

Capturing the full benefits of plantation forestry in the Green Triangle

Green Triangle Forest Industries
Hub

20 November 2020

NOTICE

Ernst & Young was engaged on the instructions of the Green Triangle Forest Industries Hub ("Client") to review existing publicly available research and provide a concise report on the forest industries potential participation in the Carbon Farming Initiative (CFI) in the Victorian Green Triangle region (i.e. possible impact on plantation estate expansion should the entirety of the Green Triangle be enabled to participate in the Carbon Farming Initiative) ("Project"). This is in accordance with the engagement agreement dated 20 July 2020.

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Plantation forestry participation in the CFI through a Victorian Green Triangle exemption:

- May support industry investment into the estate, supporting jobs and local communities
- Will not cause a rapid expansion of the plantation estate when considering existing investment constraints
- Will support carbon reduction strategies and contribute towards Australia's emissions goals

The study

In recognition of forestry's carbon storage potential, recent amendments to regulations in 2020¹ mean that plantation forestry projects in certain areas can earn carbon sequestration payments through the Australian Government's Carbon Farming Initiative (CFI) and Emission Reduction Fund (ERF) auctions. Previously, in accordance with the *Carbon Credits (Carbon Farming Initiative) Regulations 2011*, forestry projects could only register to participate if they met certain requirements such as:

- ▶ They are on land where there has been no plantation forestry for the past seven years,² and
- ▶ They meet eligibility requirements relating to their likely impact on local water availability.

With the recent amendments to the *Carbon Credits (Carbon Farming Initiative) Regulations 2011* (namely Regulation 3.37), plantation forestry projects in higher rainfall areas (more than 600 millimetres long term average rainfall) are able to now participate provided they are located in a specific region where a material adverse impact on the availability of water is unlikely. To this end, the Commonwealth Government declared the South Australian half of the Green Triangle ("SAGT") as an exempt region (amongst four others), meaning that forest industry operations in this region are exempt from the requirements noted above and can participate in the CFI.³ Maps released by the Australian Government in 2020 indicate that the Victorian Green Triangle ("VGT") is currently 'under consideration' for exemption⁴. As such, the VGT has not yet been declared exempt given Government considerations over factors such as appropriate arrangements being in place to manage water impacts.

To support Government's consideration of this, the Green Triangle Forest Industries Hub (GTFIH) engaged EY to conduct concise and specific desktop research to explore qualitatively the likelihood of a rapid expansion of the plantation forest estate in the VGT should an exemption be provided, and thus the need for concern over water use. EY was not engaged to identify the costs or negative outcomes should the exemption occur in the VGT.

1. Key finding

Access to carbon markets in the Victorian Green Triangle may help stop the plantation base in the region reducing and encourage sustainable investment in this industry.

Plantation forestry in the VGT contributes to reducing the carbon intensity of the economy, meets growing demand for local and export timber products, and supports regional economies and communities. But constraints exist which are limiting growth of the industry. Permitting VGT forestry operators to participate in the Carbon Farming Initiative (CFI) alongside other forestry hubs recognises the carbon sequestration benefits of the industry. It may also help deliver other economic, social and environmental benefits such as increased employment and economic output, contribution towards tree planting targets and supporting climate change objectives.

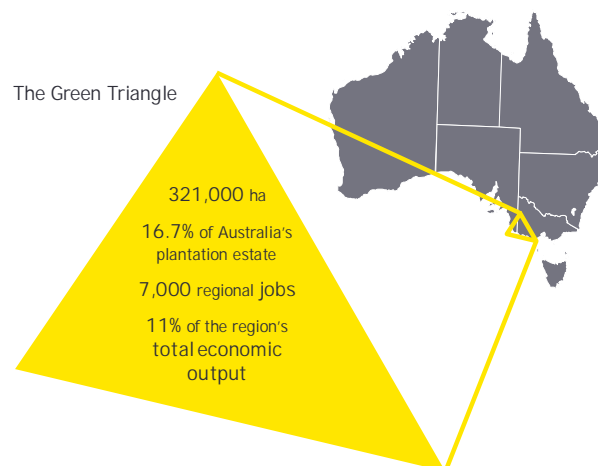
Research indicates this is expected to come with minimal risk of rapid expansion of the plantation estate given the economic fundamentals of forestry investment. Those economic fundamentals mean that there is minimal risk of forestry rapidly expanding its land use. Moreover, water management plans are designed to ensure that all players, including forestry operators, use a fair and sustainable amount of water.

2. The research

Green Triangle plantation forestry supports regional economies and communities

The Green Triangle is Australia's second-largest collective plantation and wood processing zone, covering 321,000 hectares of land and comprising 16.7% of Australia's national plantation estate.⁵ The Green Triangle lies across both sides of the border between Victoria and South Australia, with most operators owning assets in both states.

Forest industries have been a part of local economies for over 140 years, with plantations and processing operations providing concentrated regional employment hubs. The industry supports over 7,000 jobs in the region, directly employing over 3,000 people in local areas.⁶ In Victoria, processing operations are concentrated around the city of Portland, and a connected network of regional transport infrastructure connects forestry output to domestic and international purchasers – including the port of Portland, the world's largest sustainable hardwood chip export facility.⁷



The Green Triangle forestry industry generates an estimated \$2.6 billion in economic output annually – approximately 11% of the total economic output of the region.⁸ Forestry also has economic ties to – or supports – other important local industries. For example, 42% of the inputs required by manufacturing (another key sector for the region) are supplied by the agriculture, forestry and fishing industry.⁹

Several global companies own plantations in the Green Triangle, with investment in the region including the construction of new processing facilities, the purchase and expansion of processing mills, and the commission of research into new processing technologies, timber products, and biomass as a fuel source.¹⁰ Government has also committed to investing in transport infrastructure in the Green Triangle, with the Federal and Victorian governments recently funding upgrades to three regional freight routes.¹¹

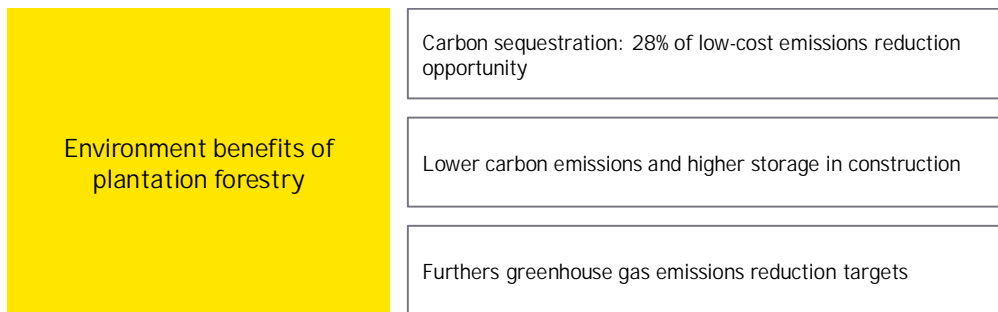
Carbon credits recognise the environmental benefits of plantation forestry

The sequestration of carbon in commercial timber plantations has been recognised as a part of Australia's efforts to meet its greenhouse emissions reduction goals¹² such as the Government's commitment to reduce carbon emissions by 26-28% below 2005 levels by 2030. Establishing forestry plantations is regarded as a significant and relatively low-cost source of potential emissions reductions in Australia compared to other emissions reduction strategies.¹³

Currently, Australian forest plantations store 258Mt of carbon.¹⁴ As a comparison, Australia's greenhouse gas emissions for the year to March 2019 were estimated to be 538.9 MtCO₂e.¹⁵ Looking to the future, BAEconomics modelling based on a 400,000ha increase in plantation estate across seven major forestry regions across Australia found that, annually, the aggregate carbon sequestered by 2030-31 across the regions would amount to 12.97Mt of CO₂e through storage of carbon stored in trees and forest debris.¹⁶

Forestry in the Green Triangle carries significant carbon storage potential. Modelling on a modest expansion scenario of 5,700ha of new radiata pine planted in the Green Triangle (less than 2% estate expansion) found that 1.1Mt of carbon would be sequestered by 2040¹⁷. Further, Tasmanian blue gum, the dominant hardwood species in the VGT, is a designated Kyoto CFI compliant plantation species and has an annual carbon sequestration rate of 24.2/tCO₂e per hectare¹⁸.

Plantation forestry products also carry other notable carbon benefits. For example, timber is a less emissions-intensive building material compared to steel, aluminium and concrete, and provides long-term carbon storage. Industry analysis indicates that where a timber-framed home stores approximately 7.5tCO₂, the production of materials for a steel-framed house emits 2.9tCO₂.¹⁹



Earning credits is unlikely to come at the cost of rapid estate expansion

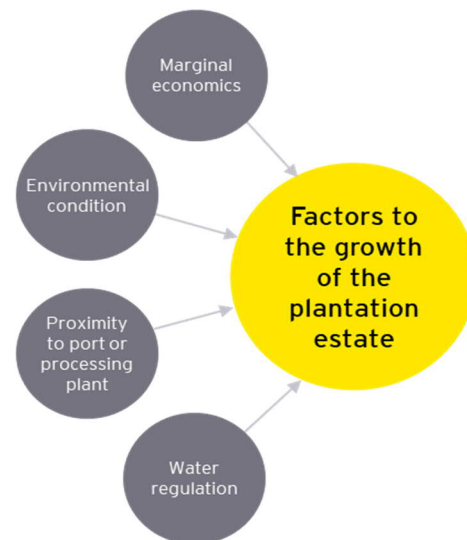
Plantation forestry currently utilises less than 6% of the Green Triangle's 6 million hectares (across South Australia and Victoria). Plantation forestry is only practically and financially viable in select regions, with geographical suitability and proximity to transport and processing infrastructure naturally limiting the expansion of the forestry estate.

The current economic and operating environment means that carbon payments alone (at the current price) are unlikely to cause a rapid expansion of the forestry estate.

Consistent rainfall, fertile soils, flat topography, private sector investment in processing facilities and well-connected freight transport infrastructure all make the Green Triangle one of the most suitable areas for plantation forestry in Australia in terms of environment and infrastructure²⁰ – but physical and financial constraints limit the expansion of the plantation estate. Analysis in 2012 identified approximately 100,000ha of cleared land suitable for new commercial softwood or hardwood plantations²¹ - a small proportion of the total 6 million hectares within the region's boundaries (less than 2%). This is partly driven by the need for an estate to see a minimum of 600-650mm of annual rainfall,²² and be no further than 100-120km from port or processing facilities.²³

As it stands, forestry in the VGT can only compete for land at the margin, and the relative profitability of forestry remains low. Potential income from agricultural production is typically an opportunity cost of new plantations, meaning high agricultural land prices are a major barrier to new plantation investment. Critically, land values in the VGT are high, with the region seeing the highest land values of any national plantation region in 2019.²⁴ Land costs in combination with slow returns inhibit forestry expansion in the Green Triangle, even though conditions support productive plantation estates.²⁵ Upfront costs may also pose a barrier, especially in combination with the long rotation periods (anywhere from 12 to 32 years) with establishment costs for most softwood species at \$1,900/ha and hardwood species at \$2,100/ha.²⁶

Limiting factors to growth of VGT plantation forestry



These factors mean that the next 50 years is likely to see minimal natural expansion to the plantation estate in the VGT under current expectations. ABARES forecasts (based on historic trends, current policy conditions and average land prices) that 4,054ha of new plantation area could be established in the VGT by 2050, all in the period from 2045-50, and all through the conversion of cropping land.²⁷ This compares to the expected area of available cleared agricultural land of close to 2 million hectares – in other words, only 0.2% of the available agricultural land could be taken by new plantation estate.²⁸ Based on the current trajectory, the plantation estate is likely to continue to shrink or at best remain steady.

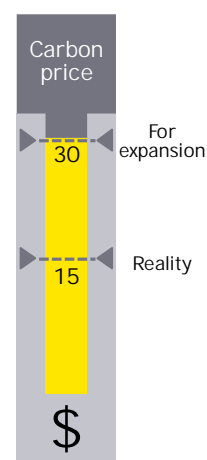
Plantation forestry's water access is regulated

Plantation forestry requires access to water which, in the Green Triangle, is regulated by several regional and state water management frameworks. These frameworks are designed to ensure that no industry – including forestry – is able to draw on more than a fair and sustainable share of available water.

Specifically, forest industry operators – along with other agricultural industries – are issued with water entitlements by their local water corporation as authorised under the *Water Act 1989 (Vic)*. The GWMWater (covering Grampians, Wimmera and Mallee regions) and Southern Rural water corporations are responsible for the areas covered by the VGT. Water corporation decisions are guided by local, regional, state-wide and national water policies and strategies. In the VGT, the *Western Region Sustainable Water Strategy* aims to balance the competing needs for water amongst the towns, farms and businesses of Victoria's western half. These systems manage water demands and ensure that no industry or operator can use more water than is fair or sustainable.²⁹ The above regulatory setting implies that if the industry were to expand, its water use would be regulated and monitored, indicating minimal risk to other water users in the region.

Carbon credits would reduce the current investment return gap

The receipt of carbon sequestration payments at the current carbon price will lower the current gap between expected versus required investment return rates. Industry investors consider that a real, post-tax return of approximately 7% is necessary to make investing in new plantations financially viable – yet under current economic and policy conditions, expected returns of new investment sit at approximately 3%. This explains the decline in new plantation establishment in Australia in recent decades. The opportunity to earn carbon credits goes some way towards narrowing this gap but is unlikely to catalyse rapid expansion as it would not push the profitability of plantation investments into positive territory on its own. The price of carbon in Australia has remained around \$14-16//tCO₂e since 2015³⁰ which, when applied to a case study plantation investment of average timber species and rotation length, increases expected returns by approximately 1-2%. As such, carbon credits are not expected to alone turn a potential investment into a viable investment unless the carbon price approaches \$30/tCO₂e.



Industry views align with modelling undertaken in 2016 that found for a commercial-scale softwood plantation, a carbon price in excess of \$25/tCO₂e would be necessary to deliver positive returns to operations purchasing land at average VGT prices and assuming that the land is within 85km from a port or processing facility.³¹ Other analysis undertaken in 2011 indicated that approximately 11,000 hectares of additional short rotation hardwood plantation could be economically viable by 2050 across the entirety of Victoria under a carbon price of approximately \$23/tCO₂e.³² This reforestation would deliver 1.7m tonnes of carbon dioxide storage in total, and comprise 0.1% of 2011 agricultural land use.³³

In short, enabling access to carbon markets in the VGT is not expected to on its own catalyse significant new plantations given historic and current carbon prices.

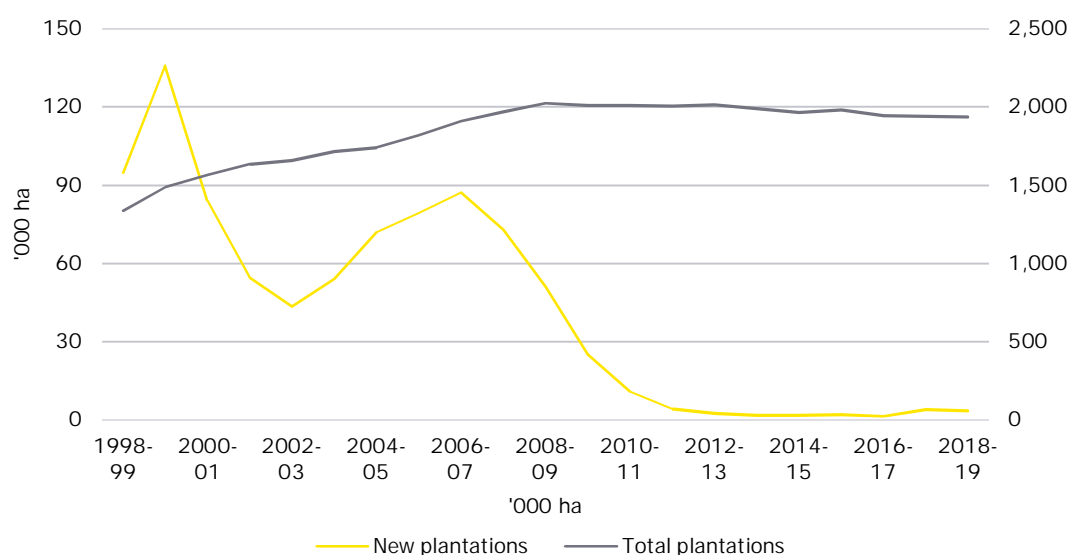
Participation in the CFI would support Victoria’s forest industry

Improving the investment environment for plantation forestry in the VGT through allowing participation in the CFI would provide a level of government support for this industry, potentially enabling the sector to meet growing demand and deliver economic benefits that arise from its activities.

The domestic and international demand for Australian timber products is growing and is forecast to continue to do so, with population growth factors compounded by developments such as transitioning from plastic packaging to sustainable wood-fibre based materials, and the expansion of timber construction materials.³⁴ Projections show domestic demand for wood products continuing to grow, particularly softwood sawnwood, MDF and printing and writing supplies.³⁵ Recognising this demand, the Australian Government has set a target of planting 1 billion new trees – or 400,000ha of plantation estate – by 2030.³⁶ The Green Triangle forest industry has committed to 20% of this target with a goal of planting 200 million trees over the next decade.

However, investment decisions to establish new areas of plantation and to reforest after harvesting are complex, with industry considering factors such as land prices, long growth and revenue times, and pest and climate risks. New plantations have been in decline since the mid-2000s, and only 8% of new plantations established in 2018-19 were privately owned.³⁷

Figure 1: Total and new plantation area - ABARES 2020³⁸



Forestry in the VGT could meet some of this demand (VGT plantations are among the highest yielding in the country³⁹) while supporting local jobs and capturing carbon. However, conditions in the region may not be as conducive to investment as other areas, especially those permitted to obtain the benefits of participation in the CFI. If high land prices continue to make forestry expansion in the GTV unviable, there is a risk that industry may relocate or wind down.

Extending CFI participation to plantation forestry in the VGT would recognise plantation’s environmental benefits and enhance forestry’s contributions to emissions reductions, while continuing to provide economic benefit such as output and jobs.

End Notes

- ¹ Amendments to the CFI regulations in 2020 established an exemption from these requirements for five pilot “Regional Forestry Hubs” created in the Australian Government’s National Forest Industries Plan. These areas are defined as higher rainfall areas where tree planting is unlikely to have a material adverse impact on water availability.
- ² Australian Government, Clean Energy Regulator, *Plantation forestry projects* (2020) <<http://www.cleanenergyregulator.gov.au/csf/how-it-works/explore-project-types/Pages/plantation-forestry-projects.aspx>>
- ³ Australian Government, *Emissions Reduction Fund: Consultation Paper – Proposed amendments to regulations applying to forestry projects* (February 2020), 3.
- ⁴ Australian Government Department of Industry, Science, Energy and Resources, *Specified regions for subregulation 3.37(4A)* (2020) <https://consult.industry.gov.au/climate-change/plantation-forestry/supporting_documents/plantationforestryspecifiedregionsforsubregulation3374A.pdf>.
- ⁵ Rhys Downham and Mijo Gavran, *Australian plantation statistics 2020 update* (June 2020) Australian plantation statistics, Australian Bureau of Agricultural and Resource Economics and Sciences, 3, table 3.
- ⁶ EY, *The Economic Contribution of the Forestry Industry within the Green Triangle* (January 2019).
- ⁷ In terms of annual volume: Port of Portland, “About the Port” (2020).<<https://www.portofportland.com.au/about/port-profile/about-the-port/>>.
- ⁸ EY, *The Economic Contribution of the Forestry Industry within the Green Triangle* (January 2019).
- ⁹ EY, *The Economic Contribution of the Forestry Industry within the Green Triangle* (January 2019).
- ¹⁰ EY, *The Economic Contribution of the Forestry Industry within the Green Triangle* (January 2019).
- ¹¹ The Hon. Michael McCormack MP, the Hon Dan Tehan MP, the Hon Luke Donnellan MP and the Hon Gayle Tierney MP, “A flurry of road works deliver results in the “Green Triangle” (Joint Media Release, 18 August 2018) <<https://minister.infrastructure.gov.au/mccormack/media-release/flurry-road-works-delivering-results-green-triangle>>.
- ¹² See, e.g. Josh Frydenberg, “Explanatory Memorandum to the *Carbon Credits (Carbon Farming Initiative–Plantation Forestry) Methodology Determination 2017*” (2017).
- ¹³ ClimateWorks, *Low Carbon Growth Plan for Australia* (March 2010), 14.
- ¹⁴ Australian Department of Agriculture and Water Resources – ABARES, *Australia’s State of the Forests Report 2018* (2018), 10.
- ¹⁵ Australian Department of the Environment and Energy, *Quarterly Update of Australia’s National Greenhouse Gas Inventory: March 2019* (2019), 3.
- ¹⁶ Anna L Matysek and Brian S Fisher, *Carbon sequestration potential of plantation forestry expansion in Australia* (June 2018) BAEconomics, 16.
- ¹⁷ Anna L Matysek and Brian S Fisher, *Carbon sequestration potential of plantation forestry expansion in Australia* (June 2018) BAEconomics, 10.
- ¹⁸ Kevin Burns et al, *Abatement potential from reforestation under selected carbon price scenarios* (July 2011) Australian Bureau of Agricultural and Resource Economics and Sciences, Special Report, 9.
- ¹⁹ Timber NSW, “Timber in the Carbon Economy” (2020) <<https://timbernsw.com.au/timber-in-the-carbon-economy/>>.
- ²⁰ Regional Development Australia, Victorian Department of Primary Industries and South Australian Department of Primary Industries and Regions, *Green Triangle Forest Industry Prospects* (2012), 8-9.
- ²¹ Regional Development Australia, Victorian Department of Primary Industries and South Australian Department of Primary Industries and Regions, *Green Triangle Forest Industry Prospects* (2012).
- ²² Dean Severino and Chathura Hasanka, *Next Generation Plantation Investment Research Project: Land assessment* (2015) Melbourne University Faculty of Science, Report No. 5 of the Next Generation Forest Plantation Investment Research Project, 4, Anna L Matysek and Brian S Fisher, *The Economic Potential for Plantation Expansion in Australia* (February 2016) BAEconomics for the Australian Forest Products Association, 17.
- ²³ Anna L Matysek and Brian S Fisher, *The Economic Potential for Plantation Expansion in Australia* (February 2016) BAEconomics for the Australian Forest Products Association, 17.
- ²⁴ Linden Whittle, Peter Lock and Beau Hug, *Economic potential for new plantation establishment in Australia: Outlook to 2050* (February 2019) Australian Bureau of Agricultural and Resource Economics and Sciences, Research report 19.4, table 2.
- ²⁵ Anna L Matysek and Brian S Fisher, *The Economic Potential for Plantation Expansion in Australia* (February 2016) BAEconomics for the Australian Forest Products Association, 18.
- ²⁶ Linden Whittle, Peter Lock & Beau Hug, *Economic potential for new plantation establishment in Australia: Outlook to 2050* (February 2019) Australian Bureau of Agricultural and Resource Economics and Sciences, Research report 19.4, table 2.
- ²⁷ Linden Whittle, Peter Lock & Beau Hug, *Economic potential for new plantation establishment in Australia: Outlook to 2050* (February 2019) Australian Bureau of Agricultural and Resource Economics and Sciences, Research report 19.4, 21- 4.
- ²⁸ Linden Whittle, Peter Lock & Beau Hug, *Economic potential for new plantation establishment in Australia: Outlook to 2050* (February 2019) Australian Bureau of Agricultural and Resource Economics and Sciences, Research report 19.4, fig. 14.
- ²⁹ The forest industry must also comply with the Code of Practice for Timber Production, made under the *Conservation Forests and Lands Act 1987* (Vic). The Code provides a comprehensive set of regulations for all aspects of forestry operations, including the use and management of water resources.
- ³⁰ Australian Government Clean Energy Regulator, “Australian Carbon Credit Units Market Update – October 2019” (18 October 2019)

<<http://www.cleanenergyregulator.gov.au/Infohub/Markets/Pages/Buying%20ACCUs/ACCU%20market%20updates/Australian-Carbon-Credit-Units-Market-Update-%E2%80%93-October-2019.aspx>>.

³¹ Anna L Matysek and Brian S Fisher, *The Economic Potential for Plantation Expansion in Australia* (February 2016)

BAEconomics for the Australian Forest Products Association, 18.

³² Kevin Burns et al, *Abatement potential from reforestation under selected carbon price scenarios* (July 2011) Australian Bureau of Agricultural and Resource Economics and Sciences, Special Report, 19.

³³ Kevin Burns et al, *Abatement potential from reforestation under selected carbon price scenarios* (July 2011) Australian Bureau of Agricultural and Resource Economics and Sciences, Special Report, 22.

³⁴ Australian Department of Agriculture and Water Resources, *Growing a better Australia: A billion trees for jobs and growth* (2018), 2.

³⁵ Linden Whittle, Peter Lock and Beau Hug, *Economic potential for new plantation establishment in Australia: Outlook to 2050* (February 2019) Australian Bureau of Agricultural and Resource Economics and Sciences, Research report 19.4, table 1.

³⁶ Australian Department of Agriculture and Water Resources, *Growing a better Australia: A billion trees for jobs and growth* (2018), 2.

³⁷ Rhys Downham and Mijo Gavran, *Australian plantation statistics 2020 update* (June 2020) Australian plantation statistics, Australian Bureau of Agricultural and Resource Economics and Sciences, 6.

³⁸ Rhys Downham and Mijo Gavran, *Australian plantation statistics 2020 update* (June 2020) Australian plantation statistics, Australian Bureau of Agricultural and Resource Economics and Sciences, v.

³⁹ Linden Whittle, Peter Lock and Beau Hug, *Economic potential for new plantation establishment in Australia: Outlook to 2050* (February 2019) Australian Bureau of Agricultural and Resource Economics and Sciences, Research report 19.4, table 3.

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