BIOMASSACRE

HOW LOGGING AUSTRALIA’S NATIVE FORESTS FOR BIOENERGY HARM THE CLIMATE, WILDLIFE, AND PEOPLE

MARKETS FOR CHANGE

www.marketsforchange.org
As the world responds to climate change and seeks clean energy sources we warn electricity and fuel retailers, customers and households that proposals to use Australian native forest biomass for bioenergy are not a good idea. They seriously threaten our surviving forest heritage and actually exacerbate climate change.

Australia’s forest industry is pushing for massive quantities of native forest to be used for energy production. Such proposals comprise:

**Processing native forests to produce biofuel.** Industrial distillation of native forest biomass into liquid fuel substitutes for oil-based fuels such as petrol, diesel, and heavy fuel oil. Biogas may also be proposed.

**Burning native forests to generate electricity.** Industrial facilities called biomass burners or native forest-burning power stations to be established for stationary power generation utilising huge amounts of native forest material as feedstock. Co-firing of native forest biomass with coal in coal-fired power station is also canvassed.

**Pellet manufacture at large scale from native forests** for domestic use or for export to fuel electricity generation in biomass burning forest furnaces, or to fuel other industrial processes.

These proposals are predicated on industrial scale logging of Australia’s native forests, a controversial activity which is extraordinarily unpopular with the Australian community.

Each of these types of proposals for native forest biomass are environmentally unacceptable, although their proponents make the ridiculous claim that combustion of massive quantities of natural forests is climate friendly and ‘sustainable’. This is untrue. It is greenwash.

The fact is that all of these native forest biomass schemes are bad for the climate, bad for forests and their biodiversity, and bad for people.

Australian consumers and power companies have previously rejected the concept of electricity generation based on feedstock from native forests. It became known as ‘dead koala’ power.

Such schemes are not recognised as an eligible renewable energy by the Australian government.

The establishment of large power stations or biofuels plants based on native forest biomass would come at the cost of genuine clean, renewable energy such as wind, solar and geothermal.

---

Figure 1 (right): Infographic shows the various elements involved in producing electricity and biofuels from our forests.
NATIVE FOREST BIOMASS FOR BIOENERGY

- Electricity Generation
- Pellet Manufacture
- Bio-fuel Production
- Pellets for Export
- Energy Retailers
- Electricity
- Fuel Retailers
- Biofuels
2. AUSTRALIA’S NATIVE FORESTS AT A CROSSROADS

Native forest biomass is being promoted as merely a ‘waste’ product and its use for bioenergy projects as ‘cleaning up’ residues. This is identical to the rationale for export woodchipping when introduced in the late 1960s and early 1970s. The claim of relying solely on waste implies small scale volumes primarily from sawmill residues, but in reality this is untrue.

The Roundtable on Sustainable Biofuels (RSB) certification standard does not allow material sourced directly from native forests to be defined as ‘waste’ or ‘residue’, instead restricting this to post-processing residues.

The woodchip export trade has in fact been produced from large-scale environmentally destructive logging regimes, including clearfelling of forests. It will be the same for biomass from native forests.

Markets for the export woodchip industry based in native forests have collapsed due to a combination of factors. These include overseas markets seeking to avoid environmental odium associated with Australian native forest logging, price, quality (plantation grown material preferable to native forest), transport distance, and the high Australian dollar.

Far from simply using a waste product, woodchipping has been an enabler and driver of native forest logging, with a massively damaging impact on natural forests.

It has precipitated high profile, emotional conservation campaigns across Australia over the past 30 years. Many native forests have been logged unsustainably under contracts that overcommit volumes. The issues have never been satisfactorily resolved.

Our iconic native forests are at a crossroads. It has become uneconomic to log them without a massive woodchip trade to underpin the industrial scale logging. It is widely recognised that without a market for the large volumes of low value wood generated, native forest logging is not financially viable. Using this biomass for bioenergy is proposed to fill the void.

We can abandon the continued, unsustainable logging of native forests, protect the remaining treasures, and move on into a modern forest industry that utilises the existing, substantial plantation resource instead of native forests and that aims for maximum value-adding.

Alternatively, controversial woodchipping could be replaced with equally unacceptable large-scale biomass extraction for bioenergy production, entrenching conflict and damage. The viability of large scale native forest biomass plants is dependent on government subsidies and incentives. This route also relies on deceptive greenwash and gullible customers.

Native forest biomass for bioenergy is the wrong solution to a significant industry, community, and environmental problem.
Move on into a modern forest industry that utilises the existing plantation resource instead of native forests and that aims for maximum value-adding.

Protect Australia’s remaining treasures.

Controversial woodchipping could be replaced with equally unacceptable large-scale biomass extraction for bioenergy production, entrenching conflict and damage.

Our iconic native forests are at a crossroads. It has become uneconomic to log them without a massive woodchip trade to underpin the industrial scale logging. Biomass for bioenergy is proposed to fill the void.

Native forest biomass for bioenergy is the wrong solution to a significant industry, community, and environmental problem.

Woodchipping has plundered native forests, coming from large-scale environmentally destructive logging, including clearfelling. It will be the same for biomass from native forests.
Australia has some of the most carbon dense forests in the world.

Industrial scale logging and combustion of these forests releases carbon to the atmosphere with an adverse impact on climate change. Large emissions are created immediately, yet many decades and even centuries are required to regrow and recapture carbon into a restored forest – well beyond the short time frames necessary to tackle climate change.

Other emissions are also triggered by logging native forest biomass as erosion, accelerated decomposition and ongoing soil carbon loss further deplete forest carbon, while nutrient and carbon loss also slow regeneration. Large amounts of energy are also needed to extract, transform, dry and transport biomass, thus adding to the overall climate footprint.

**Using native forests for electricity or biofuels is not carbon neutral. It creates a large carbon debt, whereas ceasing to log reduces large emissions immediately.**

In many circumstances, forest biomass combustion emits more greenhouse gases than fossil fuels per unit of energy produced. This does not make burning coal preferable, rather it means that other genuinely climate friendly renewable energy sources should be prioritised.

Academic literature recognises the inaccuracy of the simplistic assertion of carbon neutrality that is often claimed by advocates of taking native forest biomass for bioenergy. It is now considered by many scientists to be a serious carbon accounting error that creates a carbon emissions loophole when applied to national and international greenhouse gas accounting.

Conserving our native forests, and restoring forest ecosystems degraded by logging, is of great importance rather than continuing to log them, because these ecosystems play a fundamental role in the global carbon cycle – keeping carbon on the ground and out of the atmosphere. This is recognised internationally in the creation of the REDD+ mechanism under the United Nations Framework Convention on Climate Change, to apply to the natural forests of developing countries - REDD is the acronym for Reducing Emissions from Deforestation and Forest Degradation.

Currently, the planet’s highest known density of total biomass carbon is found in the temperate *Eucalyptus regnans* forest of the Central Highlands in Victoria, with a biomass carbon density of 2,844 tonnes per hectare recorded at one site.

---

**Figure 2: Infographic shows how carbon emissions are released throughout the entire process of extracting forest biomass, generating and using bioenergy**

---

Biomassacre
Retaining the current carbon stocks of the 14.5 million ha of natural eucalypt forest in south-eastern Australia would equal 25.5 billion tonnes of carbon dioxide. This is equivalent to avoiding emissions of 460 million tonnes of carbon dioxide every year for the next century. Such a quantity constitutes almost 80% of Australia’s net greenhouse gas emissions for 2008.

Protecting native forests has a greater climate benefit than planting new trees. Natural undisturbed forests in south-eastern Australia contain around 40-60% higher carbon stocks than those of monoculture plantations or of forests subject to industrial logging.

There are important differences between native forest biomass, and other forms of biomass such as crop waste and plantation material which may have a lower carbon signature, although they are all emissive. It is crucial to differentiate emissions from bioenergy based on the source of the biomass.

Internationally the issue of emissions and other adverse impacts arising from indirect land use change (ILUC) prompted by production of biofuels is also prominent. In this case displacement of food production by biofuel crops precipitates new land clearance, with climate, social, and biodiversity impacts.

“...clearing or cutting forests for energy, either to burn trees directly in power plants or to replace forests with bioenergy crops, has the net effect of releasing otherwise sequestered carbon into the atmosphere, just like the extraction and burning of fossil fuels. That creates a carbon debt, may reduce ongoing carbon uptake by the forest, and as a result may increase net greenhouse gas emissions for an extended time period and thereby undercut greenhouse gas reductions needed over the next several decades.”

Letter to Speaker Pelosi and Majority Leader Senator Read, US House of Representatives and US Senate, from 88 scientists, May 17 2010

It would be a calamity for efforts to reduce climate changing greenhouse gas emissions if bioenergy projects were based on biomass logged from Australia’s native forests.

Graph showing the interplay of emissions from logging and burning biomass versus savings from fossil fuel replacement, with wood used to replace coal in electricity generation. It takes around 260 years before there is a net carbon gain.

(Note: this graph was developed to show accumulated net emissions from intensified logging in Europe for bioenergy, but is analogous to the intensified logging in Australian native forests as the industry moves from old growth to regrowth to peeler logs such that rotation lengths are becoming shorter.)
4. DESTROYING NATIVE FORESTS AND THEIR WEB OF LIFE

Australia’s native forests have outstanding ecological and wilderness values, are extremely diverse, and feature high levels of biodiversity and endemism (species found nowhere else). Protecting our native forests will protect our biodiversity, terrestrial carbon stocks, clean air and clean water.

Establishing bioenergy projects for stationary electricity generation or for biofuel production from native forests would ensure continued degradation of Australia’s forest ecosystems.

It is clear that for the size of projects mooted, large annual volumes of native forest logged from broad areas on an ongoing basis would be required. An Australian calculation for a 30 MW native forest biomass-fired power plant estimated that 120,000 ha of forest would be required\(^1\). The 75MW Laidlaw biomass plant in Berlin, New Hampshire is estimated to consume almost one million tonnes a year\(^1\).

4.1 NATIVE FOREST BIOENERGY – PUTTING OUR FOREST DEPENDENT SPECIES AT RISK

Logging operations in areas of Australia covered by Regional Forest Agreements, such as those affecting the listed threatened species shown here, are specifically exempt from triggering provisions of the Australian national threatened species legislation (the Environment Protection and Biodiversity Conservation Act). This is a major deficiency which will bring native forest biomass projects into conflict with community expectations.

Would you burn their homes to power yours? Would you log their homes to fuel your car?

NEW SOUTH WALES

The native forests of New South Wales are extremely diverse, ranging from large tracts of highly biodiverse subtropical forests in the north-east to the spectacular temperate eucalypt forests in the south-eastern coastal regions.

The koala (*Phascolarctos cinereus*). One of Australia’s most iconic species, the Australian Government recently listed koalas as a vulnerable species in NSW (and also in Queensland and the ACT). Major threats include habitat clearance and fragmentation (including logging), bushfires, disease and drought. There are serious concerns around the threats to a number of key koala populations. Scientific opinion regarding the Mumbullah, Murrah, and Bermagui state forests of southern NSW was that ‘anything less than a very significant reduction in logging activities will probably lead to the extinction of this koala population’\(^1\). Last year Markets For Change tracked wood logged from Boambee State Forest, located west of Coffs Harbour and identified as one of the most significant koala habitats in the region\(^1\).
Western Australia’s native forests are globally recognised for their high levels of biodiversity and endemism.

The black cockatoo. Three endemic species of black cockatoo are found in Western Australia, the Carnaby’s (Calyptrorhynchus latirostris), Baudin’s (Calyptrorhynchus baudinii), and the forest red-tailed (Calyptrorhynchus banksii) black cockatoos. All of these 3 distinct species are in decline, partially due to habitat destruction in forests and woodlands. These striking and highly social birds are long-lived, their lifespan being 25-50 years in the wild. They form monogamous breeding pairs, probably for life. The Carnaby’s black cockatoo is listed as nationally endangered and on the international IUCN Red List, the Baudin’s black cockatoo is listed as endangered on the international IUCN Red list and vulnerable nationally, whilst the red-tailed black cockatoo is listed as vulnerable nationally.

Tasmania’s native forests are globally recognised for their outstanding ecological and wilderness values.

The Tasmanian wedge-tailed eagle (Aquila audax fleayi). A subspecies of wedge-tailed eagle found only in Tasmania and listed as endangered. A top order predator, it is one of the largest eagles in the world. The total population is estimated to be less than 1,000, with 43% of the nests of breeding pairs located in State Forest, much of which is open to logging. The species nests in very large, old eucalypts and usually abandons its nest if disturbed. The species is highly sensitive to native forest logging.
VICTORIA

Victoria’s native forests are the most carbon dense on earth. They provide key habitat for threatened species and are crucial water catchments for Melbourne and for regional towns.

Leadbeater’s possum (Gymnobelideus leadbetter). A small omnivorous nocturnal marsupial dependent on large old hollow trees for breeding and shelter. Listed as endangered nationally and on the international IUCN Red List, it is endemic to Victoria and its distribution is limited. There were about 2,000 mature Leadbeater’s possums left in the wild in 2008. However the catastrophic bushfires of 2009 killed around 90% of Leadbeater’s possums in the Kinglake area, and 40-50% of the possum’s prime habitat was lost. The mature population may have shrunk to less than 1,000, and clearfell logging in some of the last remaining prime habitat (eg Kalatha Creek area of Toolangi) poses a critical threat to its survival.

4.2 LOGGING OPERATIONS IN THE NATIVE FORESTS OF AUSTRALIA ARE NOT ECOLOGICALLY SUSTAINABLE

In northern NSW the NSW Auditor General has acknowledged that ‘to meet wood supply commitments, the native forest managed by Forests NSW on the north coast is being cut faster than it is growing back’16.

A performance audit of WA’s Forest Management Plan conducted by the Environment Protection Authority raised ‘serious doubts that continued logging in the low rainfall zone and adjoining medium rainfall zone in [particular areas of jarrah forest] would be capable of meeting ESFM [ecologically sustainable forest management] objectives’17.

In Tasmania native forests were recently assessed by scientists conducting independent verification studies as being logged at double the long term sustainable yield, relying on plantations to provide large volumes of wood for specific uses in future, although that prospect appears uncertain18.

In Victoria, local environment group MyEnvironment is challenging the logging of Leadbetter’s possum (LBP) habitat in the courts. Justice Osborn closed the case (which is now going to appeal) saying: ‘MyEnvironment has demonstrated a strong case for the overall review of the adequacy of the reserve system intended to protect LBP habitat within the Central Highlands Forest Management Area. The [2009] bushfires have materially changed the circumstances in which the existing system was planned and implemented and there is, on the evidence, an urgent need to review it’.
Logging of Australia’s native forests will be further intensified if proposals to produce bioenergy from native forests eventuate. Proponents argue that removing ‘residual wood’ is ‘cleaning up the forest’ and ‘value-adding’. Current biomass harvesting in Canada for bioenergy has encouraged whole tree harvesting and removal of all woody debris. This has been criticised by the scientific community because of the ecological damage it causes on nutrient cycling.

Australian scientists say that ‘from a forest ecology perspective, efforts to remove large quantities of defective stems and logs will be “value-subtracting” for some elements of the biota and key ecological processes.’ Fundamental structural attributes and ecological processes essential to the functioning of forest ecosystems have been overlooked.
5. ADVERSE IMPACTS ON COMMUNITIES

Bioenergy from native forests is not a great boon to regional communities. It is a risky business heavily reliant on government financial assistance, poor for job creation, potentially a health hazard where polluting technologies are used, and certain to entrench community conflict.

Native forest biomass-based energy production is a low value-added, high volume industry. It relies on cheap inputs and also depends heavily on government grants, subsidies and tax breaks, according to international experience. **Reliance on continued subsidies is risky for investment and for jobs based on such projects, especially given the fraught and continually changing political environment surrounding both climate and forest policy in Australia.**

To ensure profitability, economics of scale are emerging. It has been suggested that the optimal profitability for a native forest biomass power plant in Western Canada requires huge facilities burning only forest material and drawing feedstock from large, consolidated areas of forest – something that in Australia would undoubtedly see widespread opposition and ongoing agitation to withdraw the resource, entrenching community conflict over native forest logging.

Fewer jobs are created from combustion of native forest biomass than those in traditional forest products, which also have a higher commercial value. It has already been demonstrated in Australia since the advent of broad-scale clearfelling of native forests for the export woodchip trade that despite a large increase in area logged, the decline in employment was dramatic as jobs in downstream processing declined. Employment statistics show that sawn timber and pulp and paper mills provide 5 times as many jobs per 1000 cubic metres, on average.

**Native forest biomass to energy projects also entail poor job creation** compared to higher value-added manufacturing such as engineered wood products using the same source material. The latter product also stores carbon for the period of its life. In 2010 the forest industry, unions, governments and environmental organisations in Canada had all come to the conclusion that developing transformation of forest products (eg engineered wood) rather than burning trees for energy was preferable, since these products can play a carbon storage role, increase job opportunities, and add value.

**Biomass is a dirty fuel.** In the United States leading medical societies and health advocacy groups have called for a ban on biomass burning power plants because they pose an unacceptable risk to public health by increasing air pollution. Despite improvements in technology, burning hundreds of thousands of tonnes of native forest may generate dangerous emissions of toxic substances and fine particulates. Wood smoke contains at least five known human carcinogens and at least 26 chemicals categorised as hazardous air pollutants. Compared to other power plants burning gas or using wind, biomass power plants emitted much higher levels of carbon dioxide, nitrogen oxides, particulate matter and heavy metals (lead, cadmium and manganese).

---

*In Australia environmentalists recommend that all such products come from plantation residues.*
“Burning biomass could lead to significant increases in emissions of nitrogen oxides, particulate matter and sulphur dioxide and have severe impacts on the health of children, older adults, and people with lung diseases”

- American Lung Association. 2009
6. A HISTORY OF REJECTION

Australians have already shown that they do not want energy generated from the burning of native forests supplied to their homes. Similarly, they will not accept liquid biofuels extracted from native forest biomass.

In the early 2000s, a forest industry push for forest furnaces to produce electricity met resistance and rejection as a renewable energy by the community, given the adverse environmental impacts.

In 2001 a Morgan Poll found that 88% of people opposed the use of native forest for wood-fired power. Biomass power from native forests had become known as ‘dead koala’ power. Posters asked people ‘would you burn my home to power yours?’

In 2009 ten major electricity retailers and the National GreenPower Group rejected native forest biomass derived power.

In 2010 a Galaxy poll showed that 77% of Australians want an end to the logging of Australia’s native forests in order to conserve their carbon stores.

A native forest biomass fuelled electricity generator proposed by South East Fibre Exports Pty Ltd (SEFE) for the site of its Eden woodchip mill on the south coast of New South Wales has recently been withdrawn. A small scale trial pellet production facility at the same site has been closed down. Both projects met strong and persistent local opposition.

Disappointingly, new proposals for biofuel production and for electricity generation from native forests continue to be advanced. For example, Forestry Tasmania envisages four new bioenergy facilities for the state in their innovation plan, which is a controversial and unhelpful proposal for these times.

Establishing bioenergy projects based on native forests would ensure continued degradation of Australia’s forest ecosystems and surround such bioenergy with controversy. Just as the Australian community has overwhelmingly opposed the logging destruction of native forests and the woodchip industry, they have also been indicating their strong opposition to bioenergy proposals.

Energy and liquid fuel producers and retailers should have good environmental policies that address climate and broader environmental impacts of their products. Native forest biomass to bioenergy is not acceptable.

The most significant determinant of retailer exposure to the native forest ‘problem’ and accompanying consumer sentiment is whether they choose to retail native forest biomass-derived bioenergy products.

A Morgan Poll in 2001 found 88% of people opposed the use of native forest for wood-fired power.

The Australian community has overwhelmingly opposed the logging destruction of native forests and the woodchip industry - they have also been indicating their strong opposition to bioenergy proposals using native forests.
Not only is using native forest as a feedstock for bioenergy injurious to the climate, it may compete with and threaten other clean energy alternatives that can genuinely help in the fight to restrain human induced climate change.

Native forest biomass-based bioenergy is ineligible for Renewable Energy Credits (RECs) in Australia. There have been attempts to secure eligibility, and Parliament rejected a private member’s motion on the matter last year.

If eligibility were to be granted it would open up government incentives in the form of renewable energy subsidies. Subsidies, or some form of government funding support, are vital for native forest biomass energy production to become viable.

Under capped Renewable Energy Targets (RET) legislation, allowing RECs for native forest biomass would displace other renewable sources that do not have adverse environmental impacts.

It is of paramount importance to reduce energy consumption and to invest in clean energy sources that do not contribute to climate change, with the aim of substantially reducing Australia's emissions arising from current reliance on fossil fuels. As a nation we should be aiming for a rapid transition to a zero emissions future in which Australia’s energy needs are met with 100% renewables.

This can be achieved through a combination of energy efficiency, fuel switching from gas and oil to electrified energy services, then using a combination of commercially available renewable energy technologies.

Truly climate friendly, renewable energy sources that may be displaced by native forest based bioenergy are:

- Energy efficiency programs
- Wind
- Solar
- Geothermal

These all deserve the support of industry and consumers as our society responds to the urgent threat of catastrophic climate change.

In March 2013 the Australian Government explained the policy on native forest bioenergy in their published response to the Climate Change Authority’s Renewable Energy Target (RET) Review:

“Wood waste from native forests was removed from the RET as an eligible renewable energy source in 2011. This amendment was made to ensure that the RET did not provide an incentive for the burning of native forest wood waste for bio-energy, which could lead to unintended outcomes for biodiversity and the destruction of intact carbon stores.”
Truly climate friendly, renewable energy sources that may be displaced by native forest based bioenergy

- Energy efficiency programs
- Geothermal
- Wind
- Solar
8. HOW TO STOP A BIOMASSACRE

RECOMMENDATIONS

Electricity retailers: (i) rule out selling native forest power, (ii) sell genuinely clean, renewable sources instead

Electricity generators: rule out producing native forest power, including via co-firing

Fuel retailers: rule out selling native forest derived fuels

Producers of liquid and gaseous fuels: rule out producing native forest derived fuels

Large consumers (e.g., airlines): rule out using native forest derived fuels or electricity

Investors: rule out investment in native forest derived energy projects and products

Governments and political parties: (i) do not support native forest based energy and do not allocate public money, including subsidies, to energy production based on native forest biomass, (ii) ensure that native forest based bioenergy remains excluded from the Renewable Energy Target (RET) and ineligible for Renewable Energy Credits (RECs), (iii) rectify carbon accounting such that emissions from native forests used for energy are counted

Forest Industry: (i) make a rapid transition to using established plantations instead of native forests enabling native forests to be protected for their environmental values, (ii) ensure that waste arising from plantation forestry is preferentially used to produce carbon storing product (such as engineered wood)

Householders: (i) tell electricity and fuel companies that you will refuse to buy native forest derived energy, (ii) tell politicians that you want them to rule out supporting and assisting native forest based energy, (iii) tell your friends and family about this new threat to Australia’s native forests

Investors: rule out investment in native forest derived energy projects and products
5. ibid
8. Total 2008 net emissions equal 576.2 million tonnes CO2.
15. Markets For Change. 2012 Harvey Norman Flooring - Naturally Australian Koala Habitat Destruction
23. for which the default value is 15 years under international carbon accounting rules for developed countries on land use, land use change and forestry. LULUCF decision, Durban 2012.
27. Survey conducted by The Wilderness Society, Victoria.