnes

Interestingly the output from ChatGPT is the same as if we multiplied the Condong fuel/annum for 30MW ie 260,000 tonnes x 5. That is 150 MW =1,300,000 tonnes.

So there is no way, at the current proposed fuel volumes, that the plant can provide 150MW. Thus the proponents either intend to increase the volumes they actually use, or they plan to not provide that amount of energy at all.

Given the relationship between the proponents and a web of hydrogen proposals, a more likely scenario is that they intend to implement their stated plan and install hydrogen electrolyzers.

This chart of company relationships was drawn up in 2021. It is much more complex now.



There are many more links with a whole raft of new companies. This [article from 2022](#) states: *Verdant Technologies' goal is to become the largest hydrogen producer and exporter on Australia's east coast.*

The company's proposed Monarch green hydrogen plant, Australia's first scalable hydrogen production plant, will initially deliver 6.5 tonnes per day before being scaled up to 60 tonnes per day by 2024. Verdant plans to establish further similar sized hydrogen production plants within Australia...

Verdant Technologies plans to be at the forefront of this multi-trillion-dollar opportunity and is conducting a feasibility study to locate the Monarch green hydrogen plant at its \$550m biomass 151MW power station in NSW.

We submit that the real intent of this project is not to supply baseload power, but to produce so-called 'green hydrogen'. This could be an explanation as to why there is insufficient fuel figured into the fuel plan to produce 150MW.

Purpose grown crops

Again, this is a big claim but unlikely to bear fruit in reality. The nature of the crop will make a significant difference to the tonnages needed. The trial crops being grown by DPI according to the presentation of Fabiano Jimenez at the IPC meeting, are being grown all over the state.

The suggestion is that either Bana grass (an environmental weed) or eucalypts could be suitable purpose grown crops, but there is no evidence that these would be feasible economically. It is a big risk for a farmer to plant a crop for a project such as this, particularly if there is no income generated for 4 or 5 years.

In a drying climate, in an El Niño year, such crops would require significant irrigation. We heard how in the early stages they had needed irrigation events. They would also be fire threats, as they would be dense highly flammable vegetation.

Greenhouse Gases

The claim that this is a near carbon neutral process is a fantasy, like the Emperor's New Clothes. Vegetation is cleared, mostly with the intention that it not regrow. This vegetation is then burnt. Clearly this produces significant greenhouse gases and particulates. No doubt others will address this fiction as experts.

Conditions

The conditions fail to address the environmental impacts of the fuel harvesting, storage and transport offsite.

The proposal alludes to depots where harvested and chipped biomass will be stored. This means most of the biomass will be subject to double handling. There has been no assessment of the pollution and emissions generated from the massive amounts of diesel used in this process. And there are no conditions related to this process.

There is no assessment of the 40,500 B Double truck movements in terms of emissions or road damage over the hundreds of kilometres of each trip. There are no conditions associated with this process.

As stated at the beginning of the submission, it is important if this disastrous proposal is approved that there be a specific condition excluding biomass from native forest logging.