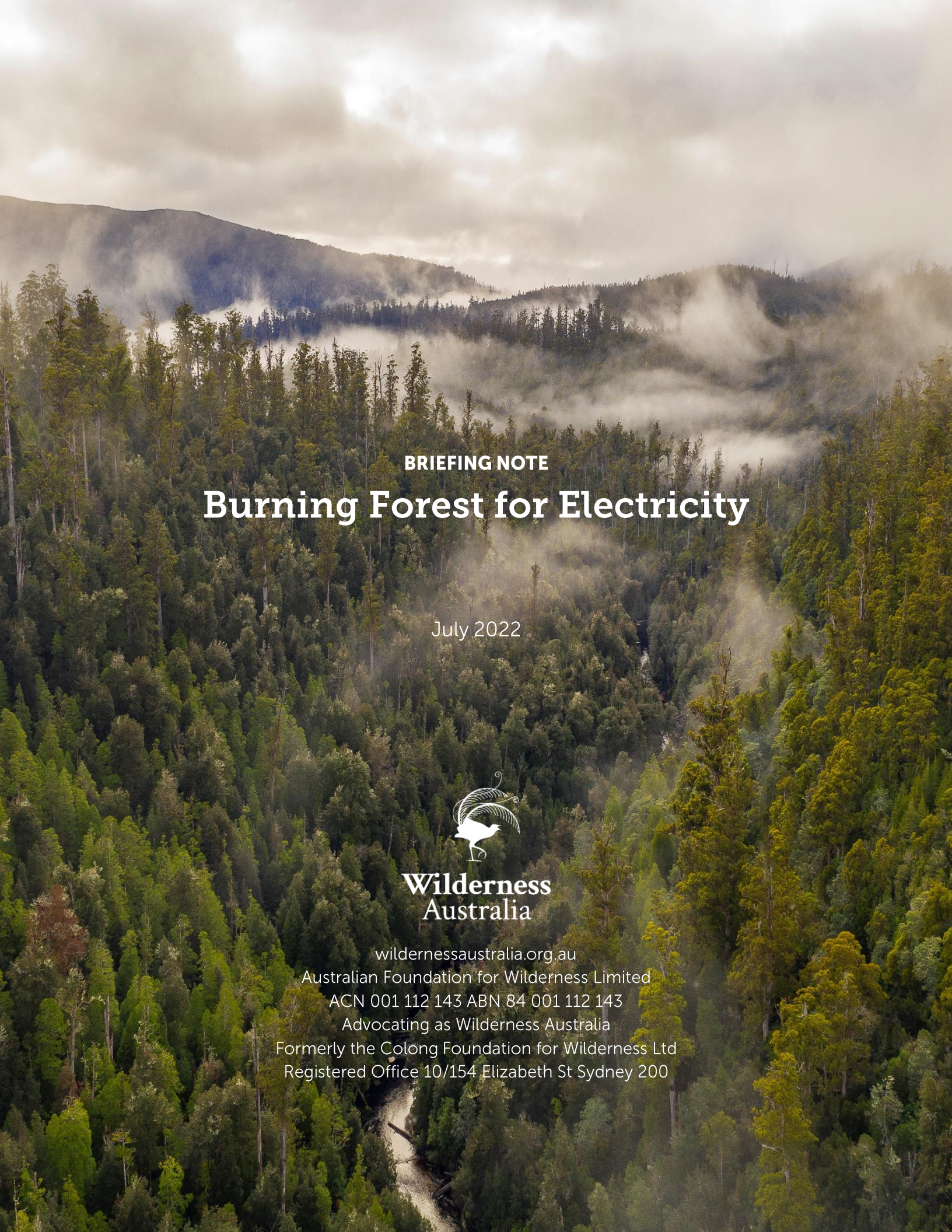


BRIEFING NOTE

Burning Forest for Electricity

July 2022

Wilderness Australia

wildernessaustralia.org.au
Australian Foundation for Wilderness Limited
ACN 001 112 143 ABN 84 001 112 143
Advocating as Wilderness Australia
Formerly the Colong Foundation for Wilderness Ltd
Registered Office 10/154 Elizabeth St Sydney 200

SUMMARY

- Australia's native forests are in imminent danger of being logged and burnt en masse to generate electricity.

- Far from being a "clean" and "renewable" source of energy as its proponents claim, forest-based bioenergy:
    - Emits more carbon dioxide than burning coal.
    - Reduces the capacity of our forests to sequester, store and safely keep carbon out of the atmosphere for hundreds of years.
    - Destroys habitat for already endangered plants and animals
    - Puts our forests and communities at greater risk of bushfires.

- Governments and major financial institutions around the world are already taking action to limit the growth of the forest bioenergy industry in recognition of the environmental damage it causes.

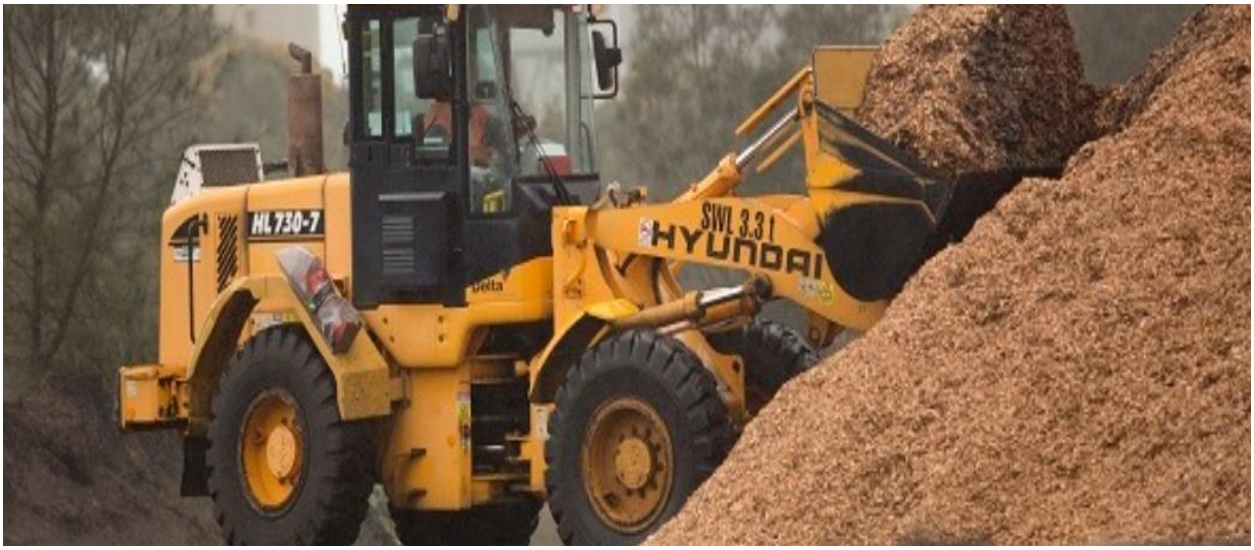
- The federal government must exclude native forest bioenergy as a renewable energy source under the Renewable Energy Act, and energy retailers must rule out sourcing energy that has been generated from the burning of native forests.

A biomass power plant in France. Photo credit: Benoit Grimont

1. WHAT IS FOREST-BASED BIOENERGY?

Bioenergy refers to the use of organic matter for energy generation. One form of bioenergy that is being increasingly utilised around the world is wood sourced from forests. This wood is pulverized into pellets or briquettes which are then burnt to produce electricity. Forest-based bioenergy, as this practice is known, is particularly well established in the UK and the EU and is quickly gaining a foothold in Asian countries including Japan and South Korea. Over the next decade, global production of forest biomass energy is predicted to increase nearly 300 percent, having already doubled in the last ten years.

Recently there has been a strong push to significantly scale up the industry in Australia. In 2015, for example, following extensive lobbying from the native forest logging industry, the Tony Abbott-led Federal government amended the Renewable Energy Act to recognise native forest bioenergy as a form of renewable energy. Four years later, the federal Department of Agriculture, Water and the Environment allocated $1 million towards forest-based bioenergy research.[1] Energy generator Delta Electricity is already using wood from forestry operations to co-fire the Vales Point coal power station on the shores of Lake Macquarie and there is a proposal to reopen the Redbank Power Station near the NSW town of Singleton and fuel it with more than one million tonnes of wood from forests per year instead of coal.[2]



Wood from Australian forestry operations is already fuelling power stations in Australia.
Photo credit: Delta Electricity

[1] Department of Agriculture, Water and the Environment (2020). 'Preparing forest industries for the future – bioenergy research'. *Australian Government*. Retrieved from: https://www.awe.gov.au/agriculture-land/forestry/national/climate-change-research/bioenergy

[2] Delta Electricity. (2017). 'Biomass'. *Delta Electricity*. Retrieved from: https://www.de.com.au/about-us/generation/biomass

2. WHY ARE COUNTRIES BURNING FORESTS TO GENERATE POWER?

A series of deceptive definitions and accounting tricks have meant forest-based bioenergy is widely – but falsely – seen as a form of "clean" and "renewable" energy.

For example, unlike coal, carbon emissions created when wood is burned aren't accounted for at the point of combustion. Instead, emissions are meant to be accounted for when forests are logged, but inadequacies in carbon accounting in forests means that the true emissions from burning wood are rarely recorded. Even worse, forest carbon accounting enables the emissions associated with logging to be offset by growth in areas of forest that have not been logged – further obscuring the climate impact of logging our forests and the opportunity cost of not allowing our native forests to keep growing to achieve their full potential for carbon storage.

The industry also claims that any emissions created by burning wood to generate power will be recaptured by replanted forests in the future. But this ignores the critical fact that the decades to centuries this will take to happen is time we do not have especially when we need to reduce global emissions by 45 percent by 2030, as called for at COP 26, in order to limit global heating to 1.5 degrees Celsius, and avoid catastrophic climate change

The falsehood that burning forests to generate electricity is a "clean" and "renewable" source of energy was best highlighted by an open letter in February 2021 initiated by leading international scientists urging international leaders including US President Joe Biden to end subsidies for the burning of wood for electricity and to stop treating forest biomass as a clean and renewable energy source – as it currently is in many countries, including Australia.[3]

A wood pellet production plant in North Carolina, USA. Photo credit: Dogwood Alliance

[3] Raven, Peter. (2021). 'Letter Regarding Use of Forests for Bioenergy'. *Woodewell Climate Research Center.* February 11, 2021. Retrieved from: https://www.woodwellclimate.org/letter-regarding-use-of-forests-for-bioenergy/

3. WHAT ARE THE CONSEQUENCES OF BURNING NATIVE FORESTS TO GENERATE POWER?

3.1 Burning native forests for electricity will fuel the climate crisis

Forest biomass is a dirty and environmentally-destructive source of energy.

Burning native forests for electricity will create a new market for native timber, thereby increasing logging pressure and propping up the unsustainable and unprofitable native forest logging industry in Australia – the source of around 38 million tonnes of carbon dioxide a year.[4]

The highest source of emissions, however, would come from actually burning trees for electricity. As the recent NSW parliamentary inquiry into 'Sustainability of Energy Supply and Resources in New South Wales' found, the burning of forest biomass for power generation is "not economically or environmentally sustainable, and it generates significant carbon emissions."[5]

A detailed analysis of the bioenergy industry in the US found that forest biomass power plants emit 50 percent more carbon dioxide per megawatt hour generated than coal, plus 150 percent more nitrogen oxides, 600 percent more volatile organic compounds, 190 percent more particulate matter, and 125 percent more carbon monoxide.[6]

Another study found that wood pellets burnt in the United Kingdom were responsible for up to 16 million tonnes of carbon dioxide in 2019, equivalent to the emissions from between 6 million and 7 million cars.[7]

If it is allowed to reopen and burn wood, Redbank Power Station alone would release more than 2 million tonnes of carbon dioxide every year, compared to the 943,000 tonnes of carbon dioxide emissions per annum when it burned coal.[8]

---

[4] Macintosh, Andrew. (2011). 'Potential Carbon Credits from Reducing Native Forest Harvesting in Australia.' *ANU Centre for Climate Law and Policy*. Retrieved from: https://law.anu.edu.au/sites/all/files/allfiles/wp2011_1_credits_from_reduced_native_forest_harvesting.pdf

[5] Committee on Environment and Planning. (2021). 'Report: Sustainability of Energy Supply and Resources in New South Wales'. *Parliament of NSW*. Retrieved from: https://www.parliament.nsw.gov.au/ladocs/inquiries/2542/Report%20-%20sustainability%20of%20energy%20supply%20and%20resources%20in%20NSW.pdf

[6] Booth, Mary. (2014). 'Trees, Trash, and Toxic: How Biomass Energy has Become the New Coal'. *Partnership for Policy Integrity*. April 2, 2014. Retrieved from: https://www.pfpi.net/wp-content/uploads/2014/04/PFPI-Biomass-is-the-New-Coal-April-2-2014.pdf

[7] Brack, Duncan., Birdsey, Richard., & Walker, Wayne. (2021). 'Greenhouse gas emissions from burning US-sourced woody biomass in the EU and UK.' *Chatham House*. October 14, 2021. Retrieved from: https://www.chathamhouse.org/2021/10/greenhouse-gas-emissions-burning-us-sourced-woody-biomass-eu-and-uk

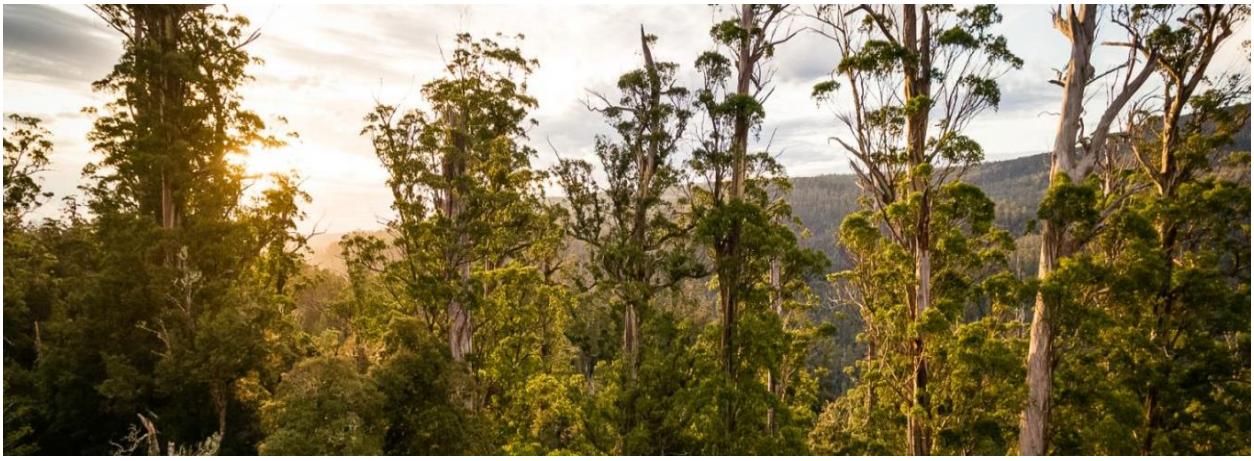
[8] North East Forest Alliance (2021). 'Submission to DA183/1993'. *North East Forest Alliance*. September 26, 2021. Retrieved from: https://d3n8a8pro7vhmx.cloudfront.net/ncec/pages/1432/attachments/original/1637038153/NEFA_Submission_to_Redbank_DA_26_9_21b.pdf?1637038153

As well as producing huge emissions, forest-based bioenergy will reduce the capacity of our forests to fulfill their most important climate function – sequestering, storing and safely keeping carbon out of the atmosphere for hundreds of years. As researchers write in *Frontiers in Forests and Global Change:*

> "*Far from plateauing in terms of carbon sequestration at a relatively young age as was long believed, older forests…typically continue to sequester additional carbon for many decades or even centuries, and sequester significantly more carbon than younger and managed stands.*"[9]

For example, analysis in Tasmania revealed that old growth mountain ash forests can store up to 1,200 tonnes of carbon per hectare but the same forest ecosystem logged on an 80 year rotation contains an average of 400 tonnes of carbon per hectare[10] – a fact the logging industry and its political allies try to conceal. For example, Tasmania Liberal MP Felix Ellis claimed in June 2022 that "old-growth forests are actually net carbon emitters" and "the best carbon sequestration comes from a young growing forest". The RMIT ABC Fact Check labelled Ellis's claims as "incorrect".[11]

Compounding the problem is the fact that forest-based bioenergy pulls investment and government subsidies away from genuinely green and renewable forms of energy like wind and solar. As such, it will delay the clean energy transition that is rapidly required to help mitigate catastrophic climate change.



The Styx Valley in Tasmania is home to old-growth Eucalypt forests of Mountain Ash, the second tallest growing species of tree in the world. Photo credit: Wild.com.au

---

[9] Moomaw, William R., Masino, Susan A., & Faison, Edward K. (2019). 'Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good.' *Frontiers in Forests and Global Change*. June 11, 2019. Retrieved from: https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full

[10] Dean, Christopher,. Roxburgh, Stephen., Mackey, Brendan. (2003). 'Growth Modelling of Eucalyptus regnans for Carbon Accounting at the Landscape Scale.' In Amaro, A. et al (eds) *Modelling Forest Systems'*. Pp 27-40.

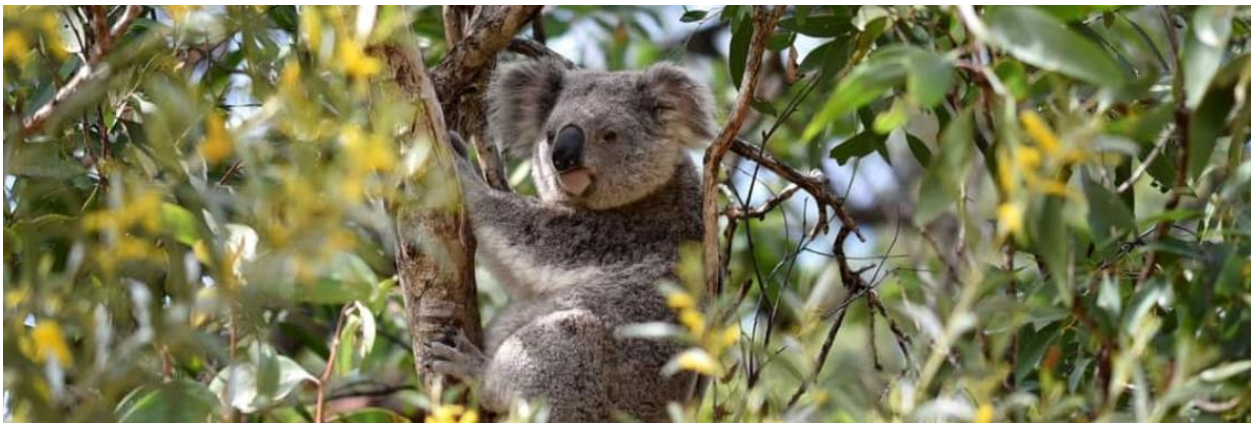
[11] RMIT ABC Fact Check. (2022). 'Tasmanian Liberals say younger forests are better at sequestering carbon than old-growth forests. The science says otherwise.' ABC News. July 1, 2022. Retrieved from: https://www.abc.net.au/news/2022-07-01/checkmate-old-growth-forest-net-carbon-emitter-felix-ellis/101199710

3.2 Burning native forests for electricity will fuel the biodiversity crisis

More than 1,400 forest-dwelling plants and animals are listed as threatened species under Australian law.[12] Numerous empirical studies have demonstrated that one of the major threats to these species is habitat loss caused by native forest logging. For example, a 2019 analysis of areas proposed for logging in Victoria showed it would negatively affect 70 threatened forest-dependent species, including the endangered Leadbeater's possum.[13]

Following the devastating bushfires of 2019/20, it is even more critical that native forests are allowed to recover and not burnt for electricity. In New South Wales alone, the prospects of long-term survival of over 450 threatened plant species and 293 threatened animal species were impacted by the Black Summer bushfires, according to the 2021 NSW State of the Environment Report.[14]

The prospects of these species' long-term survival will be further impacted by destroying then burning their habitat to generate electricity, especially given the native forest logging industry's blatant disregard for environmental regulations. For example, in June 2022 alone, New South Wales' Forestry Corporation was fined more than $500,000 for breaching regulations while conducting logging operations, including the destruction of a known environmentally sensitive area, which was a roost for the Eastern Horseshoe bat.[15]



Koala populations are now facing extinction in New South Wales and Queensland, with habitat loss from fires and logging fast contributing to their decline. Photo credit: commonground.org.au

---

[12] Department of Agriculture and Water Resources. (2018). 'Australia's State of the Forests Report 2018: Executive Summary.' Australian Government. Retrieved from: https://www.awe.gov.au/sites/default/files/abares/forestsaustralia/documents/sofr_2018/web%20accessible%20pdfs/SOFR_2018_Executive%20summary_web.pdf

[13] Taylor, Chris & Lindenmayer, David. (2019). 'The adequacy of Victoria's protected areas for conserving its forest-dependent fauna.' *Austral Ecology* 44(6). Pp. 1076-1091.

[14] NSW Environment Protection Authority. (2021). 'NSW State of the Environment 2021'. *NSW Environment Protection Authority.* Retrieved from: https://www.soe.epa.nsw.gov.au/sites/default/files/2022-02/21p3448-nsw-state-of-the-environment-2021_0.pdf

[15] Tregenza, Holly. (2022). 'EPA fines NSW Forestry more than $500,000 in one month for destroying South Coast habitat.' *ABC News.* June 30, 2022. Retrieved from: https://www.abc.net.au/news/2022-06-30/epa-fines-forestry-half-a-million-dollars-for-destroying-habitat/101196632

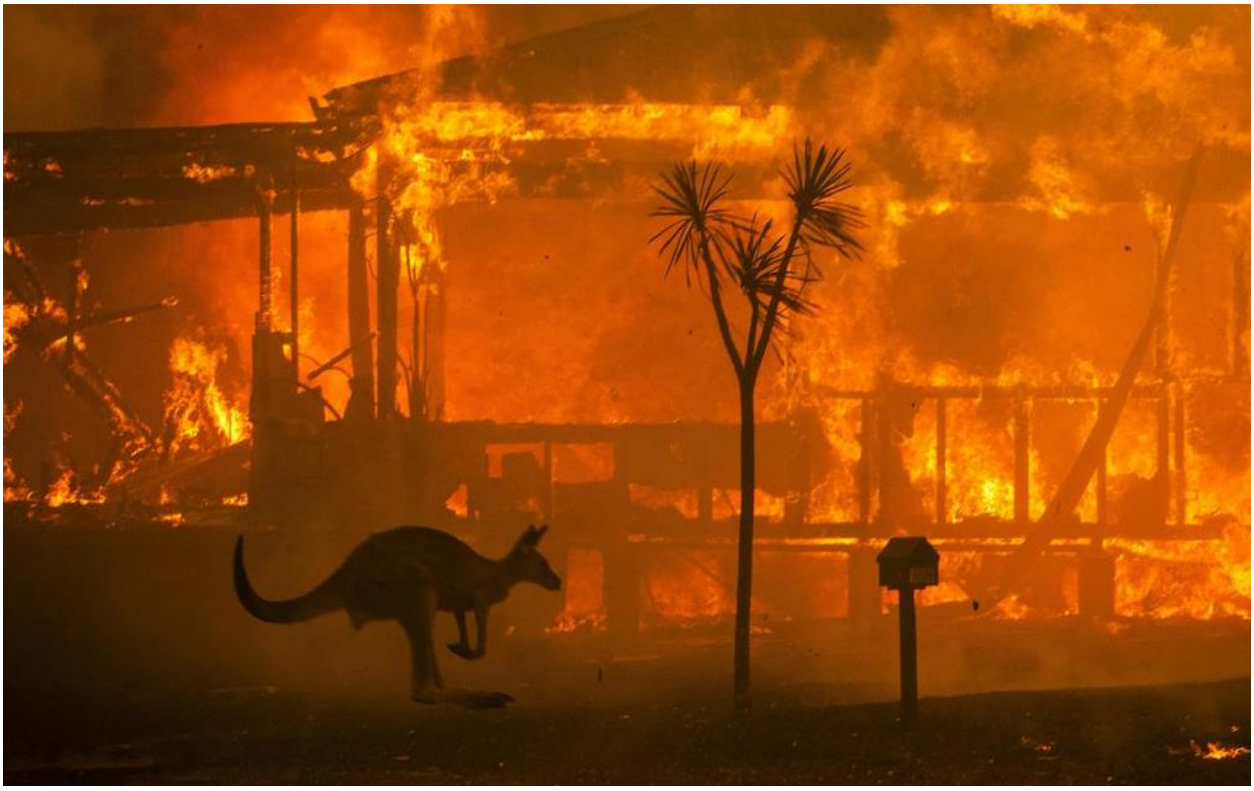
3.3 Burning native forests for electricity will fuel the bushfire crisis

There is now unequivocal evidence that logging native forests increases the risk and severity of bushfires. As outlined in an analysis of the 2019-20 Black Summer bushfires conducted by researchers from Griffith University and Australian National University, this is because:

> "*[S]uch operations increase the volume of coarse woody debris, and the density of elevated and vertically oriented live fuels. In addition, by opening up the forest canopy, logging operations alter microclimate conditions, causing drying of soils and fuel, and allowing stronger wind to affect fires on the forest floor.*"[16]

The link between native forest logging and elevated fire risk was also demonstrated in a study of Victoria's 2009 Black Saturday fires.[17]

Thus, by perpetuating native forest logging, forest bioenergy will increase the likelihood of catastrophic bushfires, like those of the Black Summer.



3 billion animals were killed or harmed in Australia's devastating bushfires of 2019-2020.
Photo credit: Matthew Abbott, New York Times.

---

[16] Lindenmayer, David. et al. (2021). 'Bushfire Science Report No. 3: What Are the Relationships Between Native Forest Logging and Bushfires?' *Fenner School of Environment & Society*. Retrieved from: https://www.bushfirefacts.org/uploads/1/3/2/1/132188020/lr_bushfire_science_report_no._3_-_bushfires_and_logging.pdf

[17] Taylor, Chris., McCarthy, Michael A., & Lindenmayer, David. B. (2014). 'Nonlinear Effects of Stand Age on Fire Severity'. *Conservation Letters*. 7(4). Retrieved from: https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/conl.12122

4. ACTIONS NEEDED TO STOP BURNING NATIVE FORESTS FOR ELECTRICITY

Globally, action is already being taken by governments and major financial institutions to limit the growth of forest bioenergy, in recognition of the fact that it is not a "clean" nor an "environmentally-friendly" source of energy, as its proponents claim.

In 2021, for example, the giant UK power company *Drax*, which operates a major forest bioenergy power station in Yorkshire and is the UK's single largest emitter of carbon dioxide, was booted from the S & P Global Clean Energy Index, a renowned investment index of clean energy companies.[18][19] French bioenergy generator, *Albioma*, which, like *Drax*, has used wood pellets to replace coal in its power plants, has also been dropped from the index.

In order to prevent forest bioenergy taking off in Australia as it has in the United Kingdom and elsewhere, the following actions are required:

For government:

1. Exclude native forest biomass as a renewable energy source under the Renewable Energy Act or its successor(s).
2. Ensure current and future grants for timber innovation hubs exclude energy generation for anything other than on site manufacturing processes.

For energy retailers:

1. Publicly rule out sourcing electricity generated by burning any native forest material.
2. Support legislative change to exclude native forest biomass as a renewable energy source.

For more information, please email contact@wildernessaustralia.org.au
or call 02 9261 2400.

[18] Harrison, Tom. (2021). 'UK Biomass Emits More CO2 than Coal'. *Ember*. October 8, 2021. Retrieved from: https://ember-climate.org/insights/research/uk-biomass-emits-more-co2-than-coal/

[19] Ambrose, Jillian. (2021). 'Drax dropped from index of green energy firms amid biomass doubts.' *The Guardian*. October 19, 2021. Retrieved from: https://www.theguardian.com/business/2021/oct/19/drax-dropped-from-index-of-green-energy-firms-amid-biomass-doubts