An emissions knowledge gap analysis for the forest and wood products sector

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Forest & Wood Products Australia

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An Emissions Knowledge Gap Analysis for the Forest and Wood Products Sector

Project report

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This project is supported by the Australian Government through funding from the Carbon Farming Outreach Program.

DISCLAIMER. Please note: The purpose of this report is to inform policy development and sector capability building. This is a high-level, sectoral analysis and should not be interpreted as operational, investment, or procurement advice.

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PREFACE

This project report is supported by the Australian Government through funding from the Carbon Farming Outreach Program.

Indufor Asia Pacific (Australia) Pty Ltd ('Indufor') has prepared this report at the request of Forest & Wood Products Australia ('FWPA'), with funding support from the Australian Government represented by the Department of Agriculture, Fisheries and Forestry ('DAFF').

The Australian Government funding support for this report comprised a Grant provided to FWPA, as part of the Agricultural and Land Sectors Low Emissions Future program. The purpose of this program is to support Australian farmers and land managers to reduce emissions and sequester carbon to contribute to Australia's climate change commitments and remain internationally competitive.

Indufor, acting on behalf of FWPA as the Grantee, has undertaken this Activity in accordance with the requirements outlined in the *Carbon Farming Outreach Program Integrated Approaches to Building On-farm Emissions Knowledge Stage 1: Gap Analysis Grant Opportunity Guidelines* and the relevant grant application.

Therefore, this report is intended to inform policy development at the national, state and local government levels, and to assist FWPA provide meaningful, comprehensive and timely information to support stakeholders with their land use decisions. The information provided is regional in nature and is not intended to be relied on for investment decisions pertaining to specific properties.

The data collected and stakeholder engagement reflected in this report was collated between July and November 2025.

Indufor would like to thank the Australian Government for its funding of this gap analysis, and FWPA for all its support in the development and delivery of the project.

Indufor would also like to thank all the contributors to the report, who provided valuable inputs and viewpoints and, in some cases, relevant data. These contributions were provided through interviews and stakeholder meetings, horizontal consultation with other Research and Development Corporations in the land sector, and other forms of engagement. Collectively, they provided substantial input to this gap analysis. The findings, interpretations, and conclusions presented in this report do not necessarily reflect the views of key stakeholders. However, their support for the project and inputs to the review are gratefully appreciated.

Indufor Asia Pacific (Australia) Pty Ltd

Contact:

Blair Freeman
Indufor Asia Pacific (Australia) Pty Ltd
Level 7, 276 Flinders Street
Melbourne VIC 3000
AUSTRALIA

EXECUTIVE SUMMARY

This report presents an emissions knowledge gap analysis for the forest and wood products sector in Australia. This analysis was conducted as part of a broader, cross-sectoral initiative supported by the Australian Government and its Carbon Farming Outreach Program (CFOP).

CFOP is designed to support farmers and land managers to reduce emissions and sequester carbon, contributing to Australia's climate change commitments while remaining internationally competitive.

Under this program, the Australian Government allocated grants to support all the rural Research & Development Corporations (RDCs), including Forest & Wood Products Australia (FWPA), to conduct an emissions knowledge gap analysis for their respective sectors. RDCs were identified as best placed to identify gaps in commodity specific information to include in a knowledge bank – or 'knowledge hub' - due to their institutional role in supporting leading research and best practice adoption within Australia agriculture.

Purpose and objectives

This gap analysis will be used to identify and compile commodity specific information on emissions reduction opportunities to include in the CFOP Knowledge Hub.

Specifically, all RDCs were asked to undertake a comprehensive gap analysis to determine:

1. current gaps in publicly available and accessible commodity specific information relating to emissions reduction, emissions intensity and carbon sequestration,
2. the most appropriate and functional commodity specific information formats and delivery channels, including potential structure of the proposed knowledge bank, and
3. opportunities for horizontal collaboration with other RDCs and commodity groups and vertical collaboration with the broader supply chain to develop information that leverages existing CFOP training materials.

Consultation within the sector

The development of this gap analysis involved extensive consultation with stakeholders, both within the forest and wood products sector and with rural RDCs and associated organisations representing other sectors encompassing agriculture and fisheries.

Consultation within the sector included the following:

- milestone-based meetings with a Project Steering Committee, comprising FWPA leadership together with a broad range of relevant expertise and representation of national associations, CSIRO and statutory authorities supporting private forests development;
- preparation of project consultation paper comprising a summary of existing knowledge available to the forest and wood products sector, preliminary 'strawman' perspectives on apparent gaps in emissions knowledge, and consultation questions to prompt responses;
- circulation of the consultation paper via the Steering Committee and industry networks, with accompanying presentations of the consultation paper to established working groups in the sector, to request feedback from interested sector participants; and
- follow up engagement with approximately 20 sector representatives on their specific feedback and issues raised.

Extensive cross-RDC consultation and collaboration

In addition, this gap analysis comprised extensive cross-sector ('horizontal') consultation with other RDCs, principally through cross-sectoral coordination and multiple roundtable discussions over a three-month period between September and November 2025.

This horizontal consultation with other RDCs was substantial and broad ranging. It comprised:

- collaboration with counterpart organisations convening three roundtable meetings with 10 other RDCs, to share and discuss methodologies for the gap analysis, emerging and preliminary findings, and opportunities for cross-sector collaboration;
- engagement with representatives of the Australian Government's Department of Agriculture, Fisheries and Forestry (DAFF) and Department of Climate Change, Energy, the Environment and Water (DCCEEW), discussing the government's requirements and expectations from this gap analysis across the rural land sector;
- subsequent meetings between the FWPA project team and DCCEEW, and NSW Government Department of Primary Industries and Regional Development (DPIRD), to discuss further the ongoing development of Voluntary Emissions Estimation and Reporting Guidelines (VEERG) for agriculture, fisheries and forestry - specifically in relation to the plans for the forestry sector and addressing the current gap in applicable guidelines; and
- concurrent meetings with representatives of AIA and the CRC for Zero Net Emissions in Agriculture (CRC ZNE-ag) to discuss ongoing plans for the development of a Greenhouse Accounting Framework (GAF) tool for the forestry sector, which can be incorporated within an Environmental Accounting Platform (EAP) for all rural sectors.

FWPA was actively engaged in this horizontal consultation with other rural RDCs, including support for convening the roundtable discussions and the synthesis of outcomes.

Existing knowledge and key sector initiatives and programs

To inform the gap analysis for the forest and wood products sector, a rapid review of the existing knowledge basis was conducted. This review identified a broad range of existing knowledge relating to emissions reduction and carbon sequestration, specifically within forests and wood product supply chains. This reflects in large part, the long-standing recognition of forests as major carbon reservoirs and their role as net carbon sinks.

In addition, the review identified three notable sector initiatives and programs currently underway that are expected to contribute directly to additional publicly available and accessible commodity specific information relating to emissions reduction, emissions intensity and carbon sequestration. These major projects comprise:

- the Forest and Wood Products Industry Decarbonisation Plan to 2050,
- the ongoing development of FullCAM plus CSIRO models with FullCAM functionality, and
- the development of a GAF tool for the forestry and wood products sector, and concurrent development of the VEERG and EAP for commodities across the broader land sector.

Key information gaps

The review of the existing knowledge base and current sector initiatives informed the identification of key knowledge gaps within the forest and wood products sector. This analysis was further informed by sector feedback on the consultation paper prepared for this project, as well as direct engagement with the AFPA Carbon Subcommittee, Forestry Australia's Carbon Working Group, and sector experts.

Based on this gap analysis, a list of key knowledge gaps - grouped under three distinct categories relating to sectoral capacity to address these gaps - is set out in **Box 1**.

Box 1. Key knowledge gaps in the forest and wood products sector

Scope for a centralised knowledge hub to provide guidance to existing information:

1. Lack of a centralised directory to current knowledge for landholders about the multiple positive aspects of trees on farms, including the benefits of plantation forestry compared to not-for-harvest carbon plantings.
2. Lack of a centralised national listing of carbon service providers to support the forest and wood products sector, beyond the Clean Energy Regulator (CER) register of auditors for NGER Reporting.

Sector development priorities:

3. Absence of a decarbonisation strategy or action plan for the forest and wood products sector, setting out an authoritative sector baseline, emission reduction targets, and strategies to realise these targets in the future.
4. Lack of a standard reporting framework or tool specifically for the sector to monitor, track and report on reducing fossil fuel emissions along forest and wood product supply chains, for Scope 1, 2 and 3 emissions.
5. Limited industry guidance on good practice for reducing emissions along supply chains, for scope 1, 2 & 3 emissions, including cost-effective methods to collect emissions data and emission intensity factors.
6. Limitations on the extent of knowledge of carbon storage in wood products used in the built environment, especially in the construction sector.

Cross-sector priorities for horizontal collaboration:

7. Lack of a centralised portal for FAQs and CER guidance for landholders seeking to better understand longer-term contractual obligations for ACCU Scheme projects.
8. Lack of a centralised portal for further CER guidance for project proponents seeking clarifications for application of existing ACCU Scheme methods and guidelines.
9. Limited information available on ACCU Scheme method proposals *under development*, to provide landholders with clear guidance to inform land use decisions.
10. Limitations on landholder access to FullCAM functionality and capability for forest carbon projects, due to its complexity and its design for national and subnational reporting.
11. Limitations on the provision of regular updates to FullCAM with new data and functional improvements to support an expanding range of programs and projects.
12. Limited centralised guidance to carbon market intelligence services with detailed analysis on carbon prices for distinct types of projects.

Information formats and delivery channels

The information required to address these key knowledge gaps may comprise a broad range of formats, including sectoral strategies and plans, landholder guidance documents, sophisticated modelling systems and new accounting tools. Most of this information can be hosted on website portals, with the notable exception of stakeholder forums and webinar series. This leads to further consideration of the key delivery channels for this information and the delivery roles for the CFOP Knowledge Hub, FWPA, and other organisations in the sector.

Horizontal consultation conducted for this gap analysis incorporated cross-sectoral consideration of the best ways in which to address the apparent information gaps and the central role for the CFOP Knowledge Hub. This consideration led to general agreement on the need to recognise each sector has existing peak bodies (including their respective RDC) and trusted advisors already providing guidance to farmers/producers – and that the CFOP Knowledge Hub should serve as a central access point, linking to existing resources rather than duplicating them, with a strong focus on usability for farmers and trusted advisors.

Recognising this proposed role for the CFOP Knowledge Hub as a central access point that supports *all* the land sector commodities, it is proposed FWPA could be a key portal for *sector-specific information* for the forest and wood products sector. This role for FWPA would be complementary to the CFOP Knowledge Hub, as a primary source of reliable, sector-specific information grounded in contemporary research, development and extension services.

This proposed role for FWPA as a key portal for information on emissions reduction and carbon sequestration in the forests and wood products sector is broadly aligned with approaches evident in other sectors and reflects the established role of RDCs as trusted providers and curators of reliable, sector-specific information. Relevant examples of this approach include website portals developed by Dairy Australia, AgriFutures and the Australian Meat Processor Corporation, which are similarly set up to provide this type of information.

In addition to this role for FWPA, there are other portals and delivery channels for relevant information for industry participants in the forest and wood products sector. This includes the anticipated role for a new 'Forestry GAF' and application of the AIA EAP to the forestry sector over the next 1-2 years. Other existing delivery channels include website portals maintained by Australian Government agencies (including DAFF, DCCEEW and the CER), national and state level industry associations, notably AFPA; professional membership associations, notably Forestry Australia; state government agencies and programs supporting forest industry development; and statutory agencies set up to support forest growers.

Recommendations

Drawing on the extensive consultation and collaboration conducted for this gap analysis, a set of actionable recommendations has been prepared to address priority gaps for the forest and wood products sector especially, with consideration given to horizontal collaboration. These recommendations reflect priorities for the sector and are grouped in accordance with nominated leading roles for implementation of the recommendations – notably, the CFOP Knowledge Hub, DAFF, DCCEEW, the CER, and FWPA as the RDC for the sector.

Recommendations for the CFOP Knowledge Hub:

1. Prepare and provide online, a comprehensive national listing of carbon service providers, with affiliations and recognised areas of expertise, which is regularly updated, for example, every 6-12 months. This listing should extend beyond existing lists of auditing functions to guidance on relevant expertise and experience.
2. Compile and set up an online listing with links to a representative range of relevant reports on the multiple positive aspects of trees on farms, drawing on reports identified in this gap analysis. Note recent and relevant reports by Regional Forestry Hubs on this theme.
3. Compile and set up an online listing with links to a representative range of relevant reports on the performance aspects of carbon storage in wood products used in the built environment. While the built environment is largely beyond the scope of this gap analysis, the relatively low emissions intensity of wood products compared to non-wood building products is a very important part of the business case for plantation forestry and a key driver of further emission reductions in the sector.

Recommendations for DCCEEW, with support from DAFF:

4. Support the further development of the VEERG and the AIA-led development of a GAF tool for the forest and wood products sector (through existing project contracts), through a timely implementation process that incorporates direct engagement and consultation with FWPA, AFPA, Forestry Australia and CSIRO on sector requirements for a standardised reporting framework for net enterprise emissions.
5. Engage with DAFF, FWPA and AIA on the further consideration of the scope to incorporate FullCAM functionality into the GAF tool for forestry and biogenic carbon calculations.

Recommendations for DAFF, with support from DCCEEW:

6. Engage with all RDCs to further explore the scope for providing a single source of regional climate scenarios, as regional initiatives, to support climate-related disclosures, avoid expensive duplication of climate scenarios by agribusinesses, and to make clearer for farmers what the future climate impacts will be for their farm and communities.
7. Engage further with all the rural RDCs on the scope to explore the potential benefits of the use of AI to further develop the design and systems for the centralised CFOP Knowledge Hub and sector portals for information on emissions reduction and carbon sequestration.

Recommendations for the Clean Energy Regulator (CER):

8. Prepare or collate more detailed guidance notes specifically for landholders on the contractual obligations over the long term for ACCU Scheme projects, to address questions and potentially perceived constraints for landholders. This may include building on Australian Government investments to date in webinar series – such as the CER '*Be ACCUrate*' series, which could be maintained - to convey this information directly to farmers, foresters and landholders, through live sessions to enable questions, complemented by an archive of recorded sessions.
9. Convene or support the facilitation of a regular stakeholder forum to provide ACCU Scheme project proponents (potentially by sector), with regular updates on method developments and to address questions on method interpretations.
10. Maintain an online listing of prioritised ACCU Scheme methods *under development*, with status notes updated regularly (indicatively quarterly) including the stage of development, next steps, and anticipated timeline for next steps, to provide further guidance for stakeholder expectations.

Recommendations for FWPA, with support from stakeholders in the sector:

11. Support the development of a set of good practice guidance materials to identify and describe cost effective ways for reducing fossil fuel emissions along industry supply chains. This should include relevant case studies from within the forest and wood products sector and other sectors.
12. Consider the scope for FWPA to provide further support to the CFOP Knowledge Hub by developing a designated portal for sector-specific information on emissions reduction and carbon sequestration along forest product supply chains, based on contemporary research, development and extension services.
13. Support or facilitate a sector-led review of the extent to which FullCAM functionality comprising indicative estimates of carbon sequestration and storage in the land sector can be made more readily available to landholders and their advisors, potentially through existing models or directly through the GAF tool.

ACRONYMS

ACCU	Australian Carbon Credit Units
AFPA	Australian Forest Products Association
AI	Artificial Intelligence
AIA	Agricultural Innovation Australia
ASRS	Australian Sustainability Reporting Standards, which require businesses to report on their greenhouse gas emissions, including Scope 1, 2, and 3 emissions, starting from January 2025, in a phased program
CER	Clean Energy Regulator
CFOP	Carbon Farming Outreach Program
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
DCCEEW	Australian Government Department of Climate Change, Energy, the Environment and Water *(unless specifically referring to the NSW Government Department of the same name)*
EAP	Environmental Accounting Platform (developed by AIA)
EPD	Environmental Product Declarations
FullCAM	Full Carbon Accounting Model
FWPA	Forest & Wood Products Australia (an RDC)
GAF	Greenhouse Accounting Framework
GUI	Graphical User Interface
LCA	Life Cycle Assessment
LOOC-C	Landscape Options and Opportunities for Carbon Sequestration – Calculator (CSIRO)
LULUCF	Land Use Land Use Change and Forestry (an IPCC designation for sector reporting)
NFF	National Farmers Federation
NGGI	National Greenhouse Gas Inventory
NZEAgCRC	Zero Net Emissions Agriculture Cooperative Research Centre
PFT	Private Forests Tasmania
RDC	Research and Development Corporation
VCS	Verified Carbon Standard (under the VERRA Program)
VEERG	Voluntary Emissions Estimation and Reporting Guidelines for Agriculture, Fisheries and Forestry

1. INTRODUCTION

This report presents an emissions knowledge gap analysis for the forest and wood products sector as part of a broader, cross-sectoral initiative to identify key knowledge gaps across the land sector and develop a knowledge hub for farmers and other landholders. This project is supported by the Australian Government through funding from the Carbon Farming Outreach Program (CFOP).

Australia's forest and wood products sector is a net carbon sink within the national greenhouse gas inventory, with forest growth and harvested wood products removing more carbon dioxide from the atmosphere than they emit. In 2020–21, sustainable forest management and harvested wood products together sequestered around 43.8 million tonnes CO_2-equivalent, equivalent to around 8% of Australia's total emissions that year (MIG & NFISC, 2024). Carbon remains stored long-term in wood products, and substituting timber for high-emissions materials (such as concrete and steel) further reduces embodied emissions. Therefore, Australia's forest and wood products sector is strategically important to meeting national emissions reduction and net-zero objectives.

The Australian Government has recognised the forest and wood products sector, and the wider agriculture sector, are crucial to reaching national emission reduction targets, including substantial reductions by 2035 and achieving net zero emissions by 2050; and support is needed to help these sectors realise their carbon abatement potential.

In this context, CFOP is designed to support farmers and land managers to reduce emissions and sequester carbon to contribute to Australia's climate change commitments and remain internationally competitive (Australian Government, 2025a). CFOP was established in 2022/23 to run for six years to 2027–28. The specific objectives for CFOP are to: support farmers and land managers to make decisions to reduce emissions and sequester carbon; build capacity of trusted advisers to deliver independent advice on reducing emissions and sequestering carbon; and facilitate access to clear, consistent and culturally appropriate information on carbon farming, low emission technologies and practices.

To address these objectives, the CFOP allocated grants to support all the Rural Research & Development Corporations (RDCs), including Forest & Wood Products Australia (FWPA), to conduct an emissions knowledge gap analysis for their respective sectors. RDCs have been identified as best placed to identify gaps in commodity specific information to include in the knowledge bank, due to their institutional role in supporting leading research and best practice adoption within Australia agriculture.

Under this program, FWPA was engaged as a grantee to conduct an emissions knowledge gap analysis for the forests and wood products sector. Specifically, all RDCs were required to undertake a comprehensive gap analysis to determine:

1. current gaps in publicly available and accessible commodity specific information relating to emissions reduction, emissions intensity and carbon sequestration
2. the most appropriate and functional commodity specific information formats and delivery channels, including potential structure of the proposed knowledge bank
3. opportunities for horizontal collaboration with other RDCs and commodity groups and vertical collaboration with the broader supply chain to develop information that leverages existing CFOP training materials.

This report presents the FWPA gap analysis, comprising the approach to sectoral and cross-sectoral engagement and key findings. The gap analysis will be used to identify and compile commodity specific emissions reduction information to include in the CFOP 'Knowledge Hub'.

2. METHODOLOGY FOR GAP ANALYSIS

The methodology for this gap analysis comprised a series of steps relating to project governance, consultation within the sector, consultation with other RDCs, and compilation and consolidation of the analysis outcomes, to prepare a set of recommendations.

An overview of the methodology is set out in section 2.1. Supporting information is provided in report annexes.

2.1 Overview of approach

The approach adopted to conducting this gap analysis comprised the following key steps:

- Firstly, the formation of a Project Steering Committee (August 2025) to provide project oversight and guidance to relevant sources of information, apparent information gaps, and key contacts for engaging more broadly with the forest and wood products sector on this gap analysis. The Steering Committee comprised representatives from FWPA; the Australian Forest Products Association (AFPA); CSIRO; and Private Forests Tasmania.
- Engagement between the project team and the Steering Committee (via online meetings) on the scope and key definitional issues for the gap analysis, including project boundaries that align with the CFOP's primary focus on '*producers on farm*'.
- Preparation of project consultation paper comprising a summary of existing knowledge available to the forest and wood products sector; preliminary 'strawman' perspectives on apparent gaps in emissions knowledge; and a set of consultation questions to prompt responses from industry representatives.
- Circulation of consultation paper (September 2025) via email, with accompanying meetings to present the Consultation paper to established working groups in the sector, and request feedback from interested sector participants. These meetings included presentations to:
    - The AFPA Carbon Subcommittee – comprising indicatively 15 representatives of leading companies and organisations across the forest and wood products sector, who meet on a regular (quarterly) basis to discuss key industry initiatives and projects relating to support carbon sequestration in forests, carbon storage in wood products, and emissions reduction along the entire supply chain from forests through to the built environment and other markets.
    - Forestry Australia's Carbon Working Group – comprising nine (9) representatives of forest scientists, farm foresters and forestry professionals working across Australia and more broadly around the world. The Carbon Working Group is actively involved in supporting the forest sector professionals to understand the opportunities and challenges associated with increasing carbon stocks in the land sector and supporting society's emissions reduction targets through sustainable forest management.
- Follow up engagement with sector respondents on specific feedback and issues raised. This engagement comprised a series of Teams calls as well as correspondence with approximately 20 sector representatives.
- Targeted engagement with key sector experts on specific aspects – for example, further development of FullCAM and integration of FullCAM functionality into tools that can be used to encourage farmers, foresters and land managers to increase carbon sequestration. This comprised engagement with technical specialists from CSIRO, the NSW Department of Primary Industries and Regional Development, and Sustainable Timber Tasmania.

- Targeted engagement with nominated sector representatives in other related sectors, including representatives of the National Farmers Federation (NFF) and Agricultural Innovation Australia (AIA). Engagement with AIA led to subsequent meetings to discuss further the ongoing development of an Environmental Accounting Platform (EAP) for the agriculture, fisheries and forestry sectors, which is discussed further under section 4.3.

2.2 Horizontal consultation

In addition, this gap analysis comprised extensive horizontal consultation with other RDCs, principally through cross-sectoral coordination and multiple roundtable discussions during the period between September and November 2025.

This horizontal consultation with other RDCs was substantial and broad ranging. It comprised:

- Collaboration with counterpart organisations to convene three roundtable meetings with 10 other RDCs (refer **Annex 1** for list of these RDCs), to share and discuss methodologies applied to the gap analysis within their respective sectors, emerging and preliminary findings, and opportunities for cross-sector collaboration.
- Engagement with representatives of the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Climate Change, Energy, the Environment and Water (DCCEEW), through two (x2) of these roundtable meetings included direct to discuss the government's requirements and expectations from this gap analysis across the rural land sector and the anticipated outcomes for CFOP.
- Subsequent meetings between the FWPA project team and DCCEEW and NSW DPIRD to discuss further the ongoing development of Voluntary Emissions Estimation and Reporting Guidelines (VEERG) for agriculture, fisheries and forestry - specifically in relation to the plans for the forestry sector and addressing this current gap in standards.
- Concurrent meetings with representatives of AIA and the CRC for Zero Net Emissions in Agriculture (CRC ZNE-ag) to explore and better understand ongoing plans for the development of a Greenhouse Accounting Framework (GAF) tool for the forestry sector, which can be incorporated within AIA's EAP in due course. These initiatives are discussed further under section 4.3.

A summary list of all the consultation with sector experts, sector representatives and nominated representatives of RDCs and experts for other sectors, is set out in **Annex 1**.

Following this extensive engagement and consultation on horizontal collaboration, the gap analysis for the forest and wood products sector was consolidated into this project report. The draft report was submitted to the Project Steering Committee for review and feedback. Feedback was then incorporated into a final report submitted to FWPA for final approval.

2.3 Scoping and definitional issues

The CFOP specified the gap analyses for each sector should be focussed on information relevant to ***producers on-farm*** (Australian Government, 2025a). However, the Department also acknowledged that each commodity group is different, with different supply chains and emissions profiles. It may therefore be appropriate to also consider ***information relevant to producers that extends beyond the farm gate***.

Applying this focus to the forests and wood products sector, the project team proposed the primary focus be on information relevant to land managers who grow or manage *forest resources*, i.e., forest growers, comprising commercial plantation managers, farm forestry, and private native forest interests, who typically deliver their products to the 'mill gate'. That is, the translated scope includes the management of forests and forest products, including transport

of those products to their primary markets, which may be a sawmill or related processing facilities.

This focus was based largely on translating 'on-farm' to essentially *forests and land managed for wood production* (with wood products being the 'commodity group'), and the harvesting and sale of wood products from the forest, as well as other forest values and services.

Furthermore, the project team proposed this review be focussed largely on the *private sector*, recognising that public land management agencies typically have more access to existing knowledge, tools and resources; and the intent of the CFOP is focused mainly on private sector farmers and landholders that typically have more scope than public land managers to choose the land use and production systems on their lands.

The Project Steering Committee supported this approach and the agreed scope boundaries for this gap analysis are summarised in **Table 2-1**.

Table 2-1 Scope boundaries for gap analysis in the forest and wood products sector

Boundaries	In scope for gap analysis	Out of scope or secondary interests
Sector	• The forestry sector that manages, harvests, regenerates and processes forests to produce wood products while supporting environmental, economic and regional outcomes	• National parks and conservation reserves • Private native forests that are managed under conservation covenants or otherwise exclude any form of timber production
Sector participants	• Commercial plantation managers • Farm forestry growers • Landholders considering establishing new forests for production activities • Integrated farm & forest managers • State forests • Private native forest managers	• Wood processing sector[1] • Advanced manufacturing sector[1] • Construction sector[1]
Land sector activities	• Opportunities for emissions reduction, emissions intensity and carbon sequestration within production forests, primarily on private land	• Management of native forests that does not include any form of timber production
Downstream activities	• Recognition of carbon stored in harvested wood products, where that is attributable to growers • Emissions reduction opportunities arising from scope for use of forestry residues for bioenergy.	• Emissions reduction opportunities in the wood processing sector, manufacturing sector or downstream supply chains[1] • Emission reduction opportunities in the construction sector, beyond the recognition of carbon stored in harvested wood products including engineered wood products, e.g., LVL, CLT and GLT[1].

Source: Indufor.

Note 1: While these opportunities within the wood processing sector and construction sector are largely out of scope for this gap analysis, it is referenced in recognition that they can provide a significant contribution to realising Australia's emission reduction targets in 2035 and 2050.

3. EXISTING KNOWLEDGE BASE IN THE SECTOR

Compiling a summary of existing knowledge relevant to the CFOP can assist to identify knowledge gaps, uncertainties, and priorities for future research or policy development, as well as provide a clear baseline and prevents duplication.

3.1 Overview of existing knowledge base

Across the forest and wood products sector, there is a broad range of existing knowledge relating to emissions reduction and carbon sequestration. This reflects in large part, the long-standing recognition of forests as major carbon reservoirs and their role as carbon sinks and sources. This includes, for example, the Montréal Process Criteria & Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (The Montréal Process Working Group, 2015), which comprises indicators for assessing carbon storage in biomass and soils, and changes due to management, to ensure forests support climate stability.

A summary of relevant examples of existing knowledge of emissions reduction and carbon sequestration in the forest and wood products sector is presented in section 3.2. Key points to note in respect to the existing knowledge base include:

- The forest and wood products sector is the major contributor to the Land Use, Land Use Change and Forestry (LULUCF) sector for IPCC report. This sector features both anthropogenic emissions and removals from managed lands, reflecting the biophysical carbon balance of terrestrial ecosystems. This gives rise to a predominant interest and focus within the sector on carbon sequestration opportunities and recognition under available carbon crediting methods, principally under the Australian Carbon Credit Units (ACCU) Scheme, notably for plantations but potentially native forest management in the future.
- The application of ACCU Scheme methods is still in a formative/development stage for current methods, notably the Plantation Forestry Method, and project proponents including project developers and prospective landholders have reported on an ongoing need for further information and guidance from the CER to ensure reasonable and consistent interpretation of methods, specifically on key issues such as eligibility and calculating carbon abatement. This engagement has typically been through separate, bilateral engagement with the CER, which is resource intensive for project proponents and the regulator. **This presents an apparent knowledge gap, as there is currently no centralised portal for 'FAQs' or regularly updated 'interpretation notes' applicable to existing ACCU Scheme methods.** This could be addressed through a more centralised, democratised knowledge hub with relevant guidance, including CER decisions.
- FullCAM is the Australian Government's designated model for estimating carbon stocks and fluxes across the land sector and the government has mandated its use in compiling the NGGI and for approved land sector methodologies under the ACCU Scheme. FullCAM is a complex and highly sophisticated modelling system, and due to the complexity of its interface, it is not readily accessible to a broad range of landholders. Other modelling tools have been developed for use by the sector. These include models that draw on the functionality of FullCAM with a more user-friendly interface to provide indicative estimates (for example, CSIRO's LOOC-C and NatureIQ™ models) as well as FLINTpro, providing a sophisticated data platform for national and subnational land system assessments. However, FullCAM continues to be the primary model for use in calculating carbon stocks and carbon stock changes in land sector systems.

- While FullCAM provides an established model for calculating carbon sequestration and ACCU estimates based on biogenic carbon (representing carbon *removals*), it should be noted there is not the same type of 'industry standard' modelling system or framework currently in place for calculating, tracking and reporting energy use and emissions along forestry and timber industry supply chains (representing carbon *emissions*). There is a range of studies that provide relevant guidance on emissions estimations and life cycle analysis for forest products, including cradle to grave inventory (refer for example to Hillier & Murphy, 2000, and England et al, 2013), and this guidance could be compiled to develop a standardised industry framework for reporting on enterprise emissions.

  However, stakeholder consultation for this gap analysis has pointed to **the limited extent of centralised information on good practice guidance on how forest growers and forest product companies can reduce fossil fuel emissions along their supply chains, and current case studies for reducing emissions from enterprise operations, of all scales.** To an extent, this apparent gap in relation to emissions reporting will be addressed through a forthcoming industry-wide Decarbonisation Plan that is discussed further in section 4.

- More broadly, there is a range of published reports reflecting knowledge of the opportunities for further emissions reduction and carbon sequestration, across the forest and wood products sector. However, this knowledge generally sits with a broad range of knowledge holders and custodians and **there is no centralised directory or hub that provides guidance to landholders who may be unfamiliar with the breadth and status of relevant information.**

  Notable knowledge holders include FWPA (the RDC), AFPA (the peak national industry body representing industries covering the forest products value chain), Forestry Australia (representing forest scientists, growers and forestry professionals), CSIRO as well as State government agencies (e.g., Private Forests Tasmania), State based associations, Regional Forestry Hubs (11 in total across Australia) and the increasingly prominent role of Australian Forest and Wood Innovations (AFWI) in advancing forest and wood products research through regional Research Centres, fostering innovation, sustainability, and industry collaboration.

  This broad network of organisations is working to support sustainable forest management, wood product development, carbon accounting, and climate resilience across the forestry sector – but in the context of this emissions knowledge gap analysis, **there is an apparent gap in cataloguing relevant information and having a knowledge hub that can direct landholders and other interested parties to where relevant information resides**. Furthermore, there is no synthesis of the relevant information available, to provide a clear summary of the guidance available for foresters, farmers and other land managers.

3.2 Relevant examples of existing sources of knowledge within the sector

A list of relevant examples of existing knowledge relating to emissions reduction and carbon sequestration in the forest and wood products sector can be grouped into distinct categories.

Emission reduction opportunities in the forests and wood products sectors:

- FWPA: *Forests, Plantations, Wood Products & Australia's Carbon Balance* (2023).
  A prominent summary of the state of knowledge of the carbon balance in the forest and wood products sector, and part of a series of publications including a carbon glossary.

- FWPA: *Private Forestry Guidance Materials* (2024). Part of a series of information for small-scale forestry, featuring an introduction to carbon markets.
- Private Forests Tasmania is currently developing a *Carbon Forestry 101 project*, to build awareness, understanding, confidence and participation among Tasmanian farmers and landowners in carbon forestry opportunities.

Carbon crediting methods under ACCU Scheme – existing methods:

- DCCEEW website provides a listing of existing approved methodologies. The Plantation Forestry Method 2022 is the only method currently that supports forest commodities as well as carbon sequestration.
- The CER website also contains substantial information on methods and houses the ACCU Scheme Project Register. Method guidance includes guidance on baseline emission calculations, and emission reduction & carbon storage potential.

Carbon crediting methods under ACCU Scheme – under development:

- The DCCEEW website provides high level listing of methods that are currently under development – though only limited detail, and none currently are relevant to forestry commodities. Current examples include the Integrated Forest and Land Management method proposal.
- FWPA: *Carbon abatement options for Australian forestry in the ACCU Scheme* (2024). Forestry can contribute to climate mitigation in a variety of ways.

Estimating emissions reduction and carbon storage potential:

- FullCAM: Estimating emissions reduction and carbon storage potential in forest and wood products requires use of FullCAM to be recognised under federal and state programs. These requirements are set out in approved ACCU Scheme methods.
- CSIRO LOOC-C: an online tool that enables land managers to assess options on the land for certain projects offered under the ACCU scheme.

Government policy support for new plantations and farm forestry:

- Policies supporting plantation establishment and carbon sequestration include:
    - The *Support Plantation Establishment* program (Australian Government)
    - *Victorian Plantation Support Program* (Victoria)
    - Australia's *Net Zero Plan* (2025), which features primary roles for reforestation and increasing increase future plantation forest resources.
- State Government policies, plans and programs – for example, Tasmania's *Climate Change Action Plan 2023-25*, and *LULUCF Emissions Reduction and Resilience Plan*, provide specific support for new plantations and farm forestry.

Benefits and trade-offs in relation to growing trees on farms:

- There is a growing body of published evidence on the benefits of growing trees on farms, including consideration of trade-offs. Examples include:
    - Meyer et al (2025) *Maximising co-benefits of trees on farm* (see **Figure 3-1**).
    - Monckton et al (2022) *Maximising the benefits of trees on farms in Tasmania*.

- Francis et al (2022) *Case studies of the financial performance of silvopastoral systems in Southern Queensland, Australia*.
- O'Grady et al (2024) *Ecosystem accounting to value ecosystem assets and services provided by agroforestry*.

Nature Positive and Natural Capital considerations:

- The DCCEEW website provides information on the national *Nature Positive Plan* (2022) and Australia's Nature Repair Market. It also presents approved methods, though none currently cater for commodities from managed forests.
- There is also a range of published literature that shows well-designed plantations can deliver nature positive outcomes. Relevant examples are:
  - Paul et al. (2016) *Managing reforestation to sequester carbon, increase biodiversity potential and minimize loss of agricultural land*.
  - Luo L et al. (2024) *Emissions-offset incentives, carbon storage and profit optimisation for Australian timber plantations*.
  - Regan et al. (2024) *Can Australian plantation forest carbon offset methods increase carbon storage and timber supply?*
  - World Business Council on Sustainable Development (2025) *Forest Sector Nature-Positive Roadmap.*

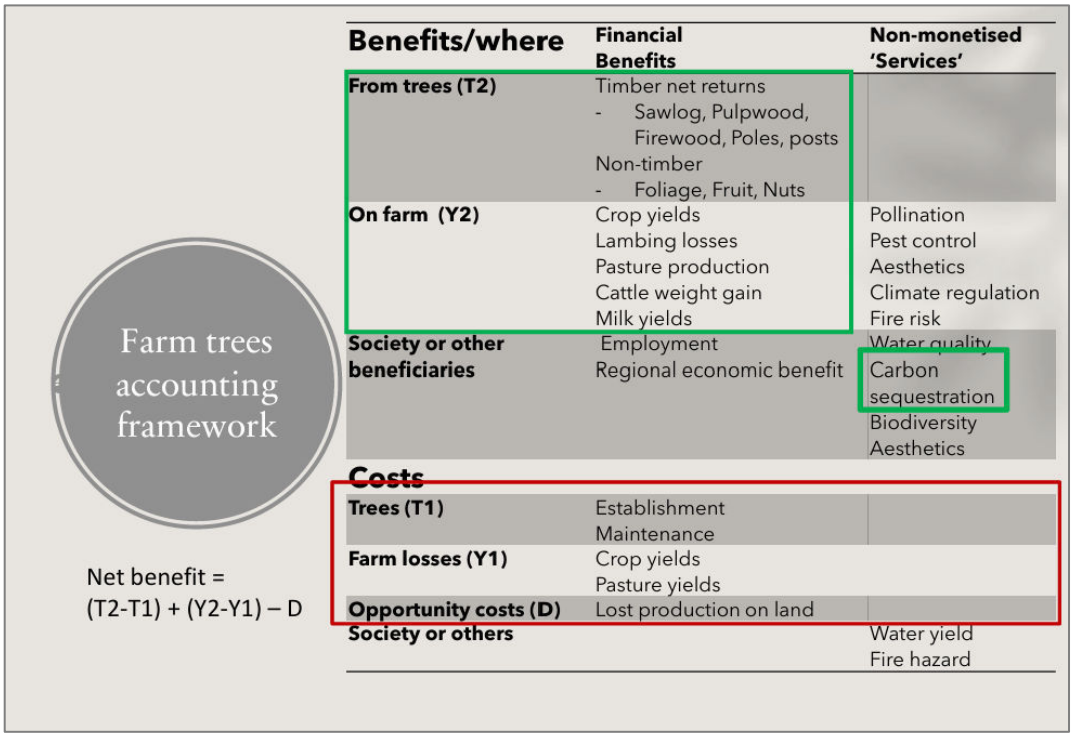
Carbon service provider options:

- Forestry Australia has a website list of Registered Forestry Professionals with registered expertise in forest carbon management and ACCU project assessments.
- Carbon Market Institute has an *Australian Carbon Industry Code of Conduct*, and a public list of signatory service providers committed to CMI standards.
- Some states have established State directories – for example, WA DPIRD's Carbon Farming Service Provider Directory – guidance to land sector and advisers; and Private Forest Tasmania's Directory of Tasmanian Forestry Services.

These examples of the existing knowledge base within the forest and wood products sector reflect the current state of knowledge across the sector.

These examples include several observations on related knowledge gaps. These gaps are discussed further in section 5, following further consideration of several notable sector initiatives and programs that are expected to provide relevant commodity specific information in the near term.

Figure 3-1 Example of published information on the benefits of farm trees



Benefits/where	Financial Benefits	Non-monetised 'Services'
From trees (T2)	Timber net returns - Sawlog, Pulpwood, Firewood, Poles, posts Non-timber - Foliage, Fruit, Nuts	
On farm (Y2)	Crop yields Lambing losses Pasture production Cattle weight gain Milk yields	Pollination Pest control Aesthetics Climate regulation Fire risk Water quality
Society or other beneficiaries	Employment Regional economic benefit	Carbon sequestration Biodiversity Aesthetics
Costs		
Trees (T1)	Establishment Maintenance	
Farm losses (Y1)	Crop yields Pasture yields	
Opportunity costs (D)	Lost production on land	
Society or others		Water yield Fire hazard

Source: derived from Meyer et al (2025) *Maximising co-benefits of trees on farm*; and Keenan et al (2023) *The Business Case for Trees on Farms.*

4. SECTOR PROJECTS PROVIDING COMMODITY SPECIFIC INFORMATION

Building on the existing knowledge base, there are three notable sector initiatives and programs currently underway that are expected to contribute directly to additional publicly available and accessible commodity specific information relating to emissions reduction, emissions intensity and carbon sequestration. These major projects comprise:

- The Forest and Wood Products Industry Decarbonisation Plan to 2050
- The ongoing development of FullCAM plus CSIRO models with FullCAM functionality
- The Greenhouse Accounting Framework (GAF), the AIA EAP, and GHG estimation and reporting for the forestry and wood products sector.

4.1 The Forest and Wood Products Industry Decarbonisation Plan

FWPA, in partnership with the AFPA and Wood Beca, is nearing completion of a sector-wide *Forest and Wood Products Industry Decarbonisation Plan* to achieve better than carbon-neutral outcomes by 2050. The plan will include a roadmap for the industry, incorporating carbon sequestration within commercial forest estates and recommendations for various sectors comprising softwood and hardwood plantation forests, and managed native forests, as well as (sectors that are largely outside the scope of this analysis including) wood processing sites, and the paper and packaging manufacturing sector.

This roadmap project has modelled industry emissions projections out to 2050, establishing baseline projections and high-level pathways to realise future targets. Furthermore, it was designed to leverage FWPA's strengths in supporting industry collaboration in research, development, and extension, and is underpinned by ongoing research work to increase plantation area, yield, and productivity related to carbon sequestration.

The *Forest and Wood Products Industry Decarbonisation Plan* is scheduled for publication in March 2026. Building on the substantial work and modelling completed to date, FWPA and AFPA have agreed in principle to consider the release of the Decarbonisation Plan as 'Phase 1' of this flagship industry initiative, and committed to further work through 'Phase 2' that will provide more detailed guidance for the industry on specific actions that will comprise:

- Case studies providing specific industry examples of carbon sequestration projects and emission reduction strategies – for example, expansion of plantation forests and farm forestry plantings, the electrification of truck haulage fleets and wood processing facilities, and improved recognition of carbon storage in long lived wood products, compared to relatively high emissions-intensive building products (i.e., concrete, steel and aluminium).
- Quantification of emission reduction benefits from case studies and industry initiatives including ongoing research and development, to illustrate the indicative gains from prospective industry initiatives and the scale of change required to realise industry targets.
- Case studies and examples of cross-sectoral initiatives that involve the forest and wood products industry working together with other sectors, notably the farming sector, to realise significant emission reduction benefits at a regional level and national scale.

Phase 2 of the Decarbonisation Plan initiative is expected to commence in 2026 and continue over a period of indicatively 12-18 months. In this way, the Decarbonisation Plan initiative – through Phases 1 and 2 - is expected to provide valuable commodity specific information and guidance for the whole sector on opportunities for significant emission reductions over time.

4.2 FullCAM and land sector models incorporating FullCAM functionality

The Full Carbon Accounting Model (FullCAM) remains central to Australia's carbon accounting for the forestry sector. DCCEEW publishes and updates FullCAM for national inventory and ACCU Scheme projects, with a major public release and calibration updates in 2024 that introduced recalibrated plantation and mallee yield curves, new climate data through 2022, and a revised Forest Productivity Index (FPI) (DCCEEW, 2024). The FPI was re-estimated using updated satellite and meteorological data, improving how FullCAM captures climate variability's effect on forest growth.

Development is ongoing — the model is actively maintained, periodically recalibrated with new climate and productivity data, and supported by guidance and transition arrangements so projects retain investment certainty.

In addition, CSIRO uses FullCAM outputs in its downstream modelling tools, which have been described as part of the broad array of 'nature tech' tools available to forestry and the wider land sector. These include:

- LOOC-C delivers rapid, user-friendly estimates by querying a database of pre-run FullCAM simulations - note LOOC-C does not run FullCAM live.
- NatureIQ™ is an environmental and biodiversity digital assessment tool developed by CSIRO. It combines many CSIRO environmental indicators for corporate and project assessments. Currently these indicators are predominantly focussed on biodiversity, more so than emissions and carbon sequestration; but CSIRO does use FullCAM to inform the selection of key indicators.

Other notable nature tech tools and systems that are used by the forestry sector include:

- FLINTpro, a private sector initiative, is an integrated land sector accounting system that spatially quantifies carbon stocks, greenhouse gas fluxes, and selected ecosystem services. It was designed to support policy, reporting, and investment decisions by consistently modelling land use, management activities, and biophysical processes across landscapes. FLINTpro was designed to incorporate FullCAM-equivalent logic and parameters, enabling replication of FullCAM estimates of carbon stocks and stock changes where the same model structure, assumptions, inputs, and emission factors are applied.
- Aetium™ is a forest carbon accounting system developed to estimate and track forest carbon stocks and changes over time. It integrates forest inventory data, growth and yield models, and spatial information to calculate above- and below-ground biomass carbon under different forest types, management regimes and scenarios. It also incorporates a registry system for carbon crediting, which is an entirely separate scheme to the ACCU Scheme.

While recognising the benefits of having access to this broader suite of nature tech systems, industry consultation conducted for this gap analysis reconfirmed the primary role of FullCAM for carbon accounting in the forestry sector - especially in respect to supporting the uptake of ACCU Scheme projects (notably the Plantation Forestry Method) and enabling forest managers to align their reporting on carbon stocks and carbon stock change with the national inventory.

In this context, several stakeholders observed the importance of ensuring the further development and enhancement of FullCAM is prioritised at the national level, i.e. by the Australian Government, and not overlooked in favour of developing other, more user-friendly nature tech tools and platforms.

While the other modelling tools and platforms are complementary and can provide a broader range of functionality for a broad range of requirements, FullCAM remains central to carbon accounting in the sector and must be uploaded and enhanced accordingly.

These stakeholders also identified several limitations of FullCAM (public release version) and challenges for project proponents using it to estimate abatement estimates, including:

- Limited development of a user-friendly interface for model users
- Limited functionality to set up and manage the carbon accounting for plantation projects that feature conversion from short rotation to long rotation regimes, which may also include a change of species as part of the project
- Outdated default parameters for wood products and market destinations for plantation forestry projects, notably hardwood plantations grown on a long rotation for sawlogs
- No capacity to recognise the carbon stored in harvested wood products, beyond their assumed service life – that is, if they are disposed in recycling or landfill sites.

While not necessarily a 'gap' in the context of this review, these limitations represent scope for further resourcing of the ongoing development of FullCAM, to maintain its capacity to meet the broad range of needs of the forestry sector, encompassing the management of native forests, plantations and farm forests.

4.3 GAF tools and the AIA Environmental Accounting Platform

Concurrently, a new Greenhouse Accounting Framework (GAF) is under development for the forest and wood products sector to provide a forestry-specific model for estimating GHG emissions and sequestration. This new framework, which may be referred to as the 'Forestry GAF', is expected to be suitable for use by a broad range of forestry enterprises including wood processors and manufacturers of wood products.

The new GAF for the forest and wood products sector will follow the development of GAF tools for a range of agricultural sectors over the past two decades. The University of Melbourne conceptualised the framework and has led the development, in collaboration with research and industry partners, to provide commodity specific models for estimating farm-level GHG emissions and sequestration across major agricultural sectors (Primary Industries Climate Challenges Centre, 2025). These tools have been tailored to sectoral contexts (for example, red meat, grains and dairy). However, each operates as a standalone calculator or model, which has limited interoperability and comparability across industries.

The Australian Government is now directly supporting the development of GHG emissions calculators and tools for a broad range of agricultural commodities (DAFF, 2025a) and this encompasses GAF development, with a view to improving the consistency of on-farm emissions estimates across the land sector.

Concurrently, DCCEEW is supporting a cross-sectoral Reference Group that was established to provide guidance and advice to support the development of related guidelines (DCCEEW, 2025). The *Voluntary Emission Estimation and Reporting Guidelines* (VEERG) for the agriculture, fisheries and forestry sectors is an ongoing program that will guide the further development of GAF tools and associated accounting tools. This program is currently developing a guideline for the forestry sector (among others) that will guide the development of a 'Forestry GAF', which is expected to be completed and released during 2026.

Separately, but relatedly, Agricultural Innovation Australia (AIA) is developing an EAP to deliver a consistent, cross-commodity GHG calculation engine for meat and livestock, grains, horticulture, sugar, cotton, wine, and forest and wood products.

The EAP will essentially ‘digitise’ and integrate the GAF tools, to provide an online calculator and open-source code for providers and producers. Whereas GAF provides the scientific foundation and data models, the EAP represents a systems-level implementation—transforming discrete tools into an integrated, user-friendly, and scalable national platform.

The Australian Government has provided AIA with a targeted grant of $6.4 million to support EAP development (over a period of four years), specifically funding alignment firstly to GAF tools and then to the forthcoming voluntary agricultural, fisheries and forestry reporting guidelines. The grant terms will make the calculation engine and code freely available through the funded period (Australian Government, 2025b).

Pending further development of the ‘Forestry GAF’, AIA plans to integrate forestry-sector tools — including links to the FullCAM model used in national land-sector accounts — so the platform can span enterprise-level footprints and land-sector sequestration estimates.

Overall, the EAP aims to provide a standardised, science-aligned basis for emissions reporting and decision-making across Australia’s rural sectors. The project is a three-year program launched in August 2025 with funded activity running through to June 2028.

5. KEY KNOWLEDGE GAPS IN THE SECTOR

The review of the existing knowledge base (section 3) and current projects (section 4) informed the identification of key knowledge gaps within the sector. This analysis was further informed by sector feedback on the consultation paper prepared for this project, as well as direct engagement with the key stakeholder groups and sector experts.

Based on this gap analysis, a list of knowledge gaps was compiled and is set out in **Table 5-1**. This list includes key knowledge gaps that the forest and wood products sector is actively working to address, such as the development of the sector-wide Decarbonisation Plan.

In this context, the list of key knowledge gaps comprises consideration of the scope for 'CFOP opportunities' to address gaps in commodity specific information for the forest and wood products sector. These opportunities are identified under three distinct categories:

- ***Scope for a centralised knowledge hub***: Recognising the sector has the information to address knowledge gaps or is well advanced in preparing or collating this information, CFOP can provide a centralised directory or knowledge hub for farmers, foresters and landholders who may be looking for this information to inform land use decisions.
- ***Sector development priority***: The sector has the capability but may require additional resources to address specific gaps, drawing on the latest research, stakeholder needs and expertise within the sector.
- ***Cross-sector priority***: The knowledge gap should be addressed through further cross-sector horizontal collaboration, building on the engagement conducted for this gap analysis, to ensure consistency across commodities and avoid duplication.

5.1 Information gaps that could be addressed by a centralised knowledge hub

The first category is the scope for CFOP to provide a knowledge hub, or centralised directory, especially for new entrants to the forests and wood products sector, or farmers and landholders in the agriculture sector or other sectors with an interest in establishing trees on farms, as farm forestry, plantation forests or environmental plantings.

This gap analysis has identified a range of relevant information is already available or becoming available, including the ongoing development of FullCAM and GAF tools and models incorporating FullCAM functionality. However, a centralised directory could guide all interested stakeholders to the knowledge holders and most recent updates, based on an open-source approach. Relevant examples of this existing and emerging knowledge include:

1. *Benefits and trade-offs from planting trees on farms:*

   The CFOP Knowledge Hub could provide a valuable directory to current knowledge for landholders about the multiple positive aspects of trees on farms, including the benefits of plantation forestry compared to environmental (i.e. not for harvest) carbon plantings.

2. *Carbon service providers:*

   The CFOP Knowledge Hub could also provide a centralised, regularly updated listing of carbon service providers to support the forest and wood products sector.

5.2 Information gaps that represent sector development priorities

The second grouping comprises *sector development priorities*, which are knowledge gaps that can be addressed within the sector; but CFOP resources could be directed to these priorities to accelerate this program of support for farmers and land managers. These priorities comprise:

3. *Industry decarbonisation strategies or action plans*

   The forthcoming Forest & Wood Products Industry Decarbonisation Plan, representing Phase 1 of this initiative, will set out a sector baseline, emission reduction targets and strategies to realise these targets in the future. Phase 2 (set to commence in 2026) will provide more detailed guidance for industry participants on case study examples and the indicative quantification of net benefits.

4. *Limited industry guidance on good practice for reducing emissions along forest sector supply chains, for scope 1, 2 & 3 emissions, including cost-effective methods to collect data and emission intensity factors.*

   Building upon the forthcoming Industry Decarbonisation Plan (Phase 1 scheduled for publication in early 2026), there is scope for the sector to prepare a set of case studies and good practice guidance for reducing emissions along supply chains. This Phase 2 work is expected to include specific examples of projects such as new plantation establishment, more efficient processes for fertiliser treatments in plantation forests, the potential for electrification of vehicle and truck fleets, increased use of renewable energy and bioenergy in wood processing facilities, and more efficient construction systems using timber and engineered wood products.

5. *Lack of an industry standard reporting framework or tool specifically for the sector to monitor, track and report on reducing fossil fuel emissions along forest and wood product supply chains, for Scope 1, 2 and 3 emissions.*

   Most large-scale growers and wood products companies in Australia are already collating substantial data on their operational emissions because of new or forthcoming mandatory requirements under the Australian Sustainability Reporting Standards (ASRS) for reporting in relation to Scope 1, 2 and 3 emissions. Australian legislation requires that from 1 January 2025, in-scope companies must include Scope 1 and 2 greenhouse-gas emissions in their annual sustainability reports, with material Scope 3 emissions required from year two. In addition, some companies are collating data on their operational emissions because of voluntary certification requirements and other corporate pledges.

   However, this gap analysis has identified an apparent gap in the form of a standardised framework for this reporting and a lack of case study guidance on good practice for reducing emissions from enterprise operations, of all scales. Furthermore, smaller scale growers have not had the same imperative to date to identify and compile emissions data and there is a lack of a standardised framework to support these initiatives.

   This is a knowledge gap priority for the forest and wood products sector; however, the framework and tools should be developed to align with the GAF tools for other sectors and the AIA EAP, for consistency with other sectors.

6. *Limitations on the extent of knowledge of carbon storage in wood products used in the built environment, especially in the construction sector.*

   This information gap reflects the sectoral observation that the CFOP has a predominant focus on carbon sequestration in forests, with its focus on the ‘farm gate’ or ‘mill gate’ - and there is generally less awareness and limited understanding of the role of harvested wood products in storing carbon within building projects, and reducing emissions through substitution for more emissions-intensive construction materials.

   The Australian Government has committed to advancing policies and approaches that support low carbon construction and increase the use of wood from sustainably managed forests in the built environment, on the basis that such policies and approaches will result in reduced GHG emissions, and an increase in stored carbon (DAFF, 2025b).

The manufacturing of wood products and use of these products in the built environment extends beyond the scope of this gap analysis. However, stakeholders in the forest and wood products sector have observed that the carbon advantages of wood products – i.e. the relatively low emissions intensity of wood products compared to non-wood products such as concrete, steel and aluminium – is a very important part of the business case for plantation forestry, and therefore a key driver of further emission reductions in the sector.

5.3 Information gaps that represent cross-sector priorities

The third grouping of information gaps are categorised and grouped as *cross-sector priorities*. These should be addressed through cross-sector horizontal collaboration, to ensure consistency across commodities and avoid duplication. These priorities comprise:

7. *Lack of a centralised portal for 'FAQs' and CER guidance for landholders seeking to better understand their short- and long-term contractual obligations for ACCU Scheme projects.*

   Project proponents identified information gaps for many farmers and landholders who are looking for more guidance specifically on their contractual obligations, especially over the long term. While the ACCU Scheme provides a range of methodological guidance, and informative initiatives such as the *'Be ACCUrate'* webinar series (CER, 2025a), there is scope for more readily accessible guidance in the form of a set of FAQs and detailed guidance notes specifically for landholders.

8. *Lack of a centralised portal for 'FAQs' and further CER guidance for project proponents seeking clarifications for application of existing ACCU Scheme methods and guidelines.*

   Separately, project proponents have identified a systems issue associated with information gaps in applying the ACCU Scheme methods. When those methods or published guidance do not clearly address specific questions arising (such as clarifications around eligibility or how to calculate abatement), project proponents need to engage the CER directly, in an ad hoc way. Furthermore, when guidance is provided in response to those specific questions, it is not shared more widely for consistent interpretation. This presents efficiency and consistency issues for the CER and project proponents, which could be addressed through a centralised set of FAQs, regular updates to guidance notes for project proponents, or a regular forum for stakeholder engagement.

9. *Limited information available on ACCU Scheme method proposals that are under development, to provide clear guidance to inform land use decisions.*

   This information gap pertains to farmers and landholders who may be looking at options for carbon abatement through methods that have been proposed, but for which there is minimal guidance on the status and timeline for potential development. Relevant examples include the *Integrated Farm and Land Management (IFLM)* method, which is being developed to enhance carbon storage through various agricultural practices and land management strategies, and the *Enhancing Native Forest Resilience* (ENFR) method proposed by Forestry Australia, to provide a method supporting active and adaptive management of public and private native forests. More regular guidance on the status of proposed methods would assist farmers and landholders with land use decisions.

10. *Limitations on landholder access to FullCAM functionality and capability for forest carbon projects, due to its complexity and its overall design for national and subnational reporting.*

    FullCAM is the Australian Government's designated model for estimating carbon stocks and fluxes across the land sector, and increasingly, a broad range of landholders across the land sector, including farmers and investors, will be looking for authoritative guidance on the extent to which *trees on farms* and farm forestry or plantation forests can sequester carbon on farms.

11. *Limitations on the provision of regular updates to FullCAM with new data and functional improvements to support an expanding range of programs and projects; and associated risks relating to whether FullCAM calculations will change with future versions.*

    Likewise, in addition to making FullCAM functionality more accessible – either through FullCAM or other models that incorporate its functionality – it will be increasingly important to ensure FullCAM is regularly updated, in ways that do not present undue risks for users from changes to modelling calculations over time.

12. *Limited centralised guidance to carbon market intelligence with detailed analysis on market trends including carbon prices.*

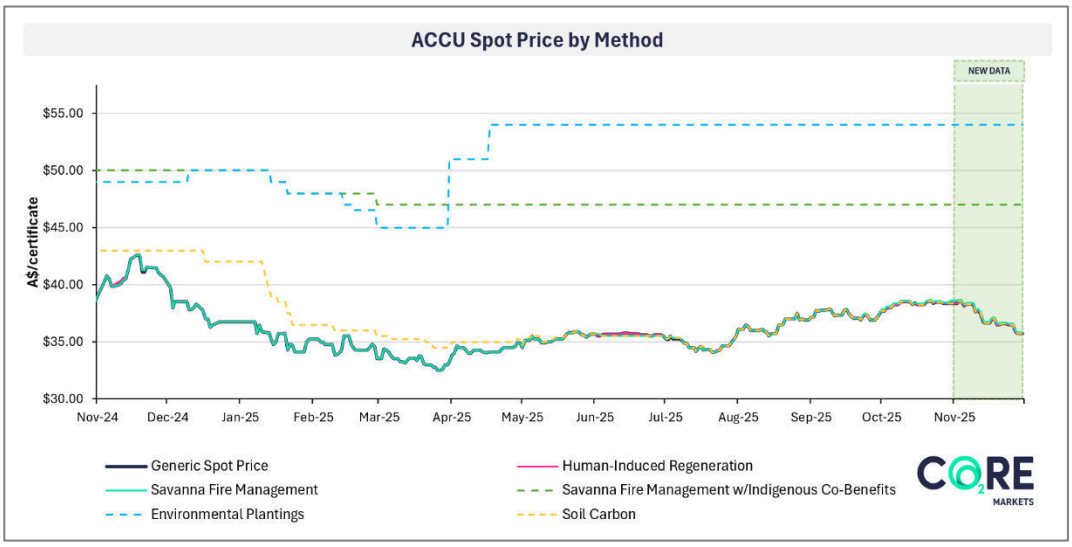
    A key factor in the investment proposition for landholders who are contemplating the establishment of plantation forestry projects or farm forestry projects, to realise carbon abatement with other forest values, is the current prices and price forecast for ACCUs. Confidence in this price data and price trends, or conversely, lack of data or uncertainty about prices, can have a significant impact on these investment decisions.

    High level information on carbon markets and current trading price for ACCUs is available from the CER (CER, 2025b) and more broadly in the public domain through various providers of data and commentary on environmental markets.

    However, at present there is only limited, centralised data on the extent of differential pricing for ACCUs, in secondary markets, based on the type of projects. In recent years, subscription services have presented data on ACCU spot prices, based on trades in a voluntary market for ACCUs generated from a range of project sources (refer for example, CORE Markets, 2025). This subscription-based data includes, for example, ACCU spot prices for projects such as savanna fire management, environmental plantings, human-induced regeneration and soil carbon (for example, refer **Figure 5-1**).

    Through the CFOP initiative, there is the opportunity to provide guidance to landholders through a centralised knowledge hub, within the forest and wood products sector and CFOP, to where to locate this type of data and insights.

Figure 5-1 ACCU spot price trends, by method, to November 2025



Source: Core Markets, ACCU Market Monthly Report November 2025.

Table 5-1 Summary of information gaps in the forest and wood products sector

Significant knowledge gaps	Relevant initiatives	CFOP options
1. Lack of a directory to current knowledge for landholders about the multiple positive aspects of trees on farms, including the benefits of plantation forestry compared to environmental carbon plantings	Extensive range of publications across websites that could be linked via CFOP Knowledge Hub	Provision of information through centralised CFOP Knowledge Hub
2. Lack of a centralised national listing of carbon service providers to support the forest and wood products sector, beyond the CER register of auditors for NGER Reporting	CER website has 'Find an auditor' search functions	Provision of information through centralised CFOP Knowledge Hub
3. Absence of a decarbonisation strategy or action plan for the forest and wood products Sector, setting out an authoritative sector baseline, emission reduction targets and strategies to realise these targets in the future	*Forest & Wood Products Industry Decarbonisation Plan - Phase 1* pending	Sector development priority
4. Limited industry guidance on good practice for reducing emissions along supply chains, for scope 1, 2 & 3 emissions, including cost-effective methods to collect emissions data and emission intensity factors	*Forest & Wood Products Decarbonisation Plan - Phase* 2 (2026 onwards)	Sector development priority
5. Absence of an industry standard reporting framework or tool specifically for the sector to monitor, track and report on reducing fossil fuel emissions along supply chains	Larger companies have developed their own corporate systems	Sector development priority
6. Limitations on the extent of knowledge of carbon storage in wood products used in the built environment, especially in the construction sector	AFPA, with FWPA support, developed a method proposal for the ACCU Scheme	Sector development priority
7. Lack of a centralised portal for FAQs and CER guidance for landholders seeking to better understand longer-term contractual obligations for ACCU Scheme plantation forestry projects	Project developers are engaging with CER directly but separately	Cross-sector priority
8. Lack of a centralised portal for further CER guidance for project proponents seeking clarifications for application of existing ACCU Scheme methods and guidelines	*Forestry Australia's Carbon Working Group,* meets the CER, quarterly	Cross-sector priority
9. Limited information available on ACCU Scheme method proposals *under development,* to provide landholders with clear guidance to inform land use decisions	CER provides a high-level listing of method priorities under development	Cross-sector priority
10. Limitations on landholder access to FullCAM functionality and capability for forest carbon projects, due to its complexity and its design intended more for national and subnational reporting	Forestry GAF tool development, plus CSIRO models: LOOC-C and NatureIQ™	Cross-sector priority
11. Limitations on the provision of regular updates to FullCAM with new data and functional improvements to support an expanding range of programs and projects	DCCEEW Climate Systems & Inventory Division - works program	Cross-sector priority
12. Limited centralised guidance to carbon market intelligence services with detailed analysis on carbon prices for distinct types of projects	CER Quarterly Carbon Markets Report	Cross-sector priority

6. HORIZONTAL COLLABORATION

This gap analysis incorporated extensive 'horizontal consultation' with other RDCs to explore opportunities for collaboration across the RDCs. The purpose of this consultation was to ensure consistency across commodities in addressing information gaps and avoid duplication.

As noted under the methodology (section 2.2), this consultation comprised a series of three roundtable meetings with 10 other RDCs and aligned organisations, to share and discuss methodologies applied to the gap analysis within their respective sectors, emerging and preliminary findings, and opportunities for cross-sector collaboration.

The other RDCs engaged in this process are listed in **Annex 1**.

6.1 Cross-cutting themes

Through this consultation, three key cross-cutting themes emerged and were generally agreed by all the participating RDCs. These key themes are set out below, together with the key opportunities applicable across sectors, and additional notes on the forest and wood products sector's position on these opportunities.

6.1.1 Theme 1: Measurement

This theme encompasses *the need for a single emissions footprint calculator [or framework] that is fit for purpose for farmers*.

The key opportunities for cross-RDC collaboration under this theme comprise:

- Collaborate on priority emission factor updates that apply across sectors – for example, emission factors for truck haulage.
- Work with VEERG / AIA to ensure the AIA EAP is fit-for-purpose, and coordinate promotion of the EAP and other calculators.
- Remove unnecessary sources of confusion – for example, clear differentiation between GHG and Life Cycle Assessment (LCA) accounting.

These opportunities are generally applicable to and supported by the forest and wood products sector, based on consultation conducted for this analysis. Sector-specific observations under this theme comprise:

- FullCAM continues to be the Australian Government's designated model for estimating biogenic carbon stocks and fluxes across the land sector.
- FullCAM functionality can be incorporated into a 'Forestry GAF' and a more accessible user interface aligned with cross-sector standards.
- As importantly, the sector would be well served by a standardised emissions footprint calculator framework, to capture fossil fuel emissions along supply chains.

6.1.2 Theme 2: Knowledge

This second theme encompasses *the need to reframe CFOP content to be much clearer and prioritise basic knowledge gaps.*

The key opportunities for cross-RDC collaboration under this theme comprise:

- Provide 'GHG 101' information and basic guidance, i.e. how to reduce emissions and increase removals, and a comprehensive glossary.
- Consider providing a single source of regional climate scenarios to support climate-related disclosures.

These opportunities are generally applicable to and supported by the forest and wood products sector, based on consultation conducted for this analysis. Sector-specific observations under this theme comprise:

- Noting the scope for the CFOP to provide 'GHG 101' information for landholders, it should be noted that Private Forests Tasmania has established a 'Carbon 101' project that could assist this through content and design inputs over the next 1-2 years.
- The CFOP Knowledge Hub can also provide an important role as a centralised directory to where this information is available from peak bodies and trusted advisors.

6.1.3 Theme 3: Delivery with a regional focus

The third theme encompasses *the need to scale up place-based or regional in-person delivery so farmers can co-learn with peers, from trusted advisers.*

The cross-RDC opportunities identified under this theme comprised:

- Collaborate across RDCs on the delivery of content specific to sources of emissions or removals (e.g., manure management content that dairy, feedlot, poultry and pig farmers in a place can all attend).
- Collaborate across RDCs on delivery of emissions or removals content relevant to all farmers in a place (e.g., power purchase agreements, reforestation).
- Recognise each sector has existing peak bodies with websites and trusted advisors already providing guidance to farmers/producers.

The forest and wood products sector fully supports this approach to regional forums that bring together interests in emission reductions across sectors. Additional, sector-specific observations under this theme comprise:

- The sector has extensive experience with farm forestry and 'joint venture agroforestry programs' that have featured regional collaboration.
- The Australian Government has established Regional Forestry Hubs (11 in total around the country), which may align or overlap with place-based delivery, through regional forums and land sector representations. The role of these hubs and their potential role in supporting regional and place-based collaboration is discussed further under section 6.2.

6.2 Specific opportunities for cross-sector collaboration

In the context of these cross-cutting themes for horizontal collaboration, this gap analysis has identified four specific opportunities for collaboration to address key information gaps in the forest and wood products sector. These primary opportunities comprise:

- Development of the GAF tool for the forestry and wood products sector
- Integration of the GAF tool onto the AIP EAP
- Development and publishing of good practice guidance for reducing emissions along supply chains, for scope 1, 2 & 3 emissions
- Scaling up of place-based or regional delivery programs.

These opportunities are outlined below.

6.2.1 Development of GAF tool for the forest and wood products sector

DCCEEW is leading on this initiative and engaging directly with DAFF, the VEERG Reference Group, and FWPA, to address Australian Government commitments to support GAF development across all land sector commodities.

Through this direct engagement, FWPA can guide development of the GAF tool for the sector (circa 2026), to ensure it is 'fit for purpose' and, among other things, recognises that FullCAM is established as the designated model for estimating carbon stocks and fluxes across the land sector (and LULUCF for NGGI reporting). FWPA can introduce additional sector representation and expertise where needed.

In this role, FWPA will need to collaborate with DAFF, DCCEEW, the VEERG Reference Group, as well as AIA and ZNE-Ag CRC, for concurrent work on developing the AIA EAP for application across sectors.

6.2.2 Integration of GAF onto the AIA EAP

Following the development of the GAF tool for the sector, it can be digitised and incorporated onto the AIA EAP – which has become the primary platform for emissions reporting across the land sector. FWPA will need to work closely with AIA and the NZE-Ag CRC to ensure this integration provides the consistency and value sought by the sector, especially in relation to establishing an industry standard reporting framework for the sector to monitor, track and report on reducing emissions along supply chains, for scope 1, 2 & 3 emissions.

6.2.3 Developing good practice guidance for reducing emissions

While the development and integration of a GAF tool will provide a framework for monitoring, tracking and reporting on emissions along supply chains, the forest and wood products sector would benefit from additional, good practice guidance for reducing emissions along these supply chains, including consideration of scope 1, 2 & 3 emissions. The sector can compile relevant case studies and consolidate collective findings – but would benefit by drawing on relevant experience from other sectors, especially in relation to common practices such as truck fleet management and road haulage operations, increased use of renewable energy and bioenergy, and more efficient construction systems. FWPA can prepare new research reports on this range of opportunities, but should continue to engage with other sectors, largely through their RDCs, to draw on relevant studies.

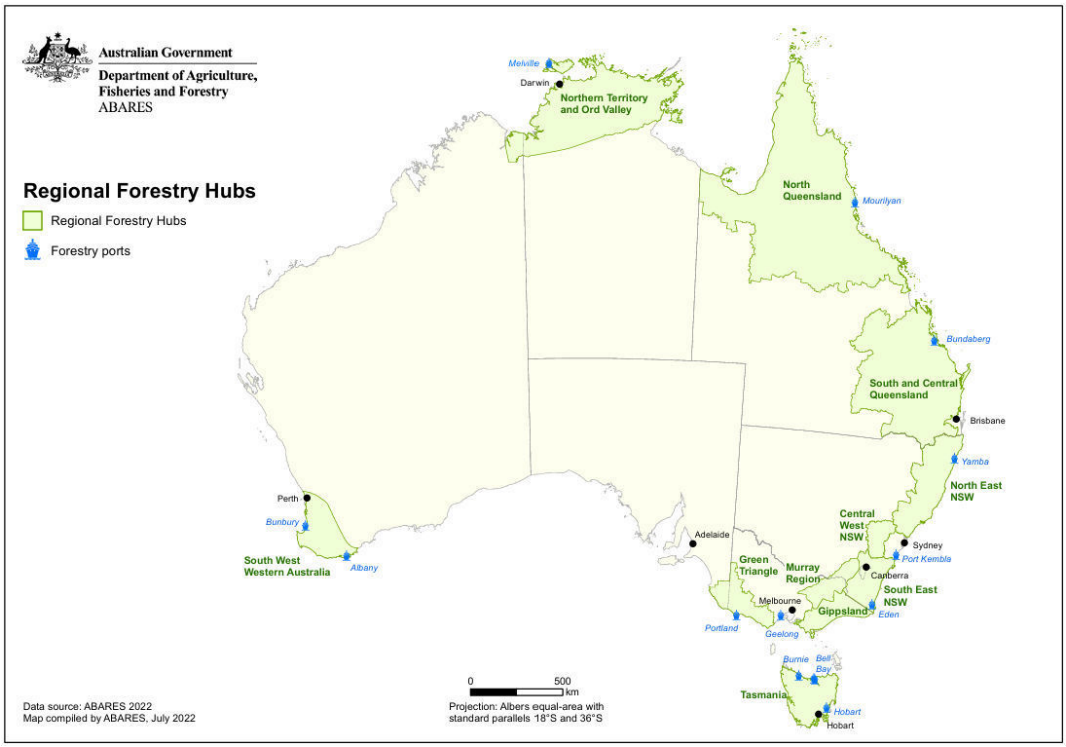
6.2.4 Scaling up of place-based or regional delivery programs

As outlined under the cross-cutting theme of '*delivery with a regional focus*', there is considerable scope for 'scaling up' and realising increased emission reductions in particular regions across Australia, through leveraging the collective capacity and interests of multiple sectors within those regions.

The forest and wood products sector largely operates already with a regional focus, such as, for example, Southeast Queensland, the Murray Valley region (encompassing the southwest slopes of NSW and northeast Victoria), the Green Triangle region (spanning southwestern Victoria and southeast South Australia), Tasmania, and southwest Western Australia. A map of Regional Forestry Hubs is shown in **Figure 6-1**.

In these regions, forest owners and wood processors (including some vertical integrated operations) are working together to strengthen efficient supply chains that connect forest management to harvesting and haulage fleets, delivery to processing facilities that can share power purchase agreements and potentially draw on bioenergy from local feedstocks, and advanced manufacturing aligned with large scale construction project developments.

Figure 6-1 Locations for Regional Forestry Hubs in Australia



Source: ABARES, 2022

One of the key opportunities identified under the cross-cutting theme of '*knowledge*' is **the scope to provide a single source of regional climate scenarios for each region**. This was proposed to avoid potentially expensive duplication of climate scenarios by agribusinesses including plantation forest managers.

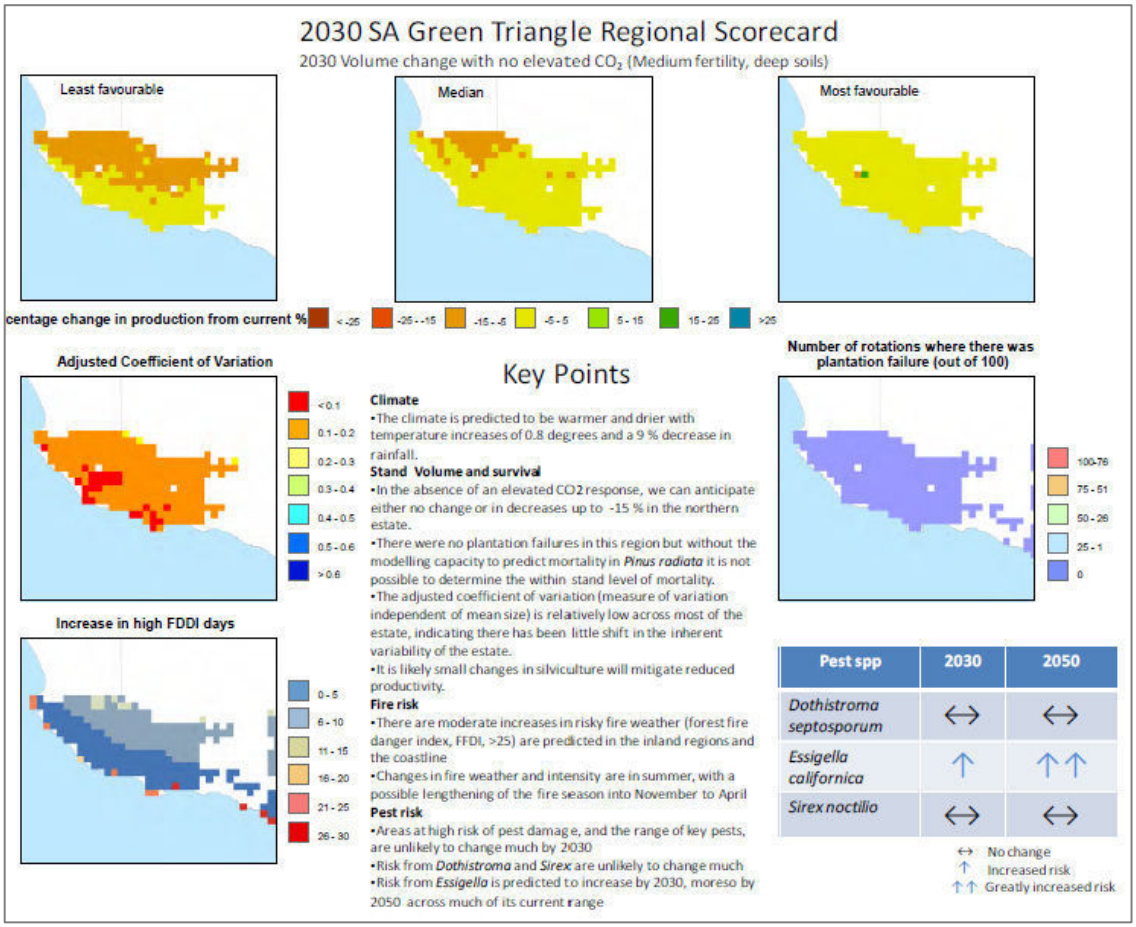
Through the horizontal consultation with other RDCs, *Australia's Wine Future: A Climate Atlas* (or the 'Wine Atlas') was identified a leading example of work on regional climate scenarios (Wine Australia, 2025). This online 'atlas' resource was funded by Wine Australia and developed by the Climate Futures Group at the University of Tasmania. It provides detailed climate projections for Australian wine regions until 2100, focusing on heat accumulation, aridity, and the likelihood of heatwave and frost. This atlas has become essential for grape growers and winemakers to plan for the effects of climatic variability and climate change, and helping them to maintain grape yields, value, and quality into the future.

In this context, this gap analysis has found the forestry sector has compiled substantial related research over the past 15+ years, which could be drawn upon for horizontal collaboration and information access through the CFOP. Relevant research includes:

- In the late 2000s, FWPA published research conducted by a CSIRO-led team, titled *Climate Change & Australia's plantation estate: Analysis of vulnerability & preliminary investigation of adaptation options (Battaglia et al., 2009)*. This research used a forest growth process-based model called CABALA to conduct an analysis of vulnerability and preliminary investigation of adaptation options, across a broad range of regions.
- In 2014, FWPA and CSIRO drew upon the earlier work with CABALA to publish a series of regional reports (refer FWPA, 2014) on the projected impacts of climate change on Australia's temperate plantations, including eucalypts and radiata pine (**Figure 6-2**), and considered adaptation strategies application to plantation forestry species and regions.

- In circa 2017, FWPA engaged CSIRO to develop a proof of concept, *Forest Climate Risk Tool*, which was an online portal with spatial mapping in the plantation regions and information on the likely periods of drought, rainfall, number of heatwave days, temperatures and fire risk, in detail, across almost all forested and plantation areas of Australia. In this way, the Forest Climate Risk Tool was similar in its intent and design to the Wine Atlas.
- Since that time, CSIRO has maintained a set of online maps on *projected climate change impacts on growth and drought risk for plantations in Australia* (CSIRO, 2025a). This spatial data set for selected species provides data points of productivity of selected plantation species under different future climate scenarios and differing assumptions of soil depth, soil nutrition and response of vegetation to elevated carbon dioxide (CO_2). There are related published papers on the modelling of direct climate change impacts on growth and drought risk, across all the key regions in which these species are grown (Battaglia & Bruce, 2017).
- Some Regional Forestry Hubs have conducted their own work on compiling climate data for their regions and looking at climate scenarios. A relevant study example is available for the South West Slopes in southern NSW, which sets out a series of climate related views of their region showing the current and projected futures (Spatial Vision, 2020).

Figure 6-2 Example of climate scenarios for key plantation forestry regions



Source: FWPA & CSIRO (2014) *Climate change and Australia's plantations. Regional Report 4: Green Triangle Radiata pine plantations*.

Most recently, in 2024, FWPA established a four-year project (2024 – 2028) that aims to integrate the agricultural model APSIM (Agricultural Production Systems sIMulator) APSIM into resource management systems for forest estate wood flows and valuations that account for climate change. This project, led by Adelaide University (previously University of South Australia), is in its first year and at a formative stage, but can be expected to provide climate change modelling for the plantation forestry that builds on APSIM applications in the agriculture sector – and may give rise to further horizontal collaboration in the future.

In addition to these forest sector-specific publications, CSIRO has done extensive work on climate modelling at a regional level, which can be drawn upon for climate projections, tools and data (CSIRO, 2025b). This modelling is non-sector specific, and applicable to regions and sectors that do not directly align with but do overlap NPI/Hub regions. This suite of published information is currently being used by forestry sector participants – including large scale growers and plantation investors as well as government agencies - to inform consideration of climate scenarios, for strategic planning as well as more recent ASRS/TCFD reporting requirements.

Therefore, there is considerable existing information that can be drawn upon to inform further development of regional climate scenarios for each region, to support all sectors in the region. Through regional initiatives comprising multiple sectors working together in that region, there would be more capacity to develop the regional climate scenarios and modelling such that it became more dynamic, to respond to global progress in emissions reductions and associated changes in climate risk.

6.1 Other opportunities for horizontal collaboration

In addition to these five key themes for opportunities for horizontal consultation, there are other opportunities that would arise in regions around Australia, to varying extents. Additional opportunities include:

- **Reforestation and additional plantings on available land within farming enterprises,** to optimise land use and agricultural production through shelter benefits and revenue diversification.
- **Collaborative investment in transport infrastructure** that may include strategic development of the road network and truck movements to reduce total vehicle movements and total fuel use, while also enabling electrification of sector fleet.
- **Collaborative development of biochar and bioenergy** from wood fibre feedstock to support agricultural enterprises using renewable energy sources.
- Integrated or adjacent processing facilities, in enterprise clusters, that can enable **more cost-effective use of energy within and across regions**; and
- **Use of low carbon engineered wood products** in a broad range of building and construction projects, with lower embodied carbon than alternative construction materials, across all sectors.

These opportunities and their prioritisation should be addressed following the further consideration of scaling up place-based or regional delivery programs, in key regions for the forest and wood products sector in Australia.

Based on the cross-RDC consultation conducted for this gap analysis, the opportunities for increased collaboration, integration and optimisation across the rural land sector, at the regional level, would be substantial.

7. FUNCTIONAL FORMATS AND DELIVERY CHANNELS

This gap analysis has encompassed consideration of the most appropriate and functional formats and delivery channels for information relating to forests and wood products.

These considerations are discussed in turn, followed by the role for the CFOP Knowledge Hub, the role for FWPA as the RDC for the sector, and the potential role for Artificial Intelligence (AI) to play in the identification, collation, and curation of published information and decision-support tools relating to carbon sequestration and emission reduction.

7.1 Appropriate and functional formats

This gap analysis has identified a set of key knowledge gaps, for which the desired information may comprise a broad range of formats, including sectoral plans, landholder guidance documents, sophisticated modelling systems and tools. A summary of appropriate and functional formats for information to address these key knowledge gaps is set out in **Table 7-1**.

Table 7-1 Summary of appropriate and functional formats to address information gaps

Key knowledge gaps	Format types
1. Centralised directory to updated knowledge for landholders on the multiple positive aspects of trees on farms	• Sector analyses
2. Centralised, regularly updated national listing of carbon service providers to support the sector	• Website listing, regularly updated
3. Enhanced information on ACCU Scheme method proposals *under development*, to inform land use decisions	• Website listings, regularly updated
4. Industry standard reporting framework specifically for the sector to monitor, track and report on reducing emissions along supply chains	• Standardised calculator tool for enterprises
5. Sectoral strategy for emission reductions & decarbonisation	• Phase 1: Sectoral plan • Phase 2: Case studies
6. Provision of good practice guidance for reducing emissions along supply chains (scope 1, 2 & 3 emissions)	• Case studies
7. Consolidated information on carbon storage in wood products used in the built environment, especially in construction	• Research reports • Environmental Product Declarations
8. Centralised portal for DCCEEW or CER guidance and FAQs for landholders seeking to better understand their contractual obligations for ACCU Scheme projects	• Guidance notes • Webinar series (e.g., '*Be ACCUrate*' series)
9. Centralised portal for further DCCEEW or CER guidance and FAQs for project proponents seeking clarifications on existing ACCU Scheme methods and guidelines	• Stakeholder forums • Guidance notes
10. Enhanced landholder access to FullCAM functionality and capability for forest carbon projects	• Modelling tools • GAF tool
11. More regular updates to FullCAM with new data and functional improvements to support expanding range of programs and projects	• FullCAM model
12. Limited centralised guidance to carbon market intelligence services with detailed analysis on carbon prices for distinct types of projects	• Website listing

This summary reflects the broad range of information and format types required to address key knowledge gaps in the sector. Most of this information can be hosted on website portals – with the notable exception of stakeholder forums and webinar series. This leads to further consideration of the key delivery channels for this information and the delivery roles for the CFOP Knowledge Hub, FWPA, and other organisations in the sector.

7.2 Central delivery role for the CFOP Knowledge Hub

Horizontal consultation conducted for this gap analysis incorporated cross-sectoral consideration of the best ways in which to address the apparent information gaps and the central role for the CFOP Knowledge Hub.

Following broad ranging discussion, this consideration led to general agreement on the need to recognise each sector has existing peak bodies (including their respective RDC) and trusted advisors already providing guidance to farmers/producers - and that there was a general preference for CFOP to 'sign post' users to the existing information specific to their needs, rather than hosting and maintaining all that information on a new 'knowledge bank'.

These perspectives were consolidated in further engagement with DAFF in October 2025, when it was proposed that the CFOP Knowledge Hub (replacing previous references to a 'knowledge bank') could serve as a *central access point*, linking to existing resources rather than duplicating them, with a strong focus on usability for farmers and trusted advisors.

Consultation within the forest and wood products sector provided general support for this design of the CFOP Knowledge Hub. Sector stakeholders generally recognised the value of a CFOP Knowledge Hub that could provide a central access point for farmers, land managers and other landholders, and provides a centralised directory with links to current, authoritative information – while building on the existing knowledge base provided by the current 'natural owners' and avoiding duplication and redundancy of information.

Furthermore, the CFOP Knowledge Hub was seen as especially important for farmers and land managers with limited experience or direct involvement in the forest and wood products sector, who are looking for information on opportunities for emissions reduction and carbon sequestration that could potentially include forests and wood products.

7.3 Delivery roles for organisations in the forest and wood products sector

While recognising this proposed role for the CFOP Knowledge Hub, as a central access point that supports all the land sector commodities, forest and wood product sector stakeholders also noted the current role of FWPA in supporting and providing an extensive range of sector-specific research, development and extension that is directly relevant to this knowledge hub.

FWPA is the RDC for the sector, with a clear focus on leadership and collaboration with government and industry stakeholders to grow the market for forest and wood products. As the designated RDC, it invests in research, development and extension initiatives, and has established specific portals and programs, such as *ForestLearning*, *WoodSolutions*, and the FWPA Statistics and Economics Program – all of which have dedicated personnel resources and website portals to provide direct access to program-specific information.

Furthermore, as the designated RDC serving the forest and wood products sector since 2007, FWPA's capacity to provide a knowledge portal can be reasonably expected to endure over the long term, and in this way provide ongoing support for the CFOP Knowledge Hub.

On this basis, it is proposed that FWPA can provide a key portal for sector-specific information for the forest and wood products sector. This role for FWPA would be complementary to the CFOP Knowledge Hub, which is envisaged as providing sign posts to existing resources rather than duplicating them, with a strong focus on usability for farmers and trusted advisors.

This proposed role for FWPA as a key portal for information on emissions reduction and carbon sequestration in the forests and wood products sector is broadly aligned with approaches evident in other sectors. It largely reflects the established role of RDCs as trusted providers and curators of reliable, sector-specific information grounded in contemporary research, development and extension services.

For example, Dairy Australia has a '*Greenhouse Gas Emissions*' website portal set up specifically to support dairy farmers looking to better manage their carbon footprint, through an improved understanding of how they generate greenhouse gas emissions and the development of effective strategies to reduce that impact (Dairy Australia 2025). Similarly, AgriFutures has a *Carbon Initiative Program* that provides information on novel approaches to carbon storage, greenhouse gas emission reduction and emission avoidance (AgriFutures, 2025); and the Australian Meat Processor Corporation has a website portal for '*Sustainability tools and calculators*' with links to relevant guidance that includes a tailored '*Emissions Reduction Fund Handbook'* for meat processors and the red meat industry (AMPC, 2025).

It is important to highlight the scope for FWPA to be a key portal for this information relating to the forest and wood products sector is seen as complementary to the CFOP Knowledge Hub. The CFOP Knowledge Hub can provide current information on emission reduction opportunities and strategies across the entire land sector, with cross-linkages to the FWPA portal for sector-specific emissions knowledge.

This proposed role for FWPA to be a key portal for this information or portal for the sector may require the organisation to establish a dedicated portal for this information – which would require company approval and suitable funding arrangements. Further consideration would need to be given to this key role for FWPA following the outcomes of this gap analysis and recommendations for FWPA and the Australian Government through CFOP.

In addition to the information supported and provided by FWPA, there are other organisations that are currently providing relevant information for industry participants in the forest and wood products sector. Other key delivery channels for the sector include:

- Australian Government agencies providing authoritative guidance including:
    - DCCEEW: ACCU Scheme methods
    - DCCEEW: ACCU Scheme method systems, notably FullCAM
    - CER: ACCU Scheme project development, contractual obligations and compliance
    - DAFF: Support for plantation forestry and related programs
- State government agencies and programs supporting forest industry development
- Statutory agencies set up to support sustainable management and use of forest resources
- National and state level industry associations, notably AFPA
- Professional membership associations, notably Forestry Australia.

There is also the anticipated role for a new 'Forestry GAF', and the application of the AIA EAP to the forestry sector, which is at a formative stage of development, but expected to be providing applicable guidance to sector stakeholders within the next few years.

Therefore, the outcomes of this gap analysis point to the importance of a CFOP Knowledge Hub to serve as a *central access point* that supports all land sector commodities – supported by multi-faceted delivery of information and knowledge relating to forests and wood products. It is proposed this multi-faceted support is led by FWPA, in consultation and further collaboration with DAFF and other leading organisations in the sector.

These delivery channels, for the CFOP Knowledge Hub and FWPA especially (for the forest and wood products sector), are envisaged to be online portals that would be hosted by the respective organisations. The key requirements for an online technical knowledge hub include:

- a fit-for-purpose online platform
- clear governance arrangements, and
- a dedicated custodian.

The custodian (or custodians) would be needed to curate content, verify technical quality, routinely check hyperlink integrity, promote new materials, and ensure compliance with accessibility standards, supported by defined update schedules and stakeholder engagement processes.

7.4 The evolving role for AI in managing information resources

This gap analysis has also noted the evolution of Artificial Intelligence (AI) and its transformative potential for supporting the synthesis of information across the forest and wood products sector on themes such as emissions reduction, emissions intensity and carbon sequestration. This has profound implications for the delivery channels to efficiently and effectively support access to available information and emerging data and tools.

AI (notably agentic AI) could play a transformative role in the forest and wood products sector – and the broader land sector - by automating the identification, collation, and curation of published information and decision-support tools relating to carbon sequestration and emission reduction. By continuously scanning scientific literature, industry studies and government reports, agentic AI systems can extract relevant data and reports, track emerging methodologies, and synthesise actionable insights. This evolving capability would enable the sector to maintain an up-to-date repository of relevant studies, best practices, modelling tools, and policy developments, reducing reliance on manual and periodic literature reviews.

The scope to use agentic AI for these purposes has not been explored or assessed for the forest and wood products sector in Australia. Further consideration would need to be given to the human resources required to provide tasking controls, monitor the process outputs and outcomes, and provide reporting on a regular basis through project governance arrangements, while ensuring this investment is cost effective for the sector and its objectives.

However, the transformative potential should not be overlooked in the further design and development of the CFOP. Given the similar scope for application across the rural land sector, this potential to harness the capability of agentic AI could be explored further through horizontal collaboration with all the rural RDCs.

8. RECOMMENDATIONS

Drawing on the consultation undertaken for this gap analysis, a set of actionable recommendations has been prepared to address priority gaps for the forest and wood products sector especially, with consideration given to horizontal collaboration.

These recommendations reflect priorities for the sector and are grouped in accordance with nominated leading roles for implementation of the recommendations. These groups comprise specific recommendations for the CFOP Knowledge Hub, DAFF, DCCEEW, the CER, and FWPA as the RDC for the forest and wood products sector.

These recommendations are based on addressing information gaps that may be constraining foresters, farmers and other land holders from pursuing emissions reduction and carbon sequestration - as distinct from information gaps or opportunities to improve sector-wide reporting, meet sectoral emission reduction targets, or alignment with the NGGI.

Recommendations for the CFOP Knowledge Hub:

1. Prepare and provide online, a comprehensive national listing of carbon service providers, with affiliations and recognised areas of expertise (for example, CER-registered auditors, Forestry Australia Registered Forestry Professionals, or CMI members), which is regularly updated such as every 6-12 months. This listing should extend beyond existing lists of auditing functions to guidance on relevant expertise and experience.
2. Compile and set up an online listing with links to a representative range of relevant reports on the multiple positive aspects of trees on farms, drawing on reports identified in this gap analysis. Note recent and relevant reports by Regional Forestry Hubs on this theme.
3. Compile and set up an online listing with links to a representative range of relevant reports on the performance aspects of carbon storage in wood products including engineered wood products used in the built environment.

   Note this recommendation is presented with recognition that the built environment is largely out of scope for this gap analysis, which is focussed on on-farm production and forest sector production. However, it is also important to recognise the significant contribution that sustainably grown wood products – with their relatively low embodied carbon - can make towards Australia achieving emission reduction targets. This is a very important part of the business case for plantation forestry, and therefore a key driver of further emission reductions in the sector.

Recommendations for DCCEEW, with support from DAFF:

4. Support the further development of the VEERG and the AIA-led development of a GAF tool for the forest and wood products sector (through existing project contracts), through a timely implementation process that incorporates direct engagement and consultation with FWPA, AFPA, Forestry Australia and CSIRO on sector requirements for a standardised reporting framework for net enterprise emissions.
5. Engage with DAFF, FWPA and AIA on the further consideration of the scope to incorporate FullCAM functionality into the GAF tool for biogenic carbon calculations.

Recommendations for DAFF, with support from DCCEEW:

6. Engage with all RDCs to further explore the scope for providing a single source of regional climate scenarios, as regional initiatives, to support climate-related disclosures, avoid expensive duplication of climate scenarios by agribusinesses, and to make clearer for farmers what the future climate impacts will be for their farm and communities.

This exploration of scope should include identifying leading examples or expressions of interest at a regional level to collaborate across RDCs on the further development of regional climate scenarios, as well as the delivery of information content on emissions or removals opportunities relevant to all farmers in a place. Relevant examples may include, 'GHG 101', power purchase agreements, reforestation, and use of bioenergy and other renewable energy.

7. Engage further with all the rural RDCs on the scope to explore the potential benefits of the use of AI to further develop the design and systems for the centralised CFOP Knowledge Hub and sector portals for information on emissions reduction and carbon sequestration.

   This may include scoping the AI capability for continuously scanning scientific literature, industry studies and government reports, to extract relevant data and reports, track emerging methodologies, and synthesise actionable insights relating to carbon sequestration, emissions intensity and emissions reduction.

   This exploration of scope should also consider the human resources required to manage AI tasking controls, monitor the process outputs and outcomes, and provide reporting on a regular basis through project governance arrangements.

   In addition, there will be a need to test the application of agentic AI with the further development of the CFOP Training Package and related materials.

Recommendations for the Clean Energy Regulator:

8. Prepare or collate more detailed guidance notes specifically for landholders on the contractual obligations over the long term for ACCU Scheme projects, to address questions and potentially perceived constraints for landholders. These guidance notes could be made available on the CER website and the CFOP Knowledge Hub.

   Build on Australian Government investments to date in webinar series – such as the CER 'Be ACCUrate' series, which could be maintained - to convey this information directly to farmers, foresters and landholders, through live sessions to enable questions, complemented by an archive of recorded sessions.

9. Convene or support the facilitation of a regular stakeholder forum to provide ACCU Scheme project proponents (potentially by sector, such as the forest and wood products sector), with updates on method developments and to address questions on method interpretations.

   This forum, or online platform to support this engagement, should be conducted regularly, for example, every six months, to manage timely updates without undue burden on the CER, Government Departments and stakeholders. Through this forum, or online platform, there may be scope to collate guidance notes specifically for project proponents, based on questions and responses. These guidance notes may constitute addenda to published Guidelines or be provided as non-binding meeting notes for illustrative guidance only. These notes could be made available on the CER website and CFOP Knowledge Hub.

10. Maintain an online listing of prioritised ACCU Scheme methods *under development* with status notes, updated regularly (indicatively quarterly) including the stage of development, next steps, and anticipated timeline for next steps, to provide further guidance for stakeholder expectations.

Recommendations for FWPA, with support from stakeholders in the sector:

11. Support the development of a set of good practice guidance materials to identify and describe cost effective ways for reducing fossil fuel emissions along industry supply chains.

This should include relevant case studies from within the forest and wood products sector and other relevant sectors.

12. Consider the scope for FWPA to provide further support to the CFOP Knowledge Hub by developing a designated portal for sector-specific information on emissions reduction and carbon sequestration along forest products supply chains, based on contemporary research, development and extension services.

    This consideration should include the scope to establish a specific program and portal with dedicated resources to support this delivery channel over the longer term.

13. Support or facilitate a sector-led review of the extent to which FullCAM functionality comprising indicative estimates of carbon sequestration and storage in the land sector can be made more readily available to landholders and their advisors, potentially through existing models or directly through the GAF tool.

These recommendations are presented for consideration by DAFF in the context of the CFOP, the further development of the CFOP Knowledge Hub, and concurrent engagement with other sectors that comprise Australia's rural land sector.

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Annex 1

Project consultation lists

Annex Table 1 Project Steering Committee representatives

Steering Committee representation	Organisation type	Committee representatives
FWPA	RDC	Ian Blanden
Australian Forest Products Association	Industry association	Sara Bray
Australian Forest Products Association	Industry association	Christian Staacke
CSIRO	Research organisation	Dr Tony O'Grady
Private Forests Tasmania	Forest Growers	Murray Root

Annex Table 2 Forest and wood products sector consultation

Organisations	Organisation type	Consultation format
Australian Forest Products Association	Industry association	Steering Committee
AFPA Carbon Subcommittee	Industry association	Committee forum
CSIRO	Research organisation	Steering Committee
Forestry Australia	Professional body	Direct engagement via email consultation
	Professional body	Consultation Paper to Carbon Working Group
Forest & Wood Products Australia	RDC	Steering Committee
	RDC	Teams calls
Hancock Victorian Plantations	Forest growers	Consultation Paper
Landari Pty Ltd	Service Provider	Teams call
Murray Region Forestry Hub	Regional Forestry Hub	Consultation Paper
National Farmers Federation	Industry association	Teams call
NSW DPIRD	Government agency	Teams call
	Government agency	Project Team
Private Forests Tasmania	Government agency	Steering Committee
Sustainable Timber Tasmania	Forest growers	In-person meeting
Zero Net Emissions Agriculture CRC	Research Organisation	Teams call

Annex Table 3 Cross-sectoral and horizontal consultation with RDCs

RDCs	Organisation type	Consultation format
Agricultural Innovation Australia	Not-For-Profit	Direct engagement via Teams & emails
		Roundtable consultation: Teams meetings (x2)
AgriFutures	RDC	Direct engagement via Teams & emails
		Roundtable consultation: Teams meetings (x2)
Australian Livestock Export Corporation	RDC	Roundtable consultation: Teams meetings (x3)
Australian Meat Processor Corporation	RDC	Roundtable consultation: Teams meetings (x3)
Cotton R&D Corporation	RDC	Direct engagement via Teams & emails
	RDC	Roundtable consultation: Teams meetings (x3)
Dairy Australia	RDC	Roundtable consultation: Teams meetings (x3)
Fisheries R&D Corporation	RDC	Roundtable consultation: Teams meetings (x3)
Horticulture Innovation Australia	RDC	Roundtable consultation: Teams meetings (x3)
Meat and Livestock Australia	RDC	Roundtable consultation: Teams meetings (x3)
Sugar Research Australia	RDC	Direct engagement via Teams & emails
		Roundtable consultation: Teams meetings (x3)
Wine Australia	RDC	Roundtable consultation: Teams meetings (x3)

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Melbourne, Australia

Indufor North America LLC
Washington DC, USA

indufor@induforgroup.com
www.induforgroup.com