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December 11, 2023

Agriculture, Land, and Emissions Discussion Paper – Submission and comments

I have prepared the following submission as an independent resource economist with significant experience in both agriculture and forestry. In addition to being a continuing partner in a farming operation in the [REDACTED] NSW, I have also acted as:

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1. General Comments

I welcome attention being given to the Agriculture and Land Use sector, as the first of the six planned sectoral decarbonisation plans under the Net Zero 2050 Plan. **However, I feel the potential contribution of forestry to the decarbonisation task is severely underplayed.** Figure 3 (page 17) of the discussion paper clearly shows that forestry (in sequestering carbon, and the resultant wood products continuing to store carbon) is the major source of 'negative emissions' for this sector.

Any consideration of the need to reduce net emissions from the Agriculture and Land Use sector **must** include a detailed analysis of the potential for increased carbon capture and storage by the forest sector – including increasing the plantation estate as well as ensuring continuing access to native forest timber production.

Further data has been compiled by the NSW DPI (*Ximenes F., DPI Forest Science, November 2023*) which indicates the importance of the forest sector in capturing and storing carbon:

- Forests in Australia store 10.5 billion tonnes of carbon (excluding soil carbon), which represents 77 times Australia's annual net greenhouse emissions. Additionally, around 11.5 billion tonnes of carbon are estimated to be stored in forest soils in Australia
- Depending on age, the rate at which eucalypt trees can sequester carbon ranges from 6.5 tonnes C/ha/yr when young to 0.7 tonnes C/ha/yr as trees age.
- The carbon footprint of 1m³ of kiln dried hardwood is a **net removal** of 731 kg. CO₂-e, comprising around 1220kg remaining in the product, with 489 kg. of emissions resulting from harvesting, haulage, processing and packaging. For 1m³ of kiln dried and dressed softwood, the equivalent net removal is 718 kg. CO₂-e.

Work completed by FWPA on the impacts of plantation pine substitution for alternative building materials (Perry, Peachey and Binney, 2021 – *Estimating the implications of net-zero targets*) has demonstrated that when timber from one hectare of plantation pine is used to manufacture framing products, it can deliver 5-13 new dwellings. Replacing an equivalent number of steel framed houses with timber framing would deliver a net saving of 55-197 tonnes of CO₂-e. Alternatively, timber framing from one hectare of pine plantations can be used to build 10-23 timber mid-rise apartments, reducing emissions by 240-547 tonnes of CO₂-e compared to concrete apartments. This analysis demonstrates that it is important to consider the products provided by the timber industry, as well as the direct capture and storage function of growing trees, when planning for the decarbonization of the economy.

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The important role of the forest and wood products sector has already been recognized by the UN, with the IPCC Special Report on climate change and land (*IPCC: Summary for policy makers - 2019*) containing the following conclusions:

- *“Sustainable forest management aimed at providing timber, fibre, biomass, non timber resources and other ecosystem functions and services, can lower GHG emissions and can contribute to adaptation”.*
- *“Sustainable forest management can maintain or enhance forest carbon stocks, and can maintain forest carbon sinks, including by transferring carbon to wood products, thus addressing the issue of sink saturation. Where wood carbon is transferred to harvested wood products, these can store carbon over the long-term and can substitute for emissions-intensive materials reducing emissions in other sectors”.*

I would therefore suggest that any consideration of emissions from agriculture must include a comprehensive assessment of the role of the forestry (and the resulting wood products) sector in providing solutions to the overall problem.

2. Specific Answers to Questions Raised

The Discussion Paper contains several questions to which views are sought. I have provided my own answers to some of these questions:

1. What are the opportunities to reduce emissions and build carbon stores in agriculture and the land? What are the main barriers to action?

As outlined above, **planting more trees and continuing to access production forests** would certainly build carbon stores in the land use sector. The main barriers to this action include:

- Political decisions to halt access for the timber industry to sustainably managed native forests, for which there is no scientific basis.
- The need to purchase cleared agricultural land for the establishment of plantations, which imposes a capital barrier due to the high cost of such land and therefore makes the achievement of a satisfactory rate of return difficult, acting as a disincentive to private sector investment.
- Concern over future political decisions which may remove ‘right to harvest’ provisions currently contained in relevant legislation, which acts as a barrier to planting trees for commercial production on farms.

These barriers are all ‘supply side’ issues – there is an increasing demand (globally and nationally) for wood fibre, as demonstrated in recent announcements from COP28. Establishing a larger wood production estate (plantation and native forest) would not only contribute to reducing net emissions from the land sector, but would also assist in overcoming current supply shortages for Australia.

5. What are the most important options to be further adopted or supported?

6. What are the practical solutions to increase uptake?

Both these questions can be answered together. Encouraging new tree planting, and supporting continued access to sustainably managed native forest, will increase carbon capture and storage, and therefore assist in reducing net emissions from the agriculture and land use sector. Farm forestry is also to be encouraged, particularly if commercial-scale areas are proposed. The discussion paper recognizes the role of farm forestry, but does not promote the expansion of large-scale production plantations – nor does it call for continued sustainable management of native forests for timber production. Increased uptake of proposals to expand the plantation estate could be encouraged by public sector purchase of land which is then leased to private forest growers, thus removing the capital barrier involved in land purchase and improving IRR results for this investment. Clear Government statements to manage native forest on the basis of science, rather than arbitrary decisions based on emotive perceptions, would also be of assistance.



7. How do you see the agriculture and land sectors contributing over the medium and longer term? What are the opportunities to deliver emission reductions in parallel with wider goals?

A closer integration of agriculture and forestry would be beneficial in considering the ability of this combined sector to provide opportunities to reduce net emissions. The promotion of farm forestry will provide four clear benefits:

- Increase carbon capture and storage as a result of tree growth, and sale of wood products such as house framing, furniture and decking, and plastic-replacing paper products
- Allowing farming enterprises to derive benefits from the ecosystem services provided by adding trees to the landscape, such as salinity control, productivity improvements, biodiversity improvements, etc.
- Adding another source of revenue to the farming operation, offering buffers in periods of adverse seasonal conditions
- Increasing the domestic supply of timber and assisting to develop sovereign capacity for Australia, thus reducing the current negative balance of trade in wood products.

However, farm forestry (although offering major benefits) cannot be considered as an alternative to large-scale commercial wood fibre production, whether from plantations or from native forests.

9. What new initiatives could the Australian Government design that would support emissions reduction and carbon storage in agriculture and help ensure a productive, profitable, resilient and sustainable future for the agriculture and land use sector?

The Australian Government has already developed a grant program to encourage plantation establishment. However, this total fund is limited, and at the quoted support of \$2,000 per hectare, the fund would only contribute to an expansion of around 38,000 ha of new plantations. This area is less than the area lost in the SW Slopes region of NSW alone as a result of the 2019-2020 bushfires. A much larger fund is required to support a significant expansion in the plantation estate.

A more cost-effective option may be for the Government to purchase suitable land and then lease it to a private plantation operator. Similarly, existing areas of Crown Land currently used for other purposes could be leased to forest growers.

3. Overall Needs for inclusion

In summary, while the discussion paper is at least a welcome recognition of the potential role of this sector in net emission reduction, there is scope for more to be made of the ability of production trees to both capture carbon (via photosynthesis) and also to store carbon in the soil and in the products derived from forestry output. In particular, the discussion paper should include:

- Clear statements of an intent to expand the plantation estate in Australia.
- Clear statements of an intent to ensure access for logging to sustainably managed native forests.
- A closer integration of agriculture and forestry in consideration of emissions

I am happy to provide any further information that may be relevant to a consideration of the points raised in this submission.

