

12 April 2024

Director
Resource Assessments
Development Assessment and Infrastructure
Department of Planning, Housing and Infrastructure
Locked Bag 5022
Parramatta
NSW 2124
via Planning Portal.nsw.gov.au/major-projects

**Restart of Redbank Power Station
SSD-56284960, Verdant Earth Technologies Limited**

I am opposed to the proposed use of biomass (excluding residues from native forest logging) of 850,000 tonnes per annum to be burnt at 25% moisture content.

THERE APPEAR TO BE SIGNIFICANT PROBLEMS WITH THE FIGURES.

To obtain 850,000 tonnes at 25% moisture content requires 1,133,333 tonnes of woody biomass. Trees and woody shrubs contain approximately 50% water by weight.

100% of the weight occurs when the moisture content = 50%.

50% of the weight occurs when the moisture content = zero.

Therefore, 75% of the weight occurs when the moisture content = 25%.

Therefore, 100% of the weight = $850,000/0.75$

= $850,000 \times 1.33\dots$ repeating

= 1,133,333 tonnes.

Completely dry, with no moisture, would be 566,667 tonnes to one decimal place = $1,133,333/2$. The 700,000 tonnes would still contain some moisture.

50% moisture content means half the weight is water. 25% moisture content means 33% of the weight is water, $0.25/(1-0.25)$.

EXAMPLE: 100 kg at 50% moisture = 50 kg wood, 50 kg water.

If the water content is reduced to 25% i.e. to 25 kg, total weight is 75 kg, of which 25 kg water, 50 kg wood. Proportion water = $25/75 = 33\%$.

The woody biomass will be burnt as fuel with a 25% moisture content. The amount of woody biomass with 25% moisture content is halfway between 566,667 tonnes with zero moisture and 1,133,333 tonnes with 50% moisture.

= $(1,133,333 - 566,667)/2 + 566,667$

= 850,000 tonnes

Of the 850,000 tonnes 283,333 tonnes is water by weight.

= $850,000 \times 0.33\dots$ repeating

To obtain a completely dry equivalent of 700,000 tonnes would require 1,400,000 tonnes of woody biomass - half of which is water by weight.

The first stage of operation uses biomass primarily from land clearing and invasive native species and a limited amount from purpose grown biomass.

Assuming usable above ground woody biomass in eucalypt woodlands of 51.4 tonnes per hectare, **infers 22,049 ha cleared land per annum, 1,133,333/51.4** on the basis of 850,000 tonnes at 25% moisture content.

However, assuming 1,400,000 tonnes is what was meant, would require 27,237 ha of cleared land per annum, 1,400,000/51.4.

(A 1979 CSIRO study of above ground biomass for trees and shrubs in Eucalyptus populnea woodland found 3.4 tonnes of leaf litter and 51.4 tonnes of wood per hectare with a standard error < 15%. Australian journal of Botany 27(2) 135-143.)

It would be good if the Applicant could clarify the figures.

Yours sincerely,

A handwritten signature in black ink that reads "Terrence Digwood". The signature is written in a cursive style and is underlined with a single horizontal stroke.

Terrence Digwood
0402 803 996
emerald1@iprimus.com.au
12 Acacia Court

Linton

Vic, 3360

Previously a long time NSW resident at 10 Robb Road, Lillian Rock NSW 2480. Had to move due to catastrophic heart failure, to be near my son before my death.

I have not made any political donations or gifts in the last 2 years.

I acknowledge and accept the Department's disclaimer and declaration.