

13 December 2023

Senator the Hon Murray Watt
Minister for Agriculture, Fisheries and Forestry
Department of Agriculture, Fisheries and Forestry
GPO Box 858
CANBERRA ACT 2601

Australia's path to Net Zero: Agriculture and Land Sectoral Plan

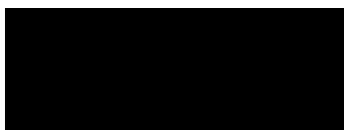
Dear Minister Watt,

Thank you for the opportunity to provide a submission to the Department on the *Agriculture and Land Sectoral Plan*.

Responsibly managed plantation forests, such as those operated by OneFortyOne, have a vital and immediate role to play in supporting Australia's Net Zero transition. Through this submission, we look to reiterate the significant contribution forestry is already making as a net sink of carbon dioxide, highlight ways in which the *Agriculture and Land Sectoral Plan* can support its expansion and development including the identification of areas where the sector seeks to work in partnership with other industries and government to reduce emissions.

For queries related to this submission please contact Jessica Douglas, OneFortyOne's Director of Corporate Affairs and Sustainability on 0400 186 293 or jessica.douglas@onefortyone.com.

Sincerely,



Jessica Douglas

Director of Corporate Affairs and Sustainability

Contents

About OneFortyOne.....	3
Forestry’s current and potential contribution to Australia’s Net Zero 2050 ambitions	4
An immediate and ongoing impact.....	4
Transforming forest residues into a greener fuel source for Australia’s future	5
Reducing reliance on carbon-intensive imports	5
Trends in net annual GHG emissions from Land Use, Land Use Change, and Forestry	6
Opportunities for the Agriculture and Land Plan to support the expansion of a sustainable Forestry sector	6
Addressing the missed opportunities in a shrinking estate	6
Unlocking investment through support for forest insurance.....	7
Incorporating traditional knowledge	7
The role of emerging technology	7
Maximising the potential of forestry as a key enabler of Australia’s Net Zero 2050 Plan in other sectors.....	7
Looking beyond traditional uses of wood fibre	7
<i>Sustainable Aviation Fuel (SAF)</i>	8
<i>Biochar</i>	8
<i>Lignin-based bioplastics</i>	8
Addressing concerns around the end-of-life treatment of wood products.....	9
Social and economic co-benefits of expanding the Forest estate.....	10
Supporting a just transition.....	10
Promoting better human health	10
Maximizing the positive impact of the Forestry and Wood Products sector through decarbonisation	10
The need to address emissions from forestry.....	10
The transportation challenge.....	10
Concluding comments	11

About OneFortyOne

OneFortyOne is a forestry and sawmill business, majority owned by Australian superannuation and sovereign wealth funds. We operate throughout the Green Triangle region of Australia and the Nelson, Tasman, and Marlborough regions of New Zealand (Top of the South). In these communities OneFortyOne is a significant employer, employing more than 500 people directly and hundreds more indirectly as contractors.

In Australia, OneFortyOne's Green Triangle Forests (GT Forests) business operates and manages over 80,000 hectares (ha) of plantation and over 300ha of conservation area in the Green Triangle region, an area that spans across South-East South Australia and Western Victoria. GT Forests undertakes forestry operational activities including establishing, growing, protecting, and harvesting radiata pine plantations. OneFortyOne also owns and operates the Glencoe Nursery, supplying more than 10 million trees annually for OneFortyOne and other forest growers.

OneFortyOne is only one of the forest growers in the region, having a 24% share of the forest estate in the Green Triangle region across softwood and hardwood plantation estates. Our share of the region's softwood plantation forest is approximately 50%. Most of the OneFortyOne GT Forests estate sits on a Plantation Lease Agreement with the South Australian Government covering plantation lands in South Australia and Victoria. OneFortyOne also owns and manages plantations on freehold land.

In 2018, OneFortyOne purchased Jubilee Sawmill in Mount Gambier. In the short period under OneFortyOne's ownership, the company has invested \$50 million in the sawmill. This ongoing investment in modernisation and new technology ensures that Jubilee Sawmill remains one of the most progressive, productive, and efficient softwood sawmills in Australasia.

OneFortyOne grows, produces, and delivers wood products in a responsible way that meets rising demand and creates a more sustainable future for people and the planet.

Some of our recent contributions include:

- PINE Community Grants program; funding local, community driven projects. 2022 funding for the PINE Program as well as Long Term community partnerships equated to over \$250,000 in the Green Triangle Region.
- \$5 million capital and operational investment in fire prevention and management in 2022.
- Ongoing investment in OneFortyOne assets, including \$7 million in an upgrade to the Glencoe Nursery to improve safety, infrastructure, and seedling survival rates. OneFortyOne has also invested \$50m in modernising the Jubilee Sawmill since 2018.
- Development of the OneFortyOne Emissions Reduction Strategy with a target to reduce Scope 1 and 2 greenhouse gas emissions by 75% from 2021 levels by 2030.
- Remediation work to preserve conservation zones in the GT Forests estate including targeted competition control and native species revegetation.

OneFortyOne is an active contributor to industry forums including the Australian Forest Products Association, the South Australian Forest Products Association, the Green Triangle Forest Industries Hub (GTFIH) and the Green Triangle Fire Alliance.

Forestry's current and potential contribution to Australia's Net Zero 2050 ambitions

An immediate and ongoing impact

The potential for plantation forestry to make an immediate and ongoing contribution to Australia's Net Zero 2050 ambitions is abundantly clear. A paper published in April by Net Zero Australia, a partnership including the Universities of Melbourne, Queensland and Princeton, noted that:

*"the largest sink of CO₂ in the last 10 years is land converted to forest land... with new commercial plantations established between 1995 and 2010 dominating."*¹

While OneFortyOne recognises that Australia's Net Zero 2050 ambition will require a range of carbon capture solutions in the fullness of time, trees remain the most viable low-cost, scalable solution in the immediate future. As a mature and established industry with annual net emissions of -40 Mt-CO₂e, alongside major economic and social benefits, we believe that forestry has an enormous role to play in a rapid and just transition to Net Zero.

In August of this year, the National cabinet announced a new national target to build 1.2 million new homes in Australia. High-quality, affordable and sustainable homes for Australian families depend on a reliable source of responsibly grown structural sawlog. At a time when the Australian forest estate is shrinking, there is a significant risk that the construction industry will be forced to turn to carbon-intensive materials such as concrete or steel, hampering the country's Net Zero journey before it has even begun. OneFortyOne was therefore pleased by the Australian government's recent decision to sign up to the *Forest and Climate Leaders' Partnership Coalition on Greening Construction with Sustainable Wood* at COP28 in Dubai, committing to increase the use of timber in the built environment by 2030. We look forward to seeing meaningful policy announcements in line with this commitment and welcome any opportunity to contribute to their formation.

Sustainable Forestry – environmental benefits beyond carbon sequestration

In addition to the enormous carbon sequestration potential of forestry and wood products, responsible forestry has additional benefits for the soil, water, flora and fauna that support Australia's bioeconomies. The World Business Council for Sustainable Development Forest Solutions Group has mapped the most impactful contributions the forest sector can make to support the realisation of the United Nations Sustainable Development Goals,² including forest restoration, water management, protection of biodiversity and sustainable economic growth. By providing support to grow the Forest Estate, the Agriculture and Land Sectoral Plan can make a holistic contribution to Australia's implementation of the Sustainable Development Goals while taking a powerful step towards Net Zero.

Independent certification bodies such as the Forest Stewardship Council (**FSC**) or Responsible Wood ensure that forestry companies are practicing sustainable forest management, ensuring the sector has a positive impact on the natural environment. OneFortyOne is proud to hold Responsible Wood

¹ Net Zero Australia (2023), *Downscaling – The role of forestry in enhancing the Australian land CO₂ sink* [Downscaling – The role of forestry in enhancing the Australian land CO₂ sink \(netzeroaustralia.net.au\)](https://netzeroaustralia.net.au/Downscaling%20-%20The%20role%20of%20forestry%20in%20enhancing%20the%20Australian%20land%20CO2%20sink)

²²World Business Council for Sustainable Development (2019), *Forest Sector SDG Roadmap* [WBCSD Forest Sector SDG Roadmap.pdf](https://www.wbcsd.org/Publications/Forest-Sector-SDG-Roadmap)

certification, which recognises the sustainability of the Forest Management System implemented in our Green Triangle forest estate. Our estate in New Zealand is also certified as meeting the FSC standard for forest management.

Transforming forest residues into a greener fuel source for Australia's future

In its *Roadmap to Net Zero by 2050*, the International Energy Agency (IEA) makes clear that for hard-to-abate sectors, sustainable biofuels have a crucial role to play in reducing global emissions, concluding that in a Net Zero scenario:

“over 60% of the 100 EJ of global bioenergy supply in 2050 comes from sustainable waste streams that do not require dedicated land...of these sustainable waste streams, forestry residues from wood processing and forest harvesting provide 20 EJ of bioenergy.”³

While conventional bioenergy crops are usually produced on land that could otherwise be used to grow food crops, waste residues from a responsible forestry industry represent a truly sustainable option for the production of biodiesel, sustainable aviation fuel and sustainable marine fuels.

OneFortyOne is encouraged by the announcement of several new projects exploring the feasibility of biofuel production from wood residues, including the Victorian government's study into a renewable manufacturing hub in Portland⁴ and the establishment of the Jet Zero Council.⁵ It is our hope that such projects will continue to receive the full backing of the Department and the wider federal government as vital enablers on Australia's path to Net Zero.

Reducing reliance on carbon-intensive imports

The shipping required for importation is a major source of wood products is significant source of greenhouse gas emissions. By increasing the volume of timber grown, manufactured and used in Australia, reliance on imported timber products can be reduced. Some imported timber products are grown and manufactured to lower environmental and workforce standards than those employed by OneFortyOne and other responsible forestry businesses.

³ [What does net-zero emissions by 2050 mean for bioenergy and land use? – Analysis - IEA](#)

⁴ [Backing Portland as a renewable fuel manufacturing hub - Regional Development Victoria \(rdv.vic.gov.au\)](#)

⁵ [Australian Jet Zero Council | Department of Infrastructure, Transport, Regional Development, Communications and the Arts](#)

⁶ Nabuurs, G.J., O. Masera, K. Andrasko, P. Benitez-Ponce, R. Boer, M. Dutschke, E. Elsidig, J. Ford-Robertson, P. Frumhoff, T. Karjalainen, O. Krankina, W.A. Kurz, M. Matsumoto, W. Oyhantcabal, N.H. Ravindranath, M.J. Sanz Sanchez, X. Zhang, 2007: Forestry. In Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. [ar4-wg3-chapter9-1.pdf \(ipcc.ch\)](#)

government has an opportunity to unlock private capital to drive a considerable expansion of the estate and take a significant step towards its Net Zero ambitions.

Unlocking investment through support for forest insurance

As has been reported in the media, insurance for forestry assets is becoming increasingly difficult to obtain, with very few providers and soaring rates. While the insurance industry is inherently cyclical, the increase in adverse weather events brought about by climate change is only likely to exacerbate this issue. For both lenders and investors, the challenges of securing insurance present a significant risk, with the potential to drive up the industry's cost of capital and stifle investment. In order to unlock private capital for the expansion of the forest estate, the Department must consider the role of government in incentivising a competitive insurance market for forestry, considering the possibility of acting as the 'insurer of last resort'.

Incorporating traditional knowledge

We welcome the Department's recognition that the traditional knowledge of First Nations people can and must play a vital role in the establishment of the sector's response to climate change. At OneFortyOne, we have worked with the local Aboriginal Corporation, Burrandies, representing Boandik communities in the Southeast of South Australia. We have provided fire training to the Burrandies works crew and investigated the potential for prescribed burns as part of our wider fire management strategy. Given the time and financial constraints on similar Aboriginal Corporations across the country, we encourage the Department to consider appropriate investment to support Aboriginal Corporations, organisations and businesses so that they have the resources to work in partnerships to respond to climate change.

The role of emerging technology

New and emerging technologies have a vital role in improving the efficiency and sustainability of Australia's plantation forests, maximising their carbon sequestration potential. Amongst other benefits, new innovations in remote sensing, data capture and robotics have the potential to reduce fertiliser and fuel usage while maximising the rate at which trees convert atmospheric carbon into wood. Given the challenges inherent in developing and establishing emerging technologies, we welcome government support for those with the potential to maximise the role that responsible forestry could play in the Net Zero 2050 Plan.

Maximising the potential of forestry as a key enabler of Australia's Net Zero 2050 Plan in other sectors

Looking beyond traditional uses of wood fibre

Wood fibre's value as an inherently sustainable resource for a range of critical industries is already well established, as is its significant contribution to the Australian economy. However, the Department will also be aware of wood fibre's growing potential as a renewable alternative to a range of fossil-based fuels and plastics.

Like all softwood growers, OneFortyOne produces significantly greater quantities of small diameter logs and pulp logs than domestic processors can currently consume. A growing body of research is revealing other potential uses of smaller, lower-value logs. We see significant potential in the development of domestic markets for these emerging uses for wood fibre, both to accelerate Australia's Net Zero transition and to drive regional economic growth.

Green Triangle Forest Industries Hub (GTFIH)

The GTFIH is one of 11 Regional Forestry Hubs across Australia, which were established under the National Forestry Industry Plan 2018. Funded by the Australian Government, the GTFIH is a collaboration representing a cross section of the forest sector in SE South Australia and West Victoria. The Hub is working actively at an industry level to identify additional, innovative use for wood fibre.

In order to supply the volume of fibre required for Australia's future needs, we must identify innovative ways to expand the forest estate and plant more trees beyond the welcome support provided by the government's Plantation Establishment Program.

The GTFIH is therefore exploring ways to work with the agriculture sector to promote the development of a thriving farm forestry industry. A supported structure for farm forestry presents an opportunity to further increase the region's carbon sequestration potential, while offering Australian farmers a route to carbon neutral produce.

Below are three technologies in various stages of emergence which we believe may be worthy of consideration for future research and support as part of the Agriculture and Land Plan.

Sustainable Aviation Fuel (SAF)

Australia has long recognised the contribution that biofuels can make to a more sustainable future. Traditionally, organic material such as bagasse and timber waste has been used as an alternative to coal or gas to generate electricity and heat. OneFortyOne already uses timber residues to fuel the boilers at our Jubilee Sawmill in Mount Gambier, providing a reliable and renewable form of energy.

While OneFortyOne supports the continuation of traditional forms of biofuel, we are also interested in the potential role that timber residues might play in reducing the aviation industry's carbon footprint through the production of bioethanol. The use of ethanol to produce SAF is well understood, with current approaches relying largely on vast amounts of corn or sugarcane as the primary feedstock. In order to reduce the amount of cropland required, we believe it would be worthwhile for the Department to investigate the potential of cellulosic ethanol, derived from timber waste, as a complimentary feedstock. While high costs of production have previously hindered the production of cellulosic ethanol, targeted investment and support could help to address this barrier.

Biochar

The creation of biochar through pyrolysis is a low-tech approach to 'locking in' sequestered carbon while creating a material with a wide range of commercial uses. It has already been shown to have a wide range of benefits in agriculture, horticulture, construction and waste management, with other uses emerging as its popularity grows. In addition to the biochar itself, variations of the process can also produce hydrogen-rich syngas and wood vinegar in varying quantities.

While a fledgling biochar industry is beginning to emerge in Australia, the focused inclusion of this technology in the Agriculture and Land Plan has the potential to create circular economies for both forestry and agricultural residues, locking away sequestered carbon and reducing reliance on harmful soil additives.

Lignin-based bioplastics

The environmental impact of plastics is well understood, both from a waste management perspective and as a major driver for the extraction of unsustainable fossil fuels. We believe that the potential for

domestic production of continually recyclable bioplastic, derived from timber waste, is worthy of further investigation by the Department.

It should be noted that researchers at Boston College are currently developing a method to convert lignin, a polymer abundant in softwood varieties such as *Pinus radiata*, into a continually recyclable bioplastic⁷. Studies at the Shandong Academy of Sciences have also shown the potential the high-strength, lightweight properties of lignin-containing plastic replacements.⁸

Addressing concerns around the end-of-life treatment of wood products

In the past, some have understandably questioned the benefits of carbon sequestration by forest plantations on the basis that much of the wood fibre harvested ultimately ends up in landfill. This scepticism is based on an understanding that landfilled wood fibre rots and releases carbon, primarily in the form of methane, back into the atmosphere. In 2006, IPCC, published guidelines for greenhouse gas reporting in which it was assumed that the release of carbon from decomposing wood products is directly proportional to the organic carbon in the product, publishing a value of 50%. However, numerous scientific studies since have failed to corroborate this figure, suggesting it is a major overestimation.⁹

In particular, we are encouraged by a 2019 study by the New South Wales Department of Primary Industries, which concluded that carbon loss from wood in Australian landfills is much lower than previously thought. The study suggests that an appropriate factor for carbon loss for wood in landfills in Australia would be 1.4%, compared to the 50% previously assumed.¹⁰

While these findings should not detract from the need to develop more circular economies for wood fibre, they do address one of the major concerns regarding the true sequestration potential of commercial plantations and confirm that wood fibre remains a major carbon sink, regardless of end-of-life treatment.

⁷ Hongyan Wang, Gavin J. Giardino, Rong Chen, Cangjie Yang, Jia Niu, and Dunwei Wang. ACS Central Science 2023 9 (1), 48-55, *Photocatalytic Depolymerization of Native Lignin toward Chemically Recyclable Polymer Networks*. [Photocatalytic Depolymerization of Native Lignin toward Chemically Recyclable Polymer Networks \(acs.org\)](https://doi.org/10.1021/acscentsci.3c00001)

⁸ Zirui Zhu, Wenbo Wang, Zhongming Liu, Chao Gao, Nannan Xia, Pedram Fatehi, Fangong Kong, Shoujuan Wang. Industrial Crops and Products Volume 185, 2022, *High-strength, lightweight and sustainable lignin contained cellulose nanofiber bulk materials for plastic replacement*. [High-strength, lightweight and sustainable lignin contained cellulose nanofiber bulk materials for plastic replacement - ScienceDirect](https://doi.org/10.1016/j.indcrop.2022.113700)

⁹ Jean O'Dwyer, Dylan Walshe and Kenneth A Byrne (2017), *Wood Waste decomposition in landfills: An assessment of current knowledge and implications for emissions reporting*. [Wood waste decomposition in landfills: An assessment of current knowledge and implications for emissions reporting \(sciencedirectassets.com\)](https://www.sciencedirect.com/science/article/pii/S0959652617300011)

¹⁰ Fabiano A. Ximenes, Charlotte Björdal, Amrit Kathuria, Morton A. Barlaz, Annette L. Cowie. Waste Management Volume 85, 2019, *Improving understanding of carbon storage in wood in landfills: Evidence from reactor studies*. [Improving understanding of carbon storage in wood in landfills: Evidence from reactor studies - ScienceDirect](https://doi.org/10.1016/j.wasman.2019.04.011)

Social and economic co-benefits of expanding the Forest estate

Supporting a just transition

To be successful, Australia's Net Zero transition must be socially and economically just. Beyond its carbon sequestration potential, responsible plantation forestry offers considerable social and economic co-benefits, which further warrant support from the Agriculture and Land Plan.

In the Green Triangle, in which OneFortyOne operates, the forest industry is an economic pillar. As well as supporting more than 13,000 direct and indirect jobs, it generates more than \$2 billion of economic output¹¹. Our responsibly managed forests also protect against physical hazards, such as flooding and extreme weather, protecting the lives and livelihoods of the communities in which forests grow.

In addition to those employed directly in the growing, harvesting and processing of trees, the forestry and wood products industry supports Australia's crucial construction sector by providing a vital renewable material. According to the government's Labour Market Insights, the sector employs more than 1.3 million people, whose continued prosperity is dependent on a reliable and affordable source of structural sawlog.¹²

Promoting better human health

The positive benefits of forests on people's physical and mental health are well documented and we know how much people enjoy being among the trees on OneFortyOne's plantations. We work hard to ensure local community members can enjoy our forests safely and actively promote the forests as places for recreation, running an annual forest photography competition for local students.

Maximizing the positive impact of the Forestry and Wood Products sector through decarbonisation

The need to address emissions from forestry

In order to maximise the contribution the forestry and wood fibre sectors can make towards achieving Australia's Net Zero 2050 plan, we recognise the need to reduce the emissions produced across the entire Forestry value chain. Collaboration is also required to find ways to reduce the sector's reliance on fossil-fuelled transportation.

OneFortyOne calculates a carbon footprint on an annual basis, recognising both our own operational emissions and those across our value chain. Through this work, we recognise several areas in which systemic, government-supported change will be required to make meaningful emissions reductions.

The transportation challenge

The most significant of these is transportation. Throughout the lifecycle of a product, this includes, but is not limited to, the transportation of harvested trees to mills, intermediary products to other manufacturers and finished products to customers. We recognise that this issue is not unique to our industry, and we have no doubt that considered policy change and investment in this area could have a material impact on the emissions of multiple sectors.

¹¹ Economic Contribution Study of the SA Forestry Industry [Measuring the Impact of OTL \(gtfih.com.au\)](https://gtfih.com.au)

¹² [Construction | Labour Market Insights](#)

For road transportation, the industry is currently reliant on diesel-powered vehicles for almost all transportation.

Encouragingly, the technology required to decarbonise heavy road transportation is being pioneered right here in Australia. Fennell Forestry, based in the Green Triangle, launched the first fully electric logging truck in Australia earlier this year in collaboration with Janus Electric, a New South Wales-based engineering firm.¹³ A similar vehicle is also in operation in Sweden, with a capacity of 80 tonnes.¹⁴

Given the nascent state of alternative technologies and the high levels of capital investment required, a centralised and comprehensive plan – driven by government – is required to transition the industry away from a reliance on diesel-powered vehicles for transportation of heavy goods. Areas of support may include, but are not limited to, support for the development of high-potential technologies, incentives for capital expenditure, and the development of a reliable, low-carbon charging network.

Concluding comments

OneFortyOne believes plantation forestry has an enormous and immediate role to play in accelerating Australia's efforts towards the Net Zero 2050 Plan. For now, it is the only available scalable approach to sequestration and offers multiple co-benefits to the communities in which trees are planted.

Through the Land and Agriculture plan, the Department and wider government have a key role to play in helping to unlock private capital to expand the forest estate, while supporting initiatives to decarbonise the industry. With the appropriate level of support, forestry has the potential to lead the way in Australia's efforts to reach Net Zero by 2050.

Thank you for the opportunity to provide this submission in response to the Land and Agriculture Plan.

Jessica Douglas

Director of Corporate Affairs and Sustainability

¹³ [Fennell Forestry puts Australia's first log truck on the road in Mount Gambier | Fennell Forestry](#)

¹⁴ [SCA's and Scania's unique electric timber truck – SCA](#)