



Submission: Inquiry into the sustainability of energy supply and resources in NSW

Thank you for the opportunity to provide information that will help promote genuine sustainability of energy supply and resources in NSW.

Introduction

AFCA's submission addresses Terms of Reference Numbers 2, 4 and 5 and focuses on the impact of Federal and NSW state legislation that deems energy from burning wood, and in particular wood biomass from native forests, a carbon neutral 'renewable'. We provide an overview of the impact and implications of legislation currently enabling subsidisation of native forest bioenergy and fuels.

Assertions made in this submission are based on pertinent peer reviewed science compiled in Appendix 1, demonstrating that:

- Emissions from forest biomass combustion exceed those from coal per unit of energy produced; it is not carbon neutral.
- The opportunity cost of logging forests is the immediate release to atmosphere of otherwise safely stored carbon and the destruction of those forests full capacity to sequester carbon from the atmosphere for decades and up to centuries, which sequestration is referred to in climate science as CDR, carbon dioxide removal. As forest bioenergy is increasingly driving native forest logging this form of energy is dangerous in a climate crisis.
- Forest biomass for energy is the second greatest driver of forest degradation globally.
- Nature Based Solutions are the preferred climate change mitigation pathway as opposed to B.E.C.C.S (bioenergy with carbon capture and storage, i.e. replacing fossil fuels with forest biomass feedstock). Nature Based Solutions involves protecting and enhancing the biological integrity of natural systems so that they can withstand climate change impact and continue capturing and storing carbon (CDR). The IPCC now warns that CDR must accompany emission reduction, thereby rendering attempts to lower emissions through sustainable energy, alone, futile without forest protection and restoration.
- Forest biomass energy/fuel emission accounting is flawed

Please refer to Appendix 1 (and relevant Endnotes) for evidence of our claims throughout this submission.

Problems with Forest Bioenergy Legislation

Both Federal and state legislation allows for and promotes combustion of native forest biomass (hereafter referred to as NF biomass), and other wood biomass, as a renewable form of energy or fuel thereby permitting it to compete for subsidy with genuinely renewable forms of energy and thereby potentially undermine the maximum uptake of genuine renewables. Ironically wood combustion as a fossil fuel substitute presents a severe threat to human and environmental health (and survival).

Combustion of wood biomass is more emissive of CO² per unit of power generated, and a source of multiple other noxious gases. Its use exacerbates the present climate crisis. (See Appendix 1)

The false regard of NF biomass as a carbon neutral renewable also provides economic incentive for prolongation of unsustainable (and otherwise uneconomic) native forest logging, an activity the IPCC now warns against given that natural systems must immediately be protected and restored to enhance their resilience to climate change impact (already impacting forests), in order that forests can continue atmospheric carbon dioxide removal (CDR).

Even before IPCC acknowledgement of the critical C storage and sequestration role of natural forests for limiting warming to 1.5⁰, scientists were warning against ongoing native forest logging owing to impacts on water catchments, biodiversity – in short the ecosystem functions of native forests on which the health of the environment in general, depends. This should have been reason alone to stop doing it.

Although forest ‘bio’energy is largely discredited by the IPCC as a climate mitigation pathway, its use is entrenched in claiming renewable energy transition because flawed carbon emission accounting methodology has not been rectified. This emission accounting flaw is a massive obstacle to international, national and state/regional governments which can continue to claim credit for conversion to renewables by forest bioenergy/fuel uptake when in fact its use is raising global emissions. (Appendix 1 covers this in detail)

It has been economic, not environmental considerations that have driven the adoption of this flawed methodology in Australia also. The continuation of the false claim that forest biomass is carbon neutral provides economic gain for particular sectors. We provide an overview of the evolution of Federal and state legislation in Australia that ‘enables’ NF biomass to be burnt, processed and/or exported under the guise of renewable energy/fuel feedstock.

Overview of legislative change promoting forest bioenergy

In response to intense lobbying by the logging industry, the Abbott government in its 2015 review of the RET, reversed a former ban on the use of NF biomass.

This 2015 Federal legislation ‘reversal’ allowed NF biomass combustion to be eligible for subsidy in the form of large scale renewable energy certificates, placing combustion of native forests in competition with unequivocally renewable forms of energy such as wind, solar, tidal, geothermal.

In 2012 the logging industry, championed by the National Party, had attempted to prevent the Gillard government banning subsidisation of NF biomass in 2012, which it was able to do with the advice and approval of Australian scientists.ⁱ

Unsuccessful at Federal level in 2012, the National Party (on behalf of the logging industry) lobbied the NSW O'Farrell government to introduce discussion papers and propose changes to the PEOB that would embrace NF biomass as a 'renewable' energy (XX). This draft legislation eventually materialised under the Berjiklian government allowing biomass from any native forest in NSW to be burnt or turned into fuel and called 'renewable' as long as it did not involve the use of the highest quality saw logs.ⁱⁱ Though the rhetoric of the legislation described it as facilitating the combustion of NF biomass 'residue' for combustion and subsidisation per unit of power created, the fine print of the legislation reveals that the NF biomass in question would include any product from an operation undertaken under a Regional Forest Agreement (with the exception of the highest quality saw log), i.e. whole logs. Please see Appendix 1, an analysis of sections of a NSW DPI 'Residues' Study the thesis of which is that there is a million tonnes of native forest biomass available for combustion for energy, this million tonnes comprising immature native forest trees, which, being immature, are regarded as 'pulp' and therefore not sawlogs but 'pulp' trees. This endnote also analyses the definitions of NSW DPI of 'residue'.ⁱⁱⁱ

This history is relevant because this it is the initial NSW draft state legislation that paved the way for the current Federal legislation which defines NF biomass 'residue' to be any NF biomass that derives from a Regional Forest Agreement operation (barring only the highest quality sawlogs). Regional Forest Agreements are the Federal/state legislation that legitimises native forest logging. This exposes native forests to exploitation to supply a domestic and export 'bio'energy/fuel trade.

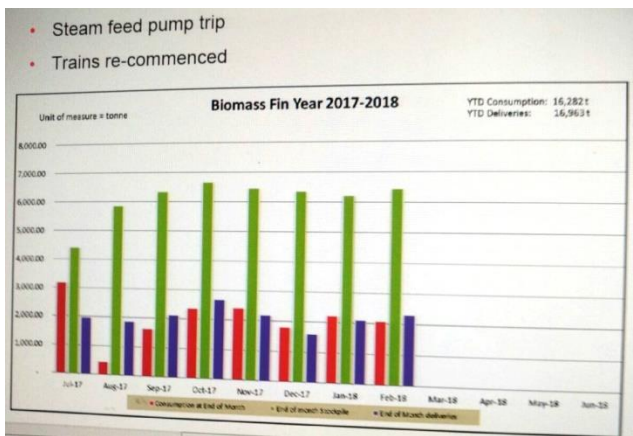
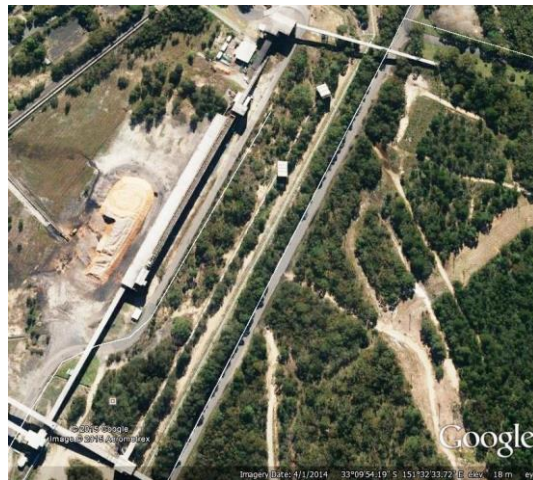
In NSW the legislation is quite specific in regard to entire native forest trees to be regarded as 'residue'. This is clear from a 2017 NSW DPI report proposing that there is 1 million tonnes of forest 'residue' available for combustion, and specifying that the preferred 'residue' for forest 'bio'energy facilities are 'pulp logs' (whole trees) and not tree crowns and branches left on forest floors after logging (removal of which would pose serious problems for soil fertility and ongoing biological processes in forests but not a consideration of proponents of forest 'bio'energy). Please see the extract from the NSW DPI report which sets out logging industry preferences to utilise whole logs due to the uses of logging forest floor debris being prohibitive.

Impact of legislation deeming forest bioenergy eligible for subsidy as a 'renewable'

Native forests in NSW are being clear felled to supply multinational BORAL, exporter to China of woodchip and now of whole logs, and ANWE, exporter of woodchip to Japan for Nippon Paper. There is a strong push to market their export for combustion in overseas furnaces and for processing into wood pellets to supply the international forest bioenergy trade.

They are also being chipped and trucked for combustion in NSW at four locations that we are aware of and in interstate power stations (both coal fired and for co-generation with other substances).

These images illustrate stockpiled NF biomass (in the form of woodchip) and records of combustion from Vales Point Power Station, still subsidised to substitute NF biomass for coal (per unit energy forest biomass energy produced), thereby prolonging the life of this coal power station.



Vales Point Power Station, in conjunction with regional industry partners has been in receipt of taxpayer funds for native forest feedstock experimentation for over a decade. A scientist with Pac Pyro admitted that the company had been living off R & D ‘renewable’ energy grants for decades, and was at that time experimenting with running native forest biomass into forms palatable for co-combustion with coal. Shortly after the ‘enabling’ legislation for subsidy of NF biomass in amendments to the RET in 2015, Vales Point consumed about 15,000 tonnes of NF biomass a year, since when consumption has increased. The source is primarily threatened species habitat in native forests of the NSW Mid North Coast. Hence for over 5 years Vales Point Coal Fired Power Station has been propped up with subsidies from large scale renewable energy certificates under the pretext of providing a low emission or carbon neutral form of energy.^{iv} Thus, a highly emitting form of energy has been subsidised at the expense of genuinely renewable wind or solar. Likewise the significant R&D subsidies to the Vales Point Power Station owner’s partners, experimenting with drying out NF Biomass prior to combustion should have instead have been issued to genuinely renewable developing technologies. Effectively the ongoing Vales Point ‘experiment’ has been the subsidising prolongation of the coal industry at the expense of genuine renewable energy forms.

Not well known is that the uptake of forest bioenergy globally (as a renewable) accompanies a rise in global GHG emissions. Australia's contribution to this rise might not be significant yet, but what is significant is that since combustion of wood became regarded as a *renewable* replacement for coal, now more than 40% of so-called renewables in OECD countries are from the combustion of forest biomass. The decade which has seen wood as a so-called renewable subsidised as a carbon neutral renewable coincided with a doubling in global emissions^v due to forest degradation (i.e. from industrial logging, not clearing for agriculture). This issue is so dire that since this enquiry was announced another new scientific paper has been published on the disjunct between science and policy in relation to forest bioenergy: ["Serious mismatches continue between science and policy in forest bioenergy" Global Change Biology.](#)^{vi}

Scientific warnings against the use of forest biomass as a renewable energy or fuel are published on a weekly, almost daily basis, internationally.

The science clearly outlines why forest biomass used for energy is not carbon neutral and should not be classified as renewable. It demonstrates that use of forest biomass is having the opposite effect than intended, increasing rather than decreasing atmospheric carbon. It points out that the Paris Agreement requires efforts to constrain global warming to 1.5⁰ C but that this will not be possible without immediate and full protection and restoration of native forests. It calls for revision of the UNFCCC accounting system including the classification of biomass as zero in the energy sector. It explains that the problem is not confined to Europe but spreading, especially to Japan and South Korea, and addresses the impacts on forests elsewhere, such as the southern states of the USA and the large boreal forests on northern Europe, being clear felled to supply forest biomass.

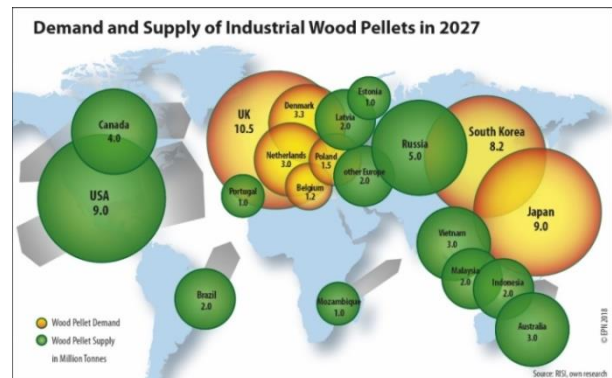
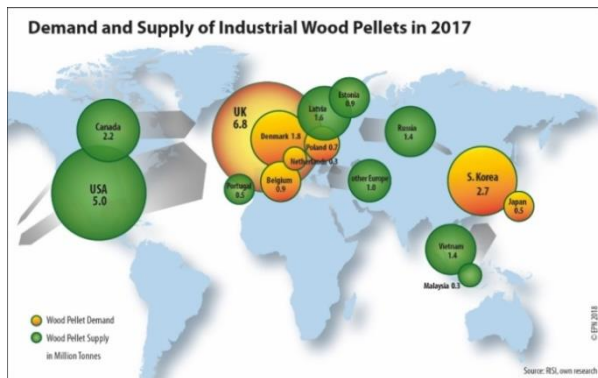
Terms of Reference Point 2: Emerging trends in energy supply and exports, including investment and other financial arrangements

Without an immediate change in legislation Australia's extant native forests will remain vulnerable to clear fell and export to supply the burgeoning international wood pellet trade. Our native forest carbon stocks will be sent to atmosphere and the sequestration of our extant native forest estate will be severely diminished. This is the current situation that urgently needs rectification.

With the failure of the international community to close carbon emission accounting loopholes at climate talks in Katowice Poland in late 2018, enabling forest bioenergy protocols remain in place. This provides minimal incentive (beyond survival) for countries currently or planning to replace coal with wood to refrain from investment in this highly emissive form of energy. After all, it allows them to claim that they are meeting emission targets by adoption of 'renewable' energy, whether the emission reduction is real or proxy.

Asia is following the European dictum that forest bioenergy can replace coal and has already commenced this process with over 3,000 projects approved for subsidy in Japan. China is championing the wood pellet industry and will supply Asia with pellets processed from imported wood, (much of which will be from Australia), (despite the fact that as of 2020 not one native tree in China will be permitted to be cut down).

Projected expansion of the wood pellet trade 2017-2027 threatens survival of Australian native forests under current policy. Unless the consensus of world scientists that B.E.C.C.S (Bioenergy With Carbon Capture And Storage) is not a credible pathway to climate change mitigation, 3 million tonnes of forest biomass are likely to be exported per annum from Australia by 2027.



This will make it impossible to prevent loss to atmosphere of the current carbon stocks held in our living forests which will be released by industrial logging. The following extract from a timber industry press release about a recent trade delegation to China illustrates the determination of the industry and Coalition Ministers to sacrifice Australian native forests to the dangerously flawed ‘renewable’ energy trade, thereby contributing to, not alleviating climate emergency.

Australia-Japan forest products trade strengthened, 20 December 2018

Led by AFPA, Responsible Wood, and Federal Member for Barker and Co-Convenor of the Australian Parliamentary Friends of Forestry and Forest Products group, Mr Tony Pasin MP, and made up of senior representatives of various Australian forestry companies the delegation briefed Japanese trade partners on exciting innovations and emerging opportunities in Australia’s sustainable forest industries.

It met with Japanese Government officials, Japanese industry leaders including bioenergy and paper companies, and Tokyo-based Australian officials.....

“Japan’s appetite for our Aussie woodchips and manufactured bio-pellets has driven the country’s move into bio-energy. This means increased demand for our product and the South East sits in prime position to benefit from this burgeoning market. The Japan-Australia Economic Partnership Agreement (JAEPA) is assisting our export growth and is already having huge positive effect our local industry.

Copyright © 2014 Ryan Media Pty Ltd (Division of Provincial Press Group). All Rights Reserved.

Terms of Reference Point 4: Effects on regional communities, water security, the environment and public health

There is a plethora of information on the direct and indirect impacts of forest biomass facilities on human health compiled in Appendix 2. A fairly recent study, “Burning biomass: the impact on European health” summarises some of these.^{vii} Suffice to say this is not a technology that should be unleashed on the public or the environment.

In relation to water security we draw to the attention of the inquiry the overlooked issue of the relationship between forests and rainfall. The current NSW drought is not only a result of general global warming. There are direct relationships between forest cover and drought. Forests Corporation's intensive logging of the native forests of NSW has destroyed forest canopies. This is dangerous as people living in regional NSW understand. Here is a brief summary of the inter-relationship between intact native forests and regional rainfall. A forest bioenergy industry threatens our regional rainfall patterns. Given the stress we are already under from global warming one can only ask: *What sort of governance is it that would permit this threat to continue?*

Forests: Essential for Regional Rainfall Precipitation and Cooling

Loss or degradation of native forests reduces rainfall, increases temperatures and intensifies droughts.

Overwhelming evidence from around the world shows land-clearing has directly caused a significant reduction in regional rainfalls and an increase in land temperatures.

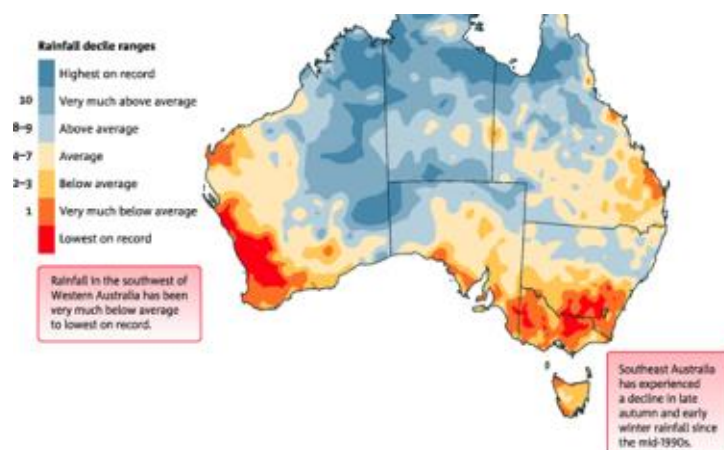
Native forests generate rainfall by:

- Recycling water from the soil back into the atmosphere through transpiration
- Creating updrafts that facilitate condensation as the warm air rises and cools; creates pressure gradients that draw moist air in from afar
- Releasing atmospheric particles which are the nuclei around which raindrops form.

Native forests lower temperatures by

- evaporative cooling whereby the surface heat is transferred to the atmosphere in water vapour
- resultant clouds also help shade and cool the surface.

Since European settlement, land-clearing and logging in eastern Australia has caused significant summer rainfall decline surface warming of around 0.4-2⁰ C



Terms of Reference Point 5: Opportunities to support sustainable economic development in communities affected by changing energy and resource markets, including the role of government policies.

We would like to draw to your attention the potential for regional economic renewal in shifting primary production from unsustainable native forest logging to more sustainable resource production. Previously one such alternative, Industrial Hemp, was hampered by prohibition at both Federal and state level of both production and seed importation (not for biosecurity concerns). These legislative barriers have now been removed and Appendix 3 describes these developments and the status and potential of this industry from the perspective of primary production of a genuinely sustainable resource.

Please note also that we attach a spreadsheet developed by the CSIRO (Appendix 4) on crop areas now under cultivation in Australia, derived from data from each state's licencing body for the Australian figures.

World data is from the European Hemp Alliance. The US signed the farm bill last year legislating the production of Industrial Hemp and there are now vast areas under cultivation. Kentucky has 70,000 acres growing.

Summary:

Use of native forests for energy and fuels is fundamentally flawed given the situation we are in. For NSW to achieve a legislative and policy platform conducive to a sustainable energy future, existing legislation and policies that promote the opposite outcome must be removed.

ⁱ 2012 Scientist Letter

ⁱⁱ NSW Environment Protection Authority: Amendments to the burning of native forest biomaterials: questions and answers, <http://www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/burning-of-biomaterial/amendments-to-the-burning-of-native-forest-biomaterials-q-and-a> (2017).

ⁱⁱⁱ **Carbon neutral residue rhetoric promulgated by state forest agencies:**

Within the same document Department of Primary Industry researchers advise their studies focused on quantities of forest biomass available from **whole trees** (due to the inefficiencies of transporting actual logging residue) yet counter criticism of using forestry residues for energy generation by arguing that:

“The greenhouse gas balance carried out here clearly shows that, from a climate perspective, using biomass that would have otherwise been left in the forest to burn and/or decay for bioenergy generation results in positive outcomes, especially if biomass is used to produce electricity displacing the use of coal. This is true even when the carbon dioxide emissions from burning the biomass to generate energy are included in the calculations. In practice, the CO₂ released will be reabsorbed by the growing trees in a sustainable harvest system, eventually negating the impact of such emissions, p.3.

Later, (on p.6), **forest residues again become whole logs**: 1.2 Forest harvest residues: 1.2.1 Native forests – Public:

“For native forests, residue estimations were conservative, as we only considered logs that met the specifications for pulpwood as available for extraction (typically 10 cm small end diameter overbark, and a minimum of 2.5 m in length – no species restrictions – and the crown was typically left in the forest). This was partly due to the fact that the local industry already has experience harvesting and transporting pulpwood from the forest.”
North Coast Residues: A project undertaken as part of the 2023 North Coast Forestry Project

Published by the NSW Department of Primary Industries, November 2017. Authors: Fabiano Ximenes, Rebecca Coburn, Michael McLean, John Samuel, Nick Cameron, Brad Law, Caragh Threllfall, Kate Wright and Shane Macintosh

^{iv} Vales Point Power Station receiving native forest woodchip via Mid North Coast NSW as Delta Power 2013-4 40.9 KT (forest biomass delivered), 31.5 KT consumed, 2015-6 14.7 KT (delivered), 16.5 KT consumed (presumably carry over stock)

^v From an average of 0.4 Gt CO₂ yr⁻¹ in the period 1991–2000 to an average of 1.0 Gt CO₂ yr⁻¹ for 2011–2015^{ibid}, <http://www.fao.org/docrep/009/j9345e/j9345e07.htm>. Note, this is unrelated to deforestation for agriculture.

^{vi} <https://onlinelibrary.wiley.com/doi/10.1111/gcbb.12643>

^{vii} Fern. Burning biomass: the impact on European health, <https://www.fern.org/fileadmin/uploads/fern/Documents/briefingnote%20burning%20biomass.pdf> (2018)