

Final Report  
Project NS026



# Development of a timber industry sector framework for setting carbon emissions targets using the Science Based Targets initiative

2021



**Mount Gambier Centre**

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# **Development of a timber industry sector framework for setting carbon emissions targets using the Science Based Targets initiative**

Prepared for

**National Institute for Forest Products Innovation**

**Mount Gambier**

by

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**Edge Environment**

# Publication: Development of a timber industry sector framework for setting carbon emissions targets using the Science Based Targets initiative

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## Executive Summary

Globally and in Australia the increasing demand for low-carbon construction materials brings a great opportunity for the timber industry to position itself as a low-carbon material. The demand comes from the commitment to a net zero planet by 2050, in line with the United Nations' 2015 Paris Agreement. This is one of the drivers behind this project commissioned by National Institute for Forest Products Innovation (NIFPI) and other project partners, to lead the way for the timber industry to actively work towards a low-carbon future. The key purpose of the project was to develop a customised science-based methodology for the Australian wood product manufacturing sector to easily establish carbon reduction targets.

There is a clear imperative for the Australian wood manufacturing sector to supply the growing market for low-carbon materials in the built environment. The first step to create low-carbon products is to conduct a carbon footprinting exercise, then set a science-based target. The tools and resources created by this project are designed to easily facilitate this for those in the Australian timber value chain. It will set the industry firmly on the pathway to net zero. The more industry players that start the journey, the more it will bolster the sector to ensure longevity of the industry itself while building the necessary low-carbon future.

The project approach consisted of 3 phases:

1. Desktop review of science-based target (SBT) methodologies to define those relevant for the Australian timber industry.
2. Case study through the carbon footprint calculation and setting of an SBT for industry partner: Timberlink.
3. Based on phases 1-2, the creation of a carbon emission calculator and target setting tool, guidance documents and resources to enable other Australian wood product manufacturers and the broader timber industry to calculate their carbon footprint and set their own SBTs.

The outcomes of this research project are a series of resources to support the industry's pathway to net zero. This includes the following deliverables:

- Submission and approval of an SBT for Timberlink (a regional first) to the Science-Based Targets initiative (SBTi).
- SBT guidance for wood product manufacturers, including case studies (refer to Appendices 7 -10).
- Communication & SBT toolkit, including online resources on SBTs for the industry (see Appendices 2,4 and 5).
- Customised carbon footprint and SBT setting Excel-based tool for wood product manufacturers, based on climate science (see Appendix 5).
- Two webinars discussing the project, the benefits of carbon footprinting for the industry, the project outcomes and how to use the calculation tool (see Appendices 3 and 6).

The adopted target-setting approach and an industry-wide stance on the inclusion of biogenic carbon emissions in the calculation and target-setting process were investigated as part of the project. The project team's recommendation on these aspects are as follows, with further information included in the Discussion section of the report:

- Through Phase 1 and industry engagement, it was discovered that there is contention around the inclusion of biogenic feedstock emissions in a wood product manufacturer's carbon footprint. To address this issue, the project team recommends companies set a single target to cover scope 1, scope 2 and scope 3 emissions. This approach will cover biogenic emissions and remove any potential issues regarding their exclusion.
- A number of target-setting approaches were considered for application to the project. The project team concluded a sector-based approach to target-setting was not applicable. As such, the absolute contraction method was adopted and is recommended for use by industry.

At the conclusion of the project, it was noted that methodologies in the carbon footprint space are always evolving. Specifically, there are two global developments that the industry should note regarding carbon reduction target setting. One is that a forestry sector specific science-based target guidance is currently in development by the SBTi and World Building Council for Sustainable Development. Secondly, a revision to the GHG protocol is expected and may provide further clarity on the treatment of biogenic emissions. These may impact the methodology concluded in this research.

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## Introduction

The World Green Building Council's vision is that by 2030, all new buildings, infrastructure and renovations will have at least 40% less embodied carbon with significant upfront carbon reduction, and all new buildings must be net zero operational carbon. By 2050, new buildings, infrastructure and renovations will have net zero embodied carbon, and all buildings, including existing buildings, must be net zero operational carbon.

As the global agenda progresses, Australian industry is making strides to decarbonize the manufacturing sector, our cities and our communities. Each of these moving parts plays an important role in building the market for low-carbon materials and solutions.

The 2015 Paris agreement saw 195 of the world's governments commit to prevent dangerous climate change by limiting global warming to well below 2 degrees Celsius. This signalled an acceleration in the transition to a low carbon economy. As of early mid-2020, over 1,000 companies are taking action towards science-based targets (SBTs), either with a verified target or a commitment to set a target. With a growing focus in embodied carbon in the construction industry, the number of commitments from the timber and building products industries are growing, with 18 companies having set or committed to SBTs.

Global wood, fiber and timber players including Mondi and Stora Enso have published SBTs to demonstrate their commitment to reducing carbon emissions. More information can be found in their respective sustainability reports.

The purpose of this project was to develop an Australian-specific methodology to establish emission reduction targets for the wood product manufacturing sector, based on an internationally agreed framework, the Science Based Targets initiative (SBTi).

The SBTi is a globally coordinated response to climate change aimed at limiting the increase in global average temperature to below 1.5°C. It is an international self-regulatory response to the need to reduce carbon emissions and is likely the pre-cursor to more stringent government regulation and/or legislation.

The project objective was to define a suitable SBT method, calculation tool and guidance for the Australian wood product manufacturing sector to enable timber companies to maintain leading positions in the environment and sustainability agenda as the material of choice.

The project began with the development of a pilot with timber company: Timberlink. The pilot estimated Timberlink's carbon footprint and used a methodology aligned to the SBTi to establish an emissions reduction target for the company. The pilot methodology was validated through the approval of Timberlink's SBT by the SBTi.

Following approval by the SBTi, the project drew on the learnings from the pilot to develop a set of general guidelines for Australian timber companies to measure their own baseline emissions and set targets for reductions according to the SBTi. This included the development of a resource 'toolkit' consisting of a 'how-to guide' on executing the methodology, e-learning resources and an emissions calculator and target-setting tool aligned with the SBT methodology.

Upon completion of these resources, the project team led a series of recorded webinars briefing the industry on climate action drivers and project outcomes, as well as a demonstration of how to use the tool (refer to Appendices).

Key benefits of this project to the timber industry include:

- Strengthening investor confidence and credibility. This work assists Australian timber companies to take a leadership position demonstrating to the investment community how they are addressing Environmental, Social and Governance (ESG) risk and therefore attracting investment.
- Reduce regulatory uncertainty. This project provides insight into how the sector can transform in a carbon constrained future.
- Prepare for competition & protect market share by outperforming sector competitors (concrete and steel) in benchmarks, increase rating scores and attractiveness for investors, whilst maintaining environmental and carbon credentials by using the project resources (e.g. carbon emission calculator and target-setting tool).
- Compliance to strengthening emissions reduction requirements from customer segments. This project enables the timber industry to meet increasing emissions reduction stipulated by their customers. Specifically, the increasing demands by the property sector to reduce emissions in their supply chain, by assisting in the initial steps of emission calculation and target-setting.
- Save money and increase competitiveness by gaining insight in company performance and improvement potential.
- Foster industry collaboration through the adoption of a universal methodology and language to defining a decarbonisation roadmap.

Several key stakeholder organisations have already demonstrated a significant interest in the outcomes of this project. They include both organisations within the timber industry and current customers of the timber industry (specifically the property sector).

All tools and resources developed as part of this project are linked in the Appendices.



# Methodology

The project methodology included the following phases and steps:

## Phase 1: Methodology review and development

Step 1	Review SBT methodologies
Step 2	Conduct inception meeting with Timberlink to refine the goal and scope
Step 3	Engage with the SBTi

An inception meeting was held between the project team and Timberlink to:

- review the project scope and methodology.
- review Science Based Target (SBT) methodology and process.
- confirm data requests from Timberlink.
- agree on key assumptions for initial SBT analysis.

The project team undertook a desktop review and engaged with Stora Enso, UPM, WWF, Ecofys, SBT Initiative (SBTi) and WBCSD to investigate existing SBT methodologies for the timber industry. From the review, it was revealed that the SBTi and WBCSD are developing specific methodologies for the forestry sector and construction materials. These methodologies will be a welcome complement to this project, as they will provide both upstream and downstream applications in the timber industry value chain.

## Phase 2: Industry case study - SBT for Timberlink

Step 4	Review Timberlink's carbon footprint
Step 5	Establish Timberlink's baseline footprint
Step 6	Develop Timberlink's SBT
Step 7	Submit Timberlink's target to SBTi

The project team reviewed and established Timberlink's baseline carbon footprint to develop the associated SBTs. Based on the review in Phase 1, an appropriate methodology was established and applied to Timberlink for the carbon footprint calculation and subsequent SBT. Both results were then presented at a workshop with Timberlink's broader team in Melbourne. The targets were then formally submitted to the SBTi and officially approved in August 2020. This represents the region's first SBT for the timber industry.

## Phase 3: Resource Creation

Step 8	Develop a timber industry SBT 'toolkit'
Step 9	Test with end-users

As a result of Phase 1 and 2, the team had gathered and tested an Australian timber industry-specific approach to carbon footprint calculations and SBT setting.

This research was then converted and developed into the following resources for the industry:

- A video presentation outlining what SBTs are and why they are important. The video also details the process for setting an SBT (refer to Appendix 4).

- A combined Excel-based guide and emissions calculator tool that calculates a SBT for wood product manufacturers in Australia based on input information (see Appendix 5). The methodology and outputs align to the SBT methodology.
- A series of factsheets on:
  - carbon emission calculation (Appendix 7).
  - biogenic carbon (Appendix 8).
  - embodied carbon in Green Star (Appendix 10).
  - SBT case studies (Appendix 9).

End user testing was undertaken to confirm the applicability and usability of the above-mentioned resources for industry. The project team held interviews with relevant stakeholders to collect user testing feedback. The primary feedback was that the tool was too detailed and required more contextual information to support it. Subsequently, this feedback was incorporated into the tool by streamlining the data request where possible.

#### **Phase 4: Communication and Dissemination**

Step 10	Conduct industry Seminar and webinar
Step 11	Develop media releases
Step 12	Conduct presentations

The project team held a series of two recorded webinars to provide the industry with:

1. A high-level briefing on the relevance of SBTs and carbon footprinting (see Appendix 3).
2. Training on the use of the industry specific tool developed (see Appendix 6).

The recorded webinars were approved by the Steering Committee in place of in person presentations at industry conferences due to COVID-19 restrictions.

A media release was developed and sent to relevant channels. The project was highlighted in the Friday Offcuts newsletter, the Edge Environment website and on LinkedIn.

Additional funding was also received to supplement Phase 4 and assist in creating clear communication guidance for the timber industry. The purpose of the communication guidance is to use the increasing interest in reducing scope 3 and upfront embodied emissions in the construction and retail industry to encourage application of the methodologies and results of this project.

This Phase included the development of the following deliverables:

- Industry briefing for circulation in the timber industry (see Appendix 1). It provides a summary on the development and adoption of the science-based target initiative and the development by the Green Building Councils on upfront embodied carbon.
- Communication guidance (see Appendix 2) on:
  - Frequently asked questions by the construction and retail industry in terms of the timber industry’s role in reducing carbon emissions, and suggested answers.
  - Suggested responses that articulate the value of the timber industry aligning to the SBTi.

- Recommended language, terms, graphics and pictures for external communication. Infographics for industry use in communications.

## Results

From the project, a methodology for estimating carbon emissions and setting targets aligned to international best practice and the climate science (as per the SBTi) was developed for Australian wood product manufacturers. This methodology is presented in the finalised Excel-based tool and supported by the suite of resources outlined in the Methodology section in Phase 3, 4 and additional resources.

The first step in setting a carbon reduction target is to understand the company's carbon emissions. A carbon footprint documents the total greenhouse gas emissions that a company is responsible for, including its activities and its value chain. A carbon footprint provides not only a measure of "how much carbon", but also what is driving emissions, with a view to inform strategies to reduce the company's contribution to climate change. The inclusion of the value chain relates to the principle that companies can actively influence emissions that are beyond their direct control, for example by selecting low-carbon suppliers or renewable energy.

Companies should estimate their carbon emissions in alignment to the GHG Protocol Corporate Accounting and Reporting Standard. Alternately, for the timber industry they can use the tool from this project, which is aligned to the Protocol. Each emissions category for inclusion, along with the data required to estimate these emissions, is outlined in the tool. Once the relevant data is input into the tool, the tool automatically calculates the associated carbon emissions associated with that data category. For example, for emissions associated with purchased electricity, the user can input kWh usage and the tool provides the equivalent carbon emissions associated with that quantity of purchased electricity. The tool provides emission estimates relevant to Australian wood product manufacturers.

The second step is to set a carbon emissions reduction target aligned to the latest climate science. SBTs provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

The tool automatically provides the user with the relevant SBT once they have input the necessary data for the carbon footprint. The user can choose the base year, target year and level of ambition (e.g. alignment to a well below 2°C or 1.5°C scenario).

A number of resources have been developed as part of this project to support the industry in their journey to set science-based carbon emission reduction targets. Refer to the appendices for more information on this process, including key terms.

This methodology was validated through a pilot undertaken with Timberlink. Timberlink's approved SBT is "Timberlink Australia commits to reduce scope 1, 2 and 3 GHG emissions 21% per m3 of throughput by FY2030 from a FY2018 base year. The target boundary includes biogenic emissions and removals from bioenergy feedstocks."

## Discussion

### Target-setting approach

A number of target-setting approaches were considered in this process. A sector-based approach to the target-setting was not applicable. The closest sector is the Pulp and Paper sector; however, it was determined that the intensity of the pulp and paper sector is not transferable to the wood products sector more broadly and therefore does not apply. Furthermore, a sector-based approach has yet to be developed for the most recent climate science (i.e. alignment to the 1.5°C pathway). Based on these conclusions, use of the absolute contraction method was adopted and recommended for use going forward.

### Biogenic carbon emissions

Biogenic carbon was contentious issue throughout the process. Based on the desktop review, consultation with leading experts and as per the SBTi guidance, the provided tool ensures the biogenic emissions are accounted for as follows:

- Direct CO<sub>2</sub> emissions from the combustion of biofuels and/or biomass feedstocks, as well as sequestered carbon associated with such types of bioenergy feedstock, are included.
- Non-bioenergy related biogenic emissions are reported alongside the inventory and included in the target boundary (e.g. biogenic emissions associated with use of sold product such as compost and end of life decomposition of wood products in landfill).
- GHG removals not associated with bioenergy feedstock do not count as progress towards SBTs nor to net emissions in the inventory (i.e. sequestration of carbon in purchased logs that go into sold timber for construction).

It is recommended that companies set a *combined* Scope 1, 2 and 3 target. This ensures that GHG removals associated with bioenergy feedstocks and the subsequent biogenic emissions associated with the combustion of these feedstocks equate to zero. A perverse incentive for emission reductions exists when Scope 1 and 2 emissions have a separate target to Scope 3 emissions.

## **Conclusion**

Within the ever-evolving landscape and growing demand for low-carbon solutions, the Australian wood manufacturing sector can take a leadership position. Wood suppliers will be able to meet the growing demand for low-carbon solutions and differentiate from alternative construction materials, by undertaking a carbon footprinting exercise and setting internationally recognised SBTs.

This project has found that other global timber industry organisations have already taken their first steps in carbon reduction. Furthermore, the results of the project have created the necessary resources and a sector specific tool to calculate carbon emissions and related SBTs for the Australian industry.

Achieving SBTs will require upstream and downstream value chain collaboration, of which sourcing low carbon or better construction materials is a key part of the solution. This opens up new conversations and opportunities to innovate and find new solutions for the low carbon built environment we must create.

## Recommendations

The project team encourages the Australian wood product manufacturing industry take action on climate and position themselves as a leader in this space.

It is recommended that companies set a *combined* Scope 1, 2 and 3 science-based emission reduction target. This ensures that GHG removals associated with bioenergy feedstocks and the subsequent biogenic emissions associated with the combustion of these feedstocks equate to zero. A perverse incentive for emission reductions exists when Scope 1 and 2 emissions have a separate target to Scope 3 emissions.

At the conclusion of the project, it was noted that methodologies in the carbon footprint space are always evolving. Specifically, there are two global developments that the industry should note regarding carbon reduction target setting.

The SBTi and World Building Council for Sustainable Development are in the process of developing science-based target guidance for the forestry sector. This will support the guidance provided as an outcome of this project as it focusses on the upstream aspect of wood product manufacturers.

Furthermore, the GHG Protocol is being revised. The new version is expected to address biogenic carbon and removals; however, it is unclear at this time, how these topics will be addressed and any associated changes to the current methodology as a result.

It is recommended that the industry stay abreast of these works in progress for further alignment to the resources created as outputs from this project.

## **Acknowledgements**

The project team would like to acknowledge the members of the Steering Committee, including:

Glen Rivers, OneFortyOne  
Joana Almeida, Edge Environment  
Jonas Bengtsson, Edge Environment  
Maisie Auld, Edge Environment  
Michael Barbara, New Forests  
Trevor Innes, Timberlink



## Appendix list

The following documents form the appendices to this report. They are a collection of resources for the Australian timber industry with regard to carbon footprinting and target setting. Each resource is available online and hyperlinked below. Where possible, we have included a PDF copy following this reference list:

Appendix 1: [Industry Briefing](#)

Appendix 2: [Communications Kit](#)

Appendix 3: [Webinar 1: Industry Drivers and Project Overview](#)

Appendix 4: [Introduction to Science Based Targets](#) (Video)

Appendix 5: [Target Setting Tool v1](#) (Excel download)

Appendix 6: [Webinar 2: Tool Guidance](#)

Appendix 7: [Carbon Footprint Guidance](#)

Appendix 8: [Biogenic Carbon Guidance](#)

Appendix 9: [Target Setting Case Studies](#)

Appendix 10: [Embodied Carbon in Green Star](#)

Appendix 1: [Industry Briefing](#)

## **A call to unite on carbon action**

### **Briefing note to wood product manufacturers**

#### **Purpose**

The purpose of this briefing note is to outline the need for Australian wood product manufacturers to take action on climate change. This note is supported by the launch of a bespoke tool and guide to help manufacturers measure, monitor and reduce their carbon emissions, available on the NIFPI website.

This briefing note outlines two key steps, including 1) calculating the carbon footprint of wood product manufacturing and 2) setting science-based targets to achieve carbon reductions in line with internationally agreed ambitions. It also explores the broader context around climate change and outlines the growing importance of and demand for low-carbon suppliers and products.

#### **Background**

According to the World Green Building Council (2019), buildings account for 39% of global energy related carbon emissions. Approximately 28% of these emissions derive from operational emissions (energy needed for heating, cooling and power) and the remaining 11% from materials and construction.

In the past, sustainable building design has focused on reducing carbon emissions from its operations. However, as strategies to reduce operational emissions mature, carbon from processes to manufacture materials will be much more important. Known as embodied carbon, these emissions represent the next frontier in combatting climate change.

In fact, the World Green Building Council's vision is that by 2030, all new buildings, infrastructure and renovations will have at least 40% less embodied carbon with significant upfront carbon reduction, and all new buildings must be net zero operational carbon. By 2050, new buildings, infrastructure and renovations will have net zero embodied carbon, and all buildings, including existing buildings, must be net zero operational carbon.

#### **The converging agenda**

As the global agenda progresses, Australian industry is making strides to decarbonize the manufacturing sector, our cities and our communities. Each of these moving parts plays an important role in building the market for low-carbon materials and solutions.

#### **Green Star**

Green Star is the leading sustainability rating tool in Australia and has driven demand for sustainable construction products for over 10 years. Since 2003, 2,500 properties, fit outs and communities have achieved a Green Star rating. Green Star has also influenced many government policies and guidelines. There are a number of existing and emerging aspects of Green Star that are relevant to wood product manufacturers including:

- In the current Green Star – Design & As Built tool, projects are rewarded for undertaking a lifecycle assessment that demonstrates a reduction in environmental impacts and for specifying products that have environmental product declarations and timber that has a sustainable supply chain certification.
- The GBCA is currently developing a major update to their suite of rating tools and will be releasing Green Star – New Building towards the end of 2020. This rating tool will have an increased focus on carbon emissions throughout a building's lifecycle, including a new credit specifically for embodied carbon to go alongside their whole building life cycle assessment credit.
- The GBCA is introducing a new minimum requirement that requires a building's upfront carbon emission contribution from materials and products to be reduced and offset. To be eligible for a Green Star rating the building must emit at least 10% less carbon than a standard practice reference

building. Projects will be rewarded for more significant reductions in upfront carbon, up to 40% (please note this is still in draft development).

### Science-Based Targets

The Science-Based Targets (SBTs) initiative champions science-based target setting as a way of transitioning to a low-carbon economy. It is a collaboration between the CDP (previously Carbon Disclosure Project), United Nations Global Compact, World Resources Institute, We Mean Business and the WWF and almost 1000 companies are signed up to the SBT initiative meaning they have committed to set or set targets to reduce their carbon emissions in line with climate science and the Paris Agreement. SBTs are recognized as an international best practice way of reducing emissions and signals a credible commitment to addressing climate change.

### The Sustainable Development Goal 13: Climate Action

The Sustainable Development Goals (SDGs) are a call for action to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection. There are 17 goals each supported by a set of targets and one of the goals is focused on Climate Action.

According to the World Business Council for Sustainable Development's assessment of sustainability reporting, *Reporting Matters*, 88% of companies are reporting on steps taken to address SDG 13 on Climate Action. This includes Mondi and Stora Enso.

### The Taskforce for Climate-related Financial Disclosures

The Taskforce for Climate-related Financial Disclosures (TCFD) is a voluntary set of guidance for companies to provide the financial impact of climate change to investors, lenders, insurers and other stakeholders. It considers climate-related risks and opportunities and sets out recommended disclosures across four parameters including governance, strategy, risk management and metrics and targets. Since the TCFD launched its initial recommendations in 2017, more than 240 investors with nearly \$34 trillion in assets under management have committed to engage the world's largest corporate greenhouse gas emitters to strengthen their climate-related disclosures by implementing the TCFD recommendations.

### Environmental Product Declarations

An Environmental Product Declaration (EPD) is an independently verified and registered document that communicates transparent and comparable data about the life-cycle environmental impact of a product. This information includes contributions to climate change (carbon footprint) along with other indicators such as water and soil pollution.

The FWPA has produced a EPDs since 2015 for a range of wood and wood-based products which can be used to gain Green Star points.

### Building Product Information Rating

The Building Product Information (BPI) Rating is a platform to help developers, architects and other decision makers compare building products and suppliers based on their sustainability attributes. The Rating Tool considers a wide range of criteria which includes a focus on carbon, climate and resilience. In addition to product-specific information, it includes criteria on organisation-wide sustainability activities, including whether the manufacturer organization has set SBTs and published TCFD reports.

The BPI Rating Tool will support existing rating schemes such as Green Star by making it easier for construction projects to specify and use lower-carbon, safer and sustainable products.

## **An opportunity to lead**

Within the ever-evolving landscape and growing demand for low-carbon solutions, the Australian wood manufacturing sector has the opportunity to lead. By undertaking a carbon footprinting exercise and setting Science Based Targets, wood suppliers will be able to meet growing demand for low-carbon solutions and differentiate from alternative materials.

According to product sustainability and climate change experts, Edge Environment, the benefits of developing an action plan to address climate change are multifaceted. CEO and founder Jonas Bengtsson says, “The property industry in Australia has been a global leader in sustainability for many years, and an increasing number of organisations have, or are in the process of setting SBTs. Achieving their SBTs will require upstream and downstream value chain collaboration, of which sourcing low carbon or better construction materials is a key part of the solution. This opens up new conversations and opportunities to innovate and find new solutions for the low carbon built environment we must create.”

## **Timberlink in the spotlight**

Global wood, fiber and timber players including Mondi and Stora Enso have published Science-Based Targets to demonstrate their commitment to reducing carbon emissions and more information can be found in their respective sustainability reports. Here in Australia, Timberlink has recently undertaken steps to measure its carbon footprint and set a Science-Based Target. Timberlink have recognised the business case for making such a commitment and now have the region’s first SBT for the sector.

## **Start the journey by calculating your carbon footprint**

The project participants are calling on wood product manufacturers and the wider timber industry to understand their carbon footprint.

A carbon footprint documents the total greenhouse gas emissions that a company is responsible for, including its activities and its value chain. A carbon footprint provides not only a measure of “how much carbon”, but also what is driving emissions, with a view to inform strategies to reduce the company’s contribution to climate change. The inclusion of the value chain relates to the principle that companies can actively influence emissions that are beyond their direct control, for example by selecting low-carbon suppliers or renewable energy.

## **Once your footprint is determined, set a Science-Based Targets for reduction**

The project participants are calling on wood product manufacturers and the wider timber industry to set carbon reduction targets aligned to the climate science.

Science-Based Targets (SBTs) provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions. The Paris agreement in 2015 saw 195 of the world’s governments commit to prevent dangerous climate change by limiting global warming to well below 2 degrees Celsius. This signalled an acceleration in the transition to a low carbon economy. As of early 2020, nearly 900 companies are taking action towards science-based targets, either with a verified target or a commitment to set a target. With a growing focus in embodied carbon in the construction industry, the number of commitments from the timber and building products industries are growing, with 18 companies having set or committed to SBTs.

## **Resources for more information**

A footprint and target-setting tool is available for download on the NIFPI website, along with a guide on how to take action. Additional training webinars will also be provided and hosted by Edge Environment in mid-October. [Webinar 1](#) will focus on an overview of industry drivers and project outcomes, while [Webinar 2](#) will provide a training on how to use the carbon footprint and target-setting tool. Please contact Maisie Auld,

project manager and Head of Carbon & Climate Resilience at Edge Environment,  
([maisie@edgeenvironment.com](mailto:maisie@edgeenvironment.com)) for more information or to get involved.

Appendix 2: [Communications Kit](#)

# Taking Action on Climate Change

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A guide for wood product manufacturers



# A guide for the industry, by the industry

## Introduction

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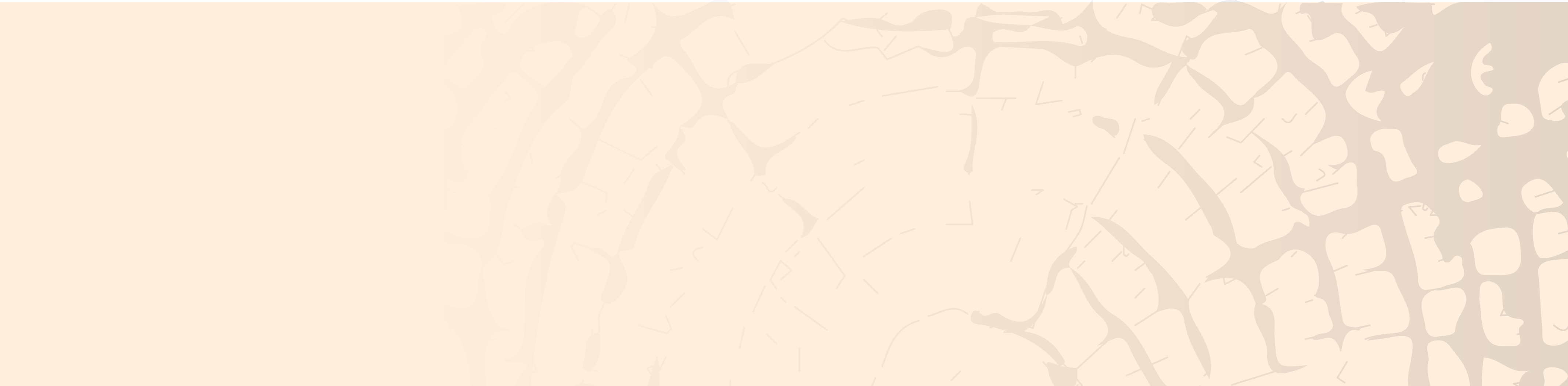
This guide has been compiled to help the Australian wood product manufacturing industry tackle climate change. It provides guidance for manufacturers to take immediate and tangible steps to reduce carbon emissions in their own businesses and supply chains, aligned with internationally agreed ambitions. It also explores the business case for action that meets the growing demand for low-carbon products and suppliers.

### **The guide includes a carbon foot printing tool and a target setting tool**

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This guide and associated tools have been produced by FWPA, NIFPI, Timberlink and independent sustainability specialists, Edge Environment, to help manufacturers reduce their carbon emissions and demonstrate leadership in the fight against climate change.

# What does taking action on climate change look like?



# An overview of the climate action journey

1

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## Calculate your carbon footprint

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The first step in taking action is to understand your company's carbon emissions. A detailed carbon footprint assessment is the best way to accurately identify carbon hotspots and areas for mitigation. This guide includes a link to a purpose-built carbon footprint tool for you to use.

2

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## Set science-based targets

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Once you have an understanding of your carbon footprint, your company can commit to making meaningful carbon reductions. Carbon reduction targets must be aligned to the most accurate and current climate science available, such as Science Based Targets (SBTs). From there, undertake an exercise to explore the impact and cost of carbon reduction opportunities and define a cost-effective pathway to achieve your target. This guide includes a link to a purpose-built target setting tool for you to use.

3

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## Engage your stakeholders

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Throughout the process, be sure to engage relevant stakeholders throughout your business and wider supply chain. Ultimately, your success in achieving carbon reduction relies on collaborative engagement with your stakeholders, especially when it comes to reducing indirect emissions.

4

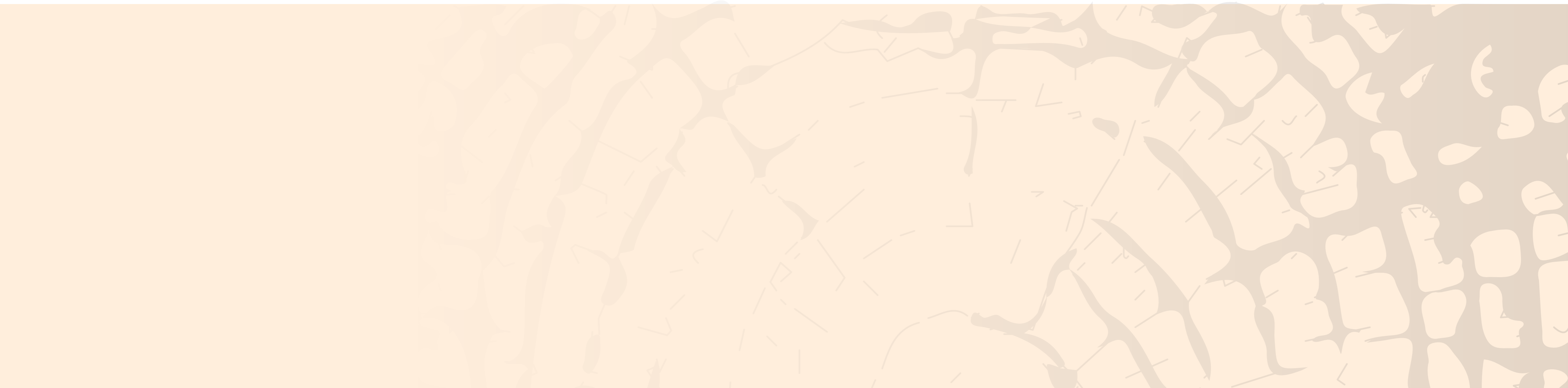
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## Drive change

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Implement your carbon reduction strategies, regularly report on progress, communicate your organisation's role in keeping warming below 1.5 - 2 degrees as per the Paris Agreement.

# Why is it important to take action?



# The converging agenda

As the global agenda progresses, Australian industry is making strides to decarbonise the manufacturing sector, our cities and our communities. Each of these moving parts plays an important role in building the market for low-carbon materials and solutions and are explored over the following pages.

## Green Star

By using the carbon foot printing and target setting tools outlined in this guide, you can help your customers achieve Green Star points.

Green Star is the leading sustainability rating tool in Australia and has driven demand for sustainable construction products for almost 20 years. Since 2003, 2,500 properties, fit outs and communities have achieved a Green Star rating. Green Star has also influenced many government policies and guidelines.

**There are a number of existing and emerging aspects of Green Star that are relevant to wood product manufacturers including:**

1

In the current Green Star – Design & As Built tool, projects are rewarded for undertaking a life cycle assessment that demonstrates a reduction in environmental impacts, for specifying products that have environmental product declarations and for timber that has a sustainable supply chain certification.

2

The Green Building Council of Australia (GBCA) is currently developing a major update to its suite of rating tools and will be releasing Green Star – New Building towards the end of 2020. This rating tool will have an increased focus on carbon emissions throughout a building's life cycle, including a new credit specifically for embodied carbon to go alongside their whole building life cycle assessment credit.

3

In the current draft, the GBCA is introducing a new requirement for a building's upfront carbon emission from materials and products. To be eligible for a Green Star rating the building must emit at least 10% less carbon than a standard practice reference building and projects will be rewarded for more significant reductions in upfront carbon.

Almost 1000 companies are officially signed up to the Science Based Targets (STBs) initiative, meaning they have set, or committed to set, targets to reduce their carbon emissions in line with climate science and the Paris Agreement.

These companies span 46 countries, 45 sectors and have a combined market capitalisation of over \$10 trillion USD.

Beyond this official number, many more are taking steps behind the scenes to develop science based targets.

## Science Based Targets (SBTs)

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The Science Based Targets (SBTs) initiative champions science based target setting as a way of transitioning to a low-carbon economy. It is a collaboration between the CDP (previously Carbon Disclosure Project), United Nations Global Compact, World Resources Institute, We Mean Business and the WWF.

Nearly 1000 companies have signed up to the SBT initiative, meaning they have set or committed to set targets to reduce their carbon emissions in line with climate science and the Paris Agreement. SBTs are recognised internationally as a best practice way of reducing emissions and demonstrating a credible commitment to addressing climate change.

## Sustainable Development Goal 13: Climate Action

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The United Nation's Sustainable Development Goals (SDGs) are a call for action to promote prosperity while protecting the planet. They recognise that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection. There

are 17 goals in total, each supported by a set of specific targets, and Goal 13 is focused on Climate Action. According to the World Business Council for Sustainable Development's assessment of sustainability reporting, *Reporting Matters*, 88% of companies are reporting on steps taken to address SDG 13 on Climate Action including Mondi and Stora Enso (read more about their approach on page 20).

## Taskforce on Climate-related Financial Disclosures (TCFD)

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Launched by the G20, the Taskforce for Climate-related Financial Disclosures (TCFD) is a voluntary set of guidance for companies to provide the financial impact of climate change to investors, lenders, insurers and other stakeholders.

It considers a range of climate-related risks and opportunities, and sets out recommended disclosures across four parameters including governance, strategy, risk management and metrics and targets.

Since the TCFD launched its initial recommendations in 2017, more than 240 investors with nearly \$34 trillion in assets under management have committed to engage the world's largest corporate greenhouse gas emitters to strengthen their climate-related disclosures by implementing the TCFD recommendations.

## Environmental Product Declarations (EPD)

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An Environmental Product Declaration (EPD) is an independently verified and registered document that communicates transparent and comparable data about the life cycle environmental impact of a product, administered by the Australasian EPD programme.

This information includes contributions to climate change (carbon footprint) along with other indicators such as water and soil pollution.

FWPA have produced EPDs since 2015 for a range of wood and wood-based products which can be used to gain Green Star points and help building professionals reduce the carbon footprint of construction.

## Building Products Information rating (BPI)

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Building Product Information (BPI) is a platform to help developers, architects and other decision makers compare building products and suppliers based on their sustainability attributes.

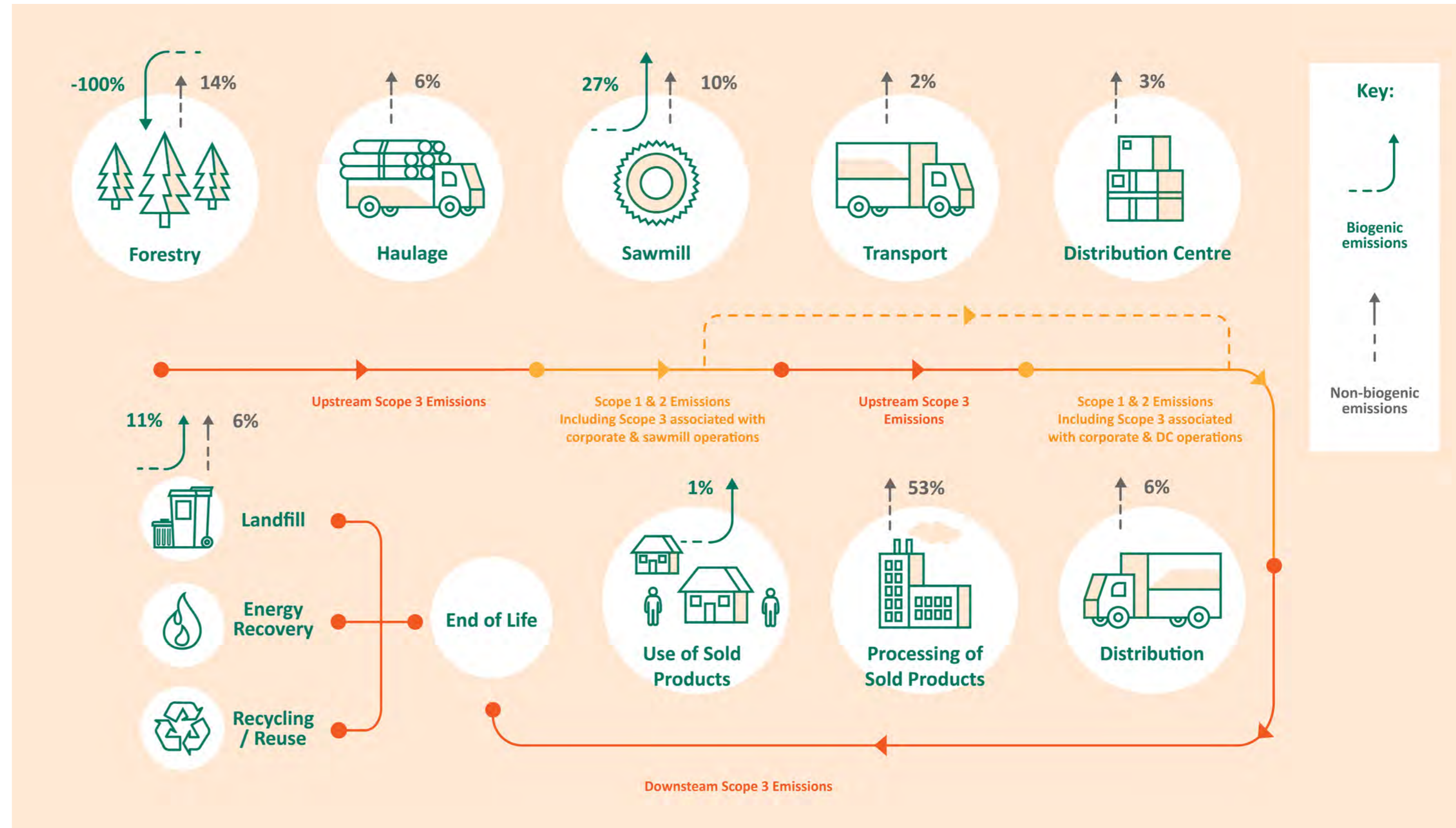
A BPI considers a wide range of criteria which includes a focus on carbon, climate and resilience. In addition to product specific information, it includes criteria on organisation-wide sustainability activities, including whether the manufacturer has set SBTs and published TCFD disclosures.

A BPI rating will support existing rating schemes such as Green Star by making it easier for construction projects to specify and use lower-carbon, safer and more sustainable products.

# The carbon impact of wood manufacturing

Wood products have an important role to play in climate action. To better understand and manage the links between operations and climate impacts, manufacturers need to understand their own footprint and set targets to reduce the emissions of their operations and of their products.

This infographic depicts the flow of carbon across the life cycle of a typical wood product manufacturer, from log harvest through to the product's end of life, which is also available in EPD format. The carbon intensity of each life cycle stage differs and may vary further across companies depending on practices.





# The role of materials and the built environment

11% of global energy-related carbon emissions come from materials and construction.

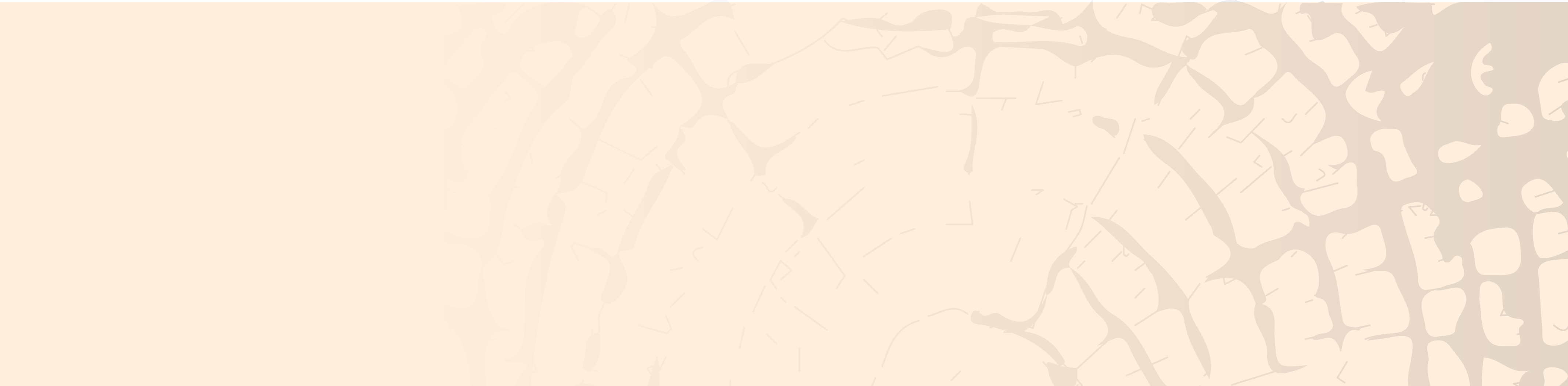
According to the World Green Building Council (WGBC), buildings account for 39% of global energy-related carbon emissions. Approximately 28% of these emissions come from operational emissions (energy needed for heating, cooling, ventilation, lighting etc.) and the remaining 11% from materials and construction.

In the past, sustainable building design has focused on reducing carbon emissions from its operations. However, as buildings become more energy efficient and energy supply is increasingly powered by renewable sources, carbon from processes to manufacture materials will be much more important.

Known as embodied carbon, these emissions represent an emerging area of focus in combatting climate change.

In fact, the WGBC's vision is that by 2030, all new buildings, infrastructure and renovations will have at least 40% less embodied carbon with significant upfront carbon reduction, and all new buildings must be net zero operational carbon. By 2050, new buildings, infrastructure and renovations will have net zero embodied carbon, and all buildings, including existing buildings, must be net zero operational carbon.

# What's the value of taking action?

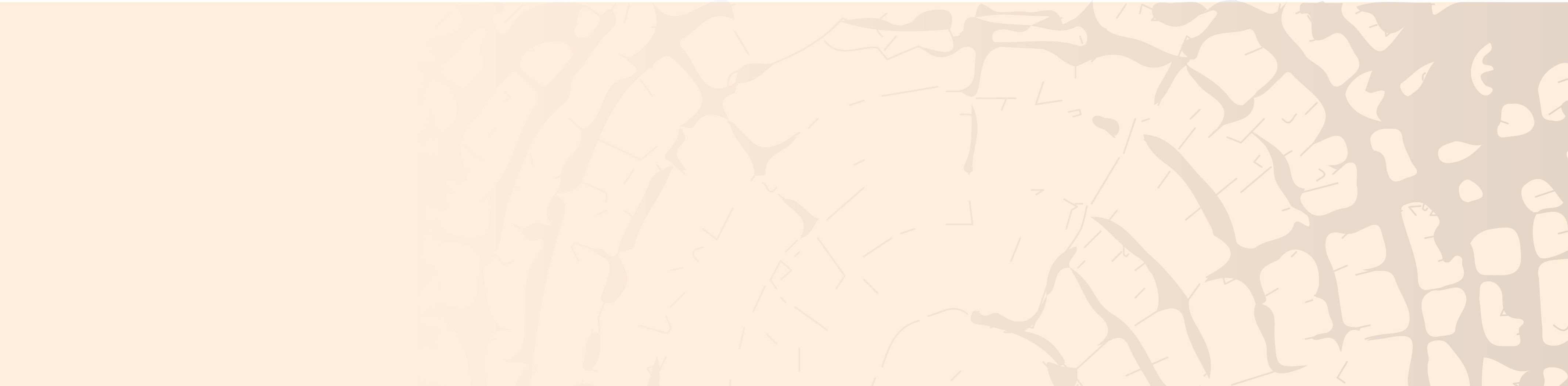


# The business case for addressing climate change

- 1** Meet market demand for low-carbon products
- 2** Support customers' sustainability objectives
- 3** Identify improvement opportunities and cost savings
- 4** Support strategic decision-making

- 5** Address climate risks
- 6** Understand company performance and impacts
- 7** Demonstrate leadership and transparency

# How can you take action?



# Start by using the carbon calculator

A carbon footprint adds up all the greenhouse gas emissions resulting from a company's activities during a certain period. To calculate a carbon footprint, you need to first collect data on activities, such as the amount of raw material purchased and the types of use of the sold product, electricity and fuels, waste, and travel.

Then, input the data into the carbon calculator which returns the carbon footprint across scope 1, 2 and 3 emissions. You can find out more about scope 1, 2 and 3 emissions on page 25. The results will also show what are the main emission hotspots, which informs what you need to focus on in the target setting phase.

Download the tool at: <https://nifpi.org.au>

1

## Set the boundary

- Use the guidance in the Greenhouse Gas (GHG) Protocol to define what activities are in and out of the carbon footprint

2

## Collect data

- Gather data for one year (calendar or financial) of activity

3

## Analyse

- Enter data in the carbon calculator and calculate results
- Interpret the results critically: identify hotspots, sense-check emissions intensity against your activity, benchmark against similar organisations

# Develop credible carbon reduction targets

Now that you've established a clear evidence-base with your carbon footprint, you can start the target setting process.

Once you've agreed your level of ambition, you can calculate the size of the reduction required. The target calculation results in a % reduction compared to a baseline year associated with your carbon footprint, e.g. a reduction of 50% in direct emissions by 2030.

Throughout the process you should engage the Science Based Targets Initiative (SBTi), first by committing to the process, and later by submitting your target alongside the companies already registered.

Download the tool at: <https://nifpi.org.au>

1

## Commit

- Submit a commitment letter to the SBTi. Once the letter is accepted your company will be listed as committed to setting a target

2

## Scope the target

- Decide on the inclusion of scope 3 emissions in the target
- Decide on the temperature increase alignment: 1.5 or well-below 2 degrees
- Decide the year against which the company will set its science-based target

3

## Calculate the target

- Use the tools provided by SBTi to model the total emissions reduction required to achieve your company's target
- Decide whether your company will set an absolute or an intensity target, or both

4

## Submit and announce

- Submit and validate your company's target with the SBTi
- Communicate your official target to stakeholders

# Engage your stakeholders

## Employees

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Show how sustainability is relevant to people's roles and how they can participate in carbon reduction initiatives

## Investors

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Apply the TCFD's recommendations and disclose your financial climate-related risks and opportunities

## Customers

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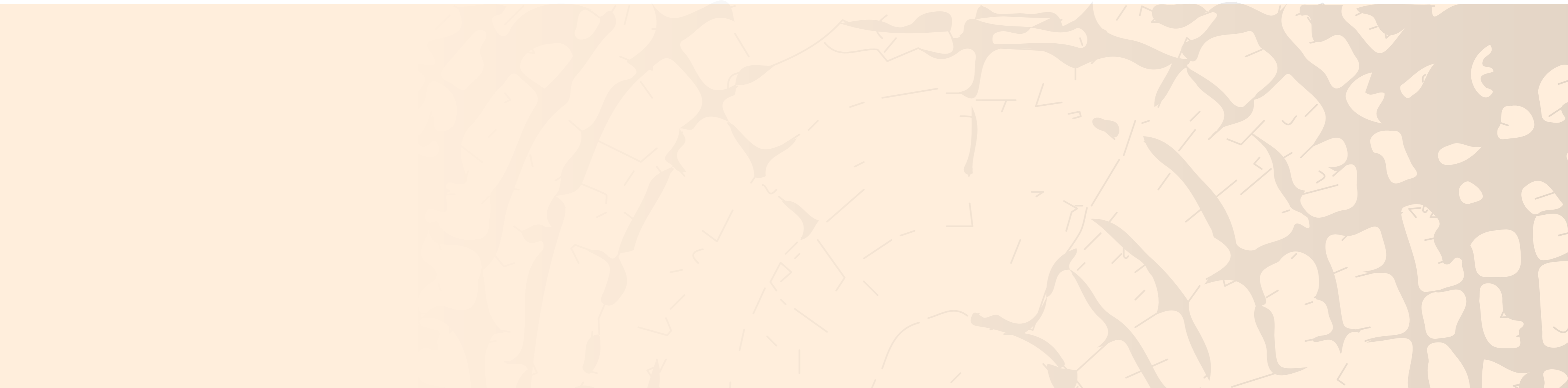
Show how your carbon reduction efforts contribute to your customers' sustainability objectives

## Consumers and general public

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Show how the problem is relevant to them on an individual level and how they can make a difference

# What does leadership look like?





# The principles of climate action leadership

Many companies make sustainability commitments, however, some commitments are more ambitious than others. With greenwashing a common issue in sustainability marketing and communications, it is important to understand industry best practice and be able to benchmark your level of ambition and actions against it.

It is also vital that any commitments you make are achievable and based on thorough decision-making. For example, setting a carbon reduction target aligned to climate science will ensure your organisation is doing its part and is more meaningful than choosing a random reduction. It can also help to bolster integrity and reputation while maintaining transparency.

## What does leadership look like?

- Aligned to the Science Based Target initiative
- Aligned to the SDGs
- Targets in place across scope 1, 2 and 3
- Clear governance structures at a board-level to oversee carbon reductions and wider climate change risks and opportunities
- Remuneration linked to achieving carbon reductions at board, executive and leadership level
- A clear and publicly available climate strategy in place
- Active employee participation and engagement
- Proactive engagement with investors on climate-related risks and opportunities
- Clear customer value proposition articulated and marketed
- Low-embodied carbon products available to customers
- Transparency through annual progress reporting including disclosure against TCFD

# Mondi

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Mondi Group is a global leader in packaging and paper with operations in 30 countries. Having recognised its role in the global effort to reduce emissions and the evolving needs of its stakeholders, Mondi has developed a comprehensive approach to addressing climate action.

Mondi is committed to reducing scope 1 and scope 2 emissions with clear targets in place to 2050. This includes:

- Reduce Scope 1 and 2 GHG emissions 34% per tonne of saleable production by 2025 and 72% per tonne of saleable production by 2050, from a 2014 baseline

- Reduce Scope 2 GHG emissions 39% per MWh by 2025 and 86% per MWh by 2050, from a 2014 baseline.

To achieve these targets, Mondi is reviewing its energy strategy with a view to improve energy efficiency and reduce the use of fossil fuels in favour of renewable energy technologies.

Mondi's climate goals are aligned with SDGs 7, 8 and 13 and are being delivered through the engagement of its internal stakeholders, partnerships and communicating progress through award-winning sustainability reporting.

# Stora Enso

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Stora Enso is a paper and pulp manufacturer. In 2017 Stora Enso committed to reducing the greenhouse gas emissions of its operations between 2010 and 2030 by 31% per tonne of pulp, paper and board produced.

The company is implementing this target by increasing the update of renewable energy, primarily biomass from sustainably managed forests.

To reduce its scope 3 emissions, Stora Enso has committed to engaging 70% of its suppliers and downstream logistics partners to set their own SBTs by 2030.

# Timberlink

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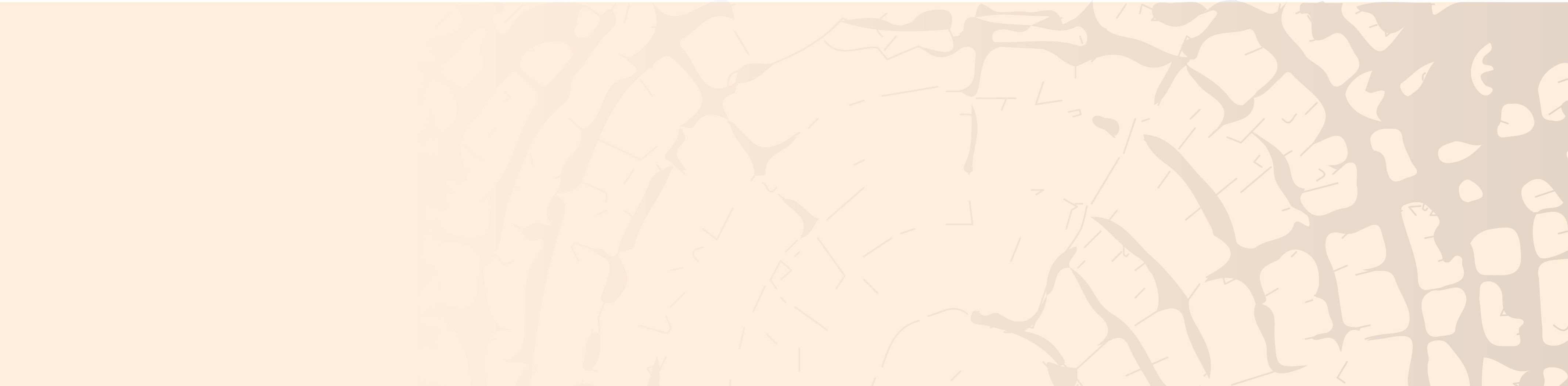
Timberlink is a leading sawmiller with two mills in Australia. The organisation is committed to using sustainable and certified plantation pine resources for the provision of timber products, primarily for buildings.

Timberlink recognises its role in reducing emissions from its manufacturing operations, further improving the carbon profile of the highly sustainable products it manufactures.

Timberlink has committed to reducing Scope 1, 2 and 3 emissions by 21% per m<sup>3</sup> of throughput by FY2030. As part of this commitment, it plans to reduce combined Scope 1 and 2 emissions by 53% by FY2030.

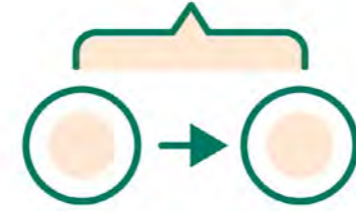


# What role does wood play in providing sustainable solutions?





**Long-term  
carbon storage**



**Low embodied  
carbon**



**Responsibly  
sourced**



**Lightweight**



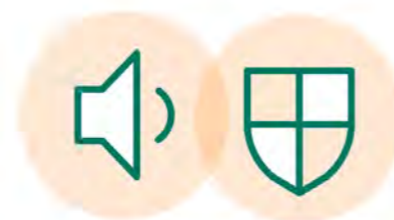
**Strong**

# The sustainability benefits of wood products and solutions

The construction industry in Australia is one of the most sustainable in the world and wood products play a big role in helping create a more sustainable built environment



**Faster  
construction time**



**Quieter  
& safer**



**Forgiving to design &  
construction errors**



**Enhanced aesthetics,  
air quality & acoustics**

# A guide to frequently asked questions

## What does it mean to have a target that is aligned to climate science?

Scientists have projected the rate at which the global economy will have to decarbonise to keep global warming below 1.5 degrees. This is the temperature limit below which the worst, most unpredictable effects of climate change may be avoided. Setting a target that is aligned to climate science means setting a target that matches that decarbonisation pathway. Companies may choose to reduce greenhouse gas emissions at rates that don't relate to that pathway, in which case the targets may not meet the objectives of global warming mitigation.

## What is the difference between having a science-based target and being a carbon neutral organisation?

Having a science-based target means that the company is aligning to achieve zero carbon emissions by 2050. Being carbon neutral means that emissions that happen are compensated by the purchase of carbon offsets and does not necessarily denote actual reductions within a company or its supply chain.

## Reducing scope 3 emissions seems out of the control of my company. Where do I start?

Start by understanding the impact and feasibility of acting upon the different parts of the company's scope 3 footprint. There are a few good examples of companies strategically engaging stakeholders up and downstream in their value chain. See Stora Enso's case study on page 21 for more information.

## Does my company have to set a scope 3 target?

Although not legally required, scope 3 emissions do fall within a company's boundary as per the GHG Protocol Corporate Reporting and Accounting Standard (i.e. international best practice). If a company chooses to set an SBT, then a scope 3 target is required when it accounts for more than 40% of the company's total carbon footprint.

## What is the difference between an absolute and an intensity target?

Absolute targets are targets expressed in absolute terms. For example, a 30% reduction. This type of target is robust in that it ensures a commitment to reduce a specified quantity of carbon. However, it does not allow for easy comparison where reductions are due to declines in production rather than improvements in emission intensity. Intensity targets are expressed on a per unit basis. For example, a 30% reduction per cubic metre throughput. This type of target reflects performance regardless of growth or decline and also enhances the ability to compare ambition levels across the industry. However, in some instances, this type of target may be considered less robust as absolute emissions can actually rise while intensity emissions decrease. For this reason, we recommend setting an intensity target that is supported by an absolute target to ensure no growth in absolute emissions.

## How thorough or accurate does the carbon footprint have to be to set carbon reduction targets?

To inform meaningful action, a carbon footprint should be accurate enough that the company can effectively track its progress. The footprint should ideally cover scope 1, 2 and 3 to ensure that reduction efforts are focused on the largest sources of emissions.

# Glossary of terms

## **Biogenic carbon emissions:**

Carbon emissions that originate from biological sources such as plants, trees, and soil, hence relating to the natural carbon cycle. Biogenic emissions happen when the carbon dioxide captured in biomass through photosynthesis is released back to the atmosphere through combustion, decomposition or processing of the biomass materials.

## **Carbon footprint:**

The total greenhouse gas emissions caused directly and indirectly by a person, organisation or event or the provision of a product or service.

## **Climate change risk:**

The risk of the manifestations of climate change affecting planning and day to day operations of organisations and supply chains impacting the financial performance of those entities. Manifestations include extreme weather events, like heatwaves, droughts and storms, and higher temperatures and altered rainfall patterns.

## **Embodied carbon:**

Carbon emissions associated with materials and construction processes throughout the whole life cycle of a building or an infrastructure asset. Embodied carbon includes the extraction of raw materials, transport to processing, processing and manufacture, delivery to client or construction site, construction, use (including maintenance and repair/replacement/refurbishment), deconstruction or disassembly, and end of life treatment.

## **The GHG Protocol Corporate Standard:**

The GHG Protocol Corporate Accounting and Reporting Standard provides a single, consistent, harmonized approach and guidance for companies and other organisations preparing a corporate-level GHG emissions inventory.

## **Life cycle assessment (LCA):**

LCA is a systematic set of procedures for compiling and examining the inputs and outputs of materials and energy, and the associated environmental impacts directly attributable to a building, infrastructure, product or material throughout its life cycle (ISO 14040: 2006).

## **Science-based target:**

Greenhouse gas emission reduction targets that are consistent with the level of decarbonisation required by science to limit warming to less than 1.5°C / 2°C compared to preindustrial temperatures. Best practice guidance and tools for setting corporate targets are developed and promoted by the Science-Based Target Initiative (SBTi).

## **Scope 1 emissions:**

Scope 1 emissions are direct emissions from owned or controlled sources.

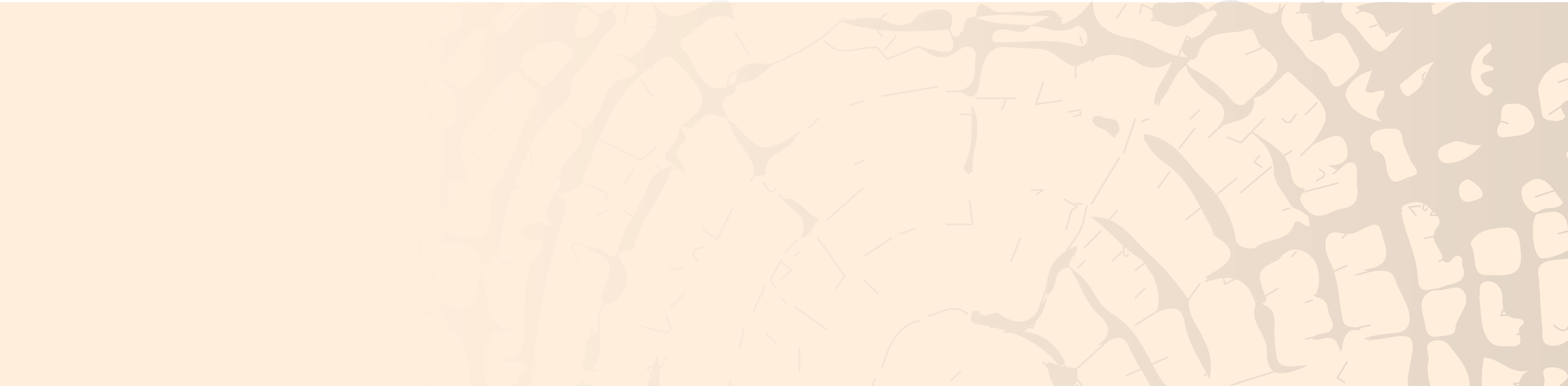
## **Scope 2 emissions:**

Scope 2 emissions are indirect emissions such as steam and electricity.

## **Scope 3 emissions:**

All indirect greenhouse gas emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. Emissions along the value chain often represent a company's biggest greenhouse gas impacts, which means companies have been missing out on significant opportunities for improvement.

# Where can you find out more?





# Useful links to more information

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BPI Rating Tool

<https://bpirating.com.au>

Green Star Rating Tool

<https://new.gbca.org.au>

EPD Australasia

<https://epd-australasia.com>

Bringing Embodied Carbon Upfront

<https://www.worldgbc.org/embodied-carbon>

The Science Based Targets Initiative

<https://sciencebasedtargets.org>

Science-Based Targets E-learning

<https://edgeenvironment.com/academy/sbt>

The GHG Protocol Corporate Standard

<https://ghgprotocol.org/corporate-standard>

The GHG Protocol Value Chain (Scope 3) Emissions Guidance

<https://ghgprotocol.org/standards/scope-3-standard>

Wood Solutions – The Ultimate Renewable

<https://www.theultimaterenewable.com.au>

**A guide for wood product manufacturers**  
Produced by Edge Environment



Appendix 7: [Carbon Footprint Guidance](#)

# Carbon footprinting for timber companies

## What is a carbon footprint and what is it for?

A carbon footprint documents the total greenhouse gas emissions that a company is responsible for, including its **activities** and its **value chain**<sup>1</sup>.

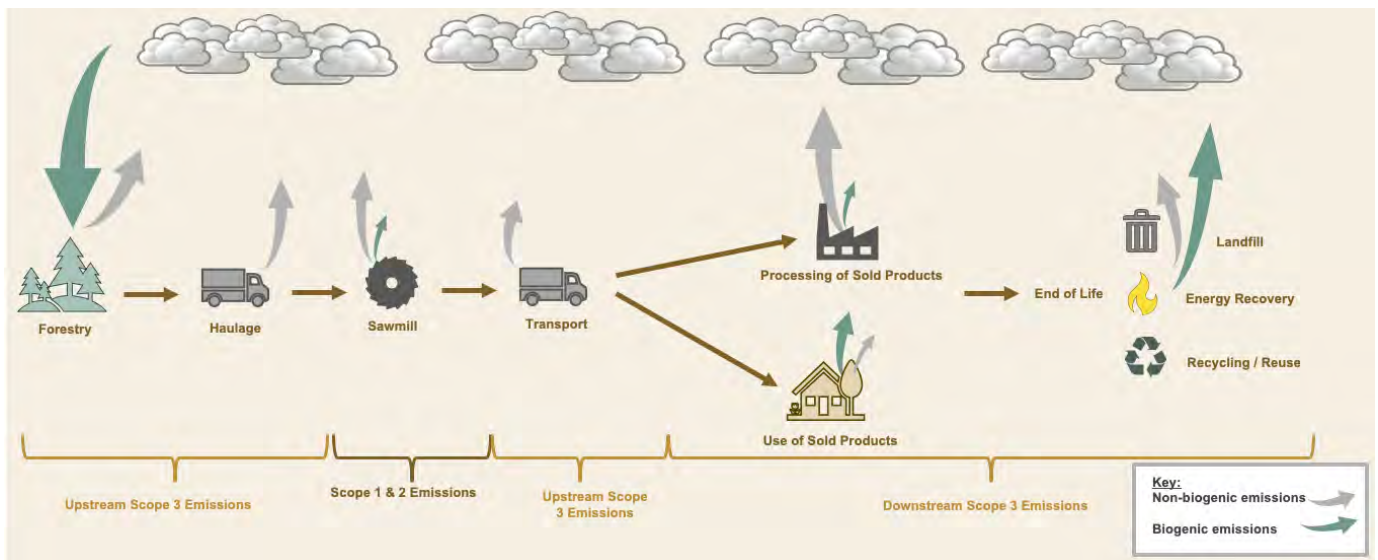
A carbon footprint provides not only a measure of “how much carbon”, but also what is driving emissions, with a view to inform strategies to reduce the company’s contribution to climate change. The inclusion of the value chain relates to the principle that companies can actively influence emissions that are beyond their direct control, for example by selecting low-carbon suppliers or renewable energy.

## What is included in a carbon footprint?

The emission sources that are included in a company footprint cover direct sources, which the company controls, as well as indirect emissions. Typically, emissions are organised into three scopes:

- Scope 1: **direct emissions** from burning fuels (e.g. in the company’s stationary engines, vehicles or forestry machinery), from calcination in lime kilns and from refrigerants
- Scope 2: indirect emissions from the generation of **electricity** purchased by the company
- Scope 3: upstream and downstream indirect emissions from the company’s value chain. This includes the **emissions of the products purchased by the company** and also **the emissions from processing, use and disposal of the products sold by the company**.

The figure below demonstrates how the different scopes of emissions apply to the footprint of a company that manufactures timber products. This simple flow suggests that the product itself is at the core of the footprint, with its entire life cycle from origin to end of life being considered. Biogenic carbon should also be considered (but reported separately).



<sup>1</sup> The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. 2004. Washington: World Resources Institute and World Business Council for Sustainable Development.

## What information is needed to calculate a footprint?

The information required to calculate a company's carbon footprint depends on where the boundary is set, i.e. what will be included in the footprint. Usually, all emissions over which the company has operational control are included. The relevant emissions from upstream and downstream the value chain should also be included. Another lens may be the purpose of the footprint. A high-level assessment for internal information purposes may have a less rigorous boundary and data collection, whilst footprints used for external communications should be more thorough.

The calculation of a carbon footprint requires the collection and use of company- and product-specific data. The table below indicates the data requirements of carbon footprints that are generally applicable to timber companies. The requirements are set against each of the footprint categories outlined in the best practice guideline Greenhouse Gas Protocol<sup>2</sup>.

Scope	Category	Description	Data requirement
Scope 1 emissions	Fuel combustion - stationary	Direct emissions from activities owned or controlled by the company in the baseline year (e.g. fuel combustion from company vehicles, refrigerants)	Quantity and type of fuel used
	Fuel combustion - mobile		Quantity and type of fuel used
	Fugitive emissions (refrigerants)		Quantity and type of refrigerants leaked
Scope 2 emissions	Purchased electricity	Indirect emissions associated with the company's consumption of purchased electricity in the baseline year	Quantity of electricity consumed per state and territory
Scope 3 emissions	Cat 1: Purchased goods and services	All upstream emissions of purchased goods and services by the company in the baseline year	Dollars spent in different goods and services Input of raw materials
	Cat 2: Capital goods	All upstream emissions of purchased capital goods by the company in the baseline year	Dollars spent in different goods and services
	Cat 3: Fuel- and energy-related emissions	The emissions related to extraction, production and transportation of fuels and energy purchased or acquired by the company in the baseline year	No additional data required
	Cat 4: Upstream transportation and distribution	The emissions related to the transport and distribution of products and services purchased by the company in the baseline year	Weight of products and distance travelled
	Cat 5: Waste generated in operations	The scope 1 and scope 2 emissions of waste management suppliers that occur during the disposal and treatment of waste generated by the company's operations in the baseline year	Quantity and type of waste and expected fate of waste (landfill or recycling)
	Cat 6: Business travel	The scope 1 and scope 2 emissions of transportation carriers related to the transport of the company's employees for business-related activities during the baseline year	Distance and type of travel
	Cat 7: Employee commuting	The scope 1 and scope 2 emissions related to the transportation of employees between their home and the company's offices or facilities during the baseline year	Number of employees by office/facility location (regional or metropolitan)
	Cat 8: Upstream leased assets	The scope 1 and scope 2 emissions related to the operation of assets leased by the company in the baseline year	Quantity and type of fuel used and quantity of electricity consumed
	Cat 9: Downstream transportation and distribution	The scope 1 and scope 2 emissions related to the transport and distribution of products sold by the company in the baseline year	Weight of products and distance travelled
	Cat 10: Processing of sold products	The scope 1 and scope 2 emissions related to the processing of intermediate products (by downstream companies (e.g. manufacturers)) sold by the company in the baseline year	Weight and type of product sold for further processing
	Cat 11: Use of sold products	The direct use-phase emissions of sold products (in the baseline year) over their expected lifetime	Quantity and type of sold products

<sup>2</sup> The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. 2004. Washington: World Resources Institute and World Business Council for Sustainable Development.

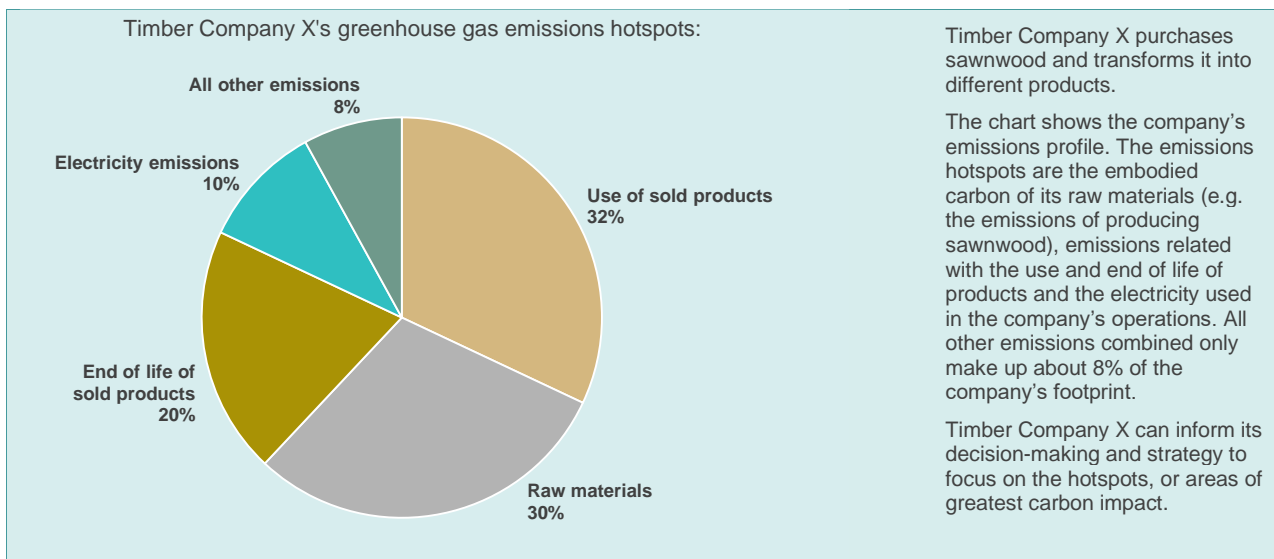
The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Standard. 2011. Washington: World Resources Institute and World Business Council for Sustainable Development.

Cat 12: End-of-life treatment of sold products	The scope 1 and scope 2 emissions of waste management companies related to the waste disposal and treatment of products sold by the company (in the baseline year) at the end of the product's life	Expected disposal method of sold products
Cat 13: Downstream leased assets	The scope 1 and scope 2 emissions of lessees that occur during the operation of assets owned by the company and leased to other entities in the baseline year	Assumed not applicable to the wood product manufacturing industry
Cat 14: Franchises	The scope 1 and scope 2 emissions related to the operation of franchises in the baseline year	Assumed not applicable to the wood product manufacturing industry
Cat 15: Investments	The scope 1 and scope 2 emissions related to the operation of investments in the baseline year	Assumed not applicable to the wood product manufacturing industry

In general, each data point is matched with an emission factor, i.e. the amount of greenhouse gases emitted per one unit of input or output (e.g. kWh electricity, m<sup>3</sup> wood chips converted to kraft paper).

These emission factors are held in databases, official guidance reports and other literature. The emission factors are selected for how closely they match the company's specific activities and its context. For example, for Australian companies the electricity emission factors should convey the emissions profile of the Australian grid; for diesel used in stationary engines, a specific factor should be applied, rather than a generic fossil fuel factor or a petrol vehicle factor.

## What insights can be gained from a carbon footprint?



With its carbon footprint in hand, a company can:

- Track its annual climate performance, using the total emissions tally and/or carbon intensity
- Integrate the carbon account in its Environmental Management Systems, in alignment with ISO14001:2015 which supports value chain and life cycle thinking
- Use the insights on emissions hotspots to inform impact reduction initiatives
- Use the data to pursue carbon reduction targets or other achievements such as carbon neutrality for the company
- Use the data in external reporting, such as in Corporate Social Responsibility reports, Global Reporting Initiative or the Carbon Disclosure Project
- Establish an emissions baseline against which reduction initiatives can be measured and Science-Based Targets can be set.

Appendix 8: [Biogenic Carbon Guidance](#)

# Quick guidance on biogenic carbon and Science-based Targets

## What is biogenic carbon?

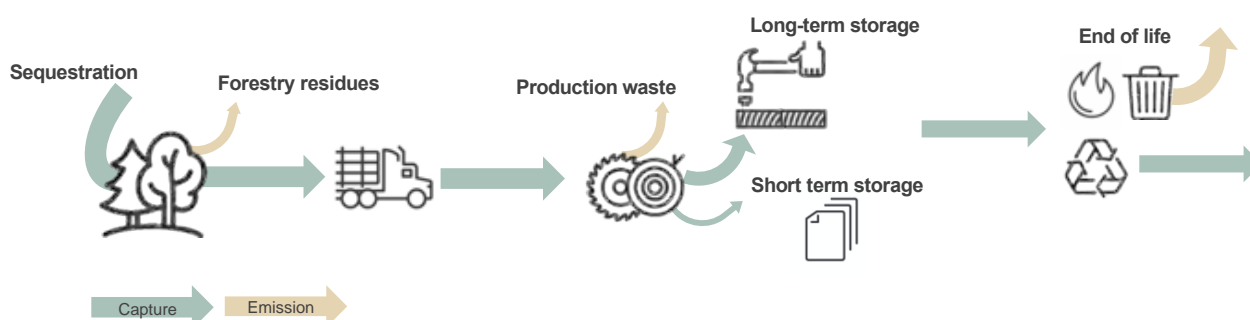
Biogenic carbon is the carbon that is captured by plants through photosynthesis. It circulates between the atmosphere and the world's biomass and soil. Biogenic carbon differs to non-biogenic carbon, which is the carbon associated with fossil fuels.

All timber products contain biogenic carbon that has been sequestered through the growth of the trees from which the products originated. A portion of the biogenic carbon stored in timber is immediately released during the harvest, processing and product use stages while the remainder remains in the timber product until decomposition or burning.

The fate of biogenic carbon contained in a tree is uncertain: it depends largely on how forestry practices impact the soil and the sustainability of timber as a resource, and what becomes of the timber. The biogenic carbon flow in the lifecycle of timber products can lead to:

- Temporary storage, when long-lived products stabilise the biogenic carbon in structures such as buildings
- Neutrality, when the net biogenic carbon emitted by the timber life cycle is equivalent to the continuous sequestration via sustainable forestry, i.e. harvested trees are replenished by newly growing ones
- Net emissions, when the biogenic carbon emitted exceeds the carbon sequestered, for example if the timber resulted from deforestation or felling of enduring ecosystems, such as old-growth forests, and was not replanted or as a result of soil impoverishment due to forestry operations.

## Biogenic carbon in the timber and pulp life cycle



Timber is 50% carbon, which means that 1 m<sup>3</sup> of sawn softwood will have **sequestered** roughly 900 kg CO<sub>2</sub> in its biomass. When timber is harvested at the same rate as timber is grown, the system can be considered **renewable** and therefore carbon neutral from a biogenic carbon perspective. Slow growth biogenic carbon stocks, such as old-growth forests, should not be considered renewable because they cannot be replenished as quickly as they might be consumed.

Long-lived timber products delay the return of the sequestered carbon to the atmosphere, resulting in **biogenic carbon storage**. In construction products, this requires good design and moisture safety during construction and maintenance. By contrast, short-lived products, such as paper and biofuels, are unlikely to present carbon storage opportunities.

**Circular economy solutions**, such as reusing, recycling and even downcycling timber products at the end of life of their life, ensures the storage of biogenic carbon even further.

Recent research findings have concluded that, even when timber is sent to **landfill**, its decomposition is much slower than originally thought. This implies that even timber in landfill will retain some carbon



from release to the atmosphere. This approach is present in the National Greenhouse Accounts, as well as in the Australian timber product Environmental Product Declarations.

## Biogenic carbon in the context of setting Science-Based Targets



Finnish forest industry company UPM has committed to meeting a Science-Based Target. UPM committed to reduce scope 1 and 2 GHG emissions 30% per tonne of pulp and paper by 2030 from a 2008 base-year. UPM also commits to reduce scope 3 GHG emissions 30% per tonne of pulp and paper by 2030 from a 2017 base-year.

The target boundary includes biogenic emissions and removals associated with the use of bioenergy.

A Science-based target (SBT) is a carbon reduction target that applies to a company, including the company's products, and its carbon footprint. For the timber and pulp sector, that footprint includes non-biogenic carbon (e.g. from burning fossil fuels) and the biogenic carbon that flows through the life cycle of the product.

The following table contains recommendations for the reporting and inclusion of different biogenic carbon flows in carbon footprinting and Science-based Target setting. These recommendations result from the consultation of the main standards and guidelines on carbon accounting<sup>1</sup>, key documents related to SBT methodology and published targets in the forestry and pulp sector.

Biogenic carbon flow	Example	Reporting recommendation	Application to SBTs
Sequestration	Carbon content of logs or purchased timber product	Report separately in the footprint.	Not included in target setting.
Storage	Carbon content in structural timber	Report separately in the footprint.	Not included in target setting.
Emissions from biomass	Forestry residues left on site to decompose. Landfilling of paper or timber.	Report separately in the footprint.	Not included in target setting.
Storage or emissions from soil	Organic carbon accumulation in forest soils. Removal of soil organic carbon during forestry operations.	Not included in the footprint.	Not included in target setting.
Bioenergy-related flows	Carbon content of woody residues burned in heat plant and emissions from their combustion	Report separately in the footprint.	Must be included in target.
Land use change	Emissions from land clearing to establish new plantation	Report separately in the footprint.	May be included in target.

<sup>1</sup> The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. 2004. Washington: World Resources Institute and World Business Council for Sustainable Development.

ISO 14064-1:2018. Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.

ISO 14067:2018: Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification

The Greenhouse Gas Protocol: Product Life Cycle Accounting and Reporting Standard. 2011. Washington: World Resources Institute and World Business Council for Sustainable Development.

GHG Protocol Agricultural Guidance. 2014. Washington: World Resources Institute and World Business Council for Sustainable Development.

PAS 2050:2011: Specification for the assessment of the life cycle greenhouse gas emissions of goods and services

Appendix 9: [Target Setting Case Studies](#)

# Science-Based Target Case Studies

Science-Based Targets (SBTs) provide companies with a clearly defined pathway to future-proof growth by specifying how much and how quickly they need to reduce their greenhouse gas emissions.

The Paris agreement in 2015 saw 195 of the world's governments commit to prevent dangerous climate change by limiting global warming to well below 2 degrees Celsius. This signalled an acceleration in the transition to a low carbon economy.

As of early 2020, nearly 800 companies are taking action towards science-based targets, either with a verified target or a commitment to set a target. With a growing focus in embodied carbon in the construction industry, the number of commitments from the timber and building products industries are growing, with 18 companies having set or committed to SBTs. This factsheet provides an overview of how three building product companies defined a leadership position through SBTs. Stora Enso and Klabin SA have demonstrated leadership in the forest and paper wood products industry, and Kingspan has a large presence in the Australian construction industry and meeting market demand for sustainable products.

## Stora Enso

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Stora Enso is a manufacturer of timber, pulp, paper and other forest products, headquartered in Helsinki, Finland. The majority of the company's sales take place in Europe, but there are also significant operations in Asia, South America and the United States. Stora Enso also has distribution centres in Melbourne, Brisbane, Adelaide, Sydney and Perth. In Australia, Stora Enso provides a wide range of products including timber framing, weatherboards, decking and plywood.



Stora Enso was the first organisation in the Forest and Paper Products category to have a SBT approved in December 2017. Their targets include the following commitments:

- **Emissions from operations:** Commits to reduce greenhouse gas emissions from operations 31% per tonne of pulp, paper and board produced by 2030 from a 2010 base-year
- **Suppliers and transportation suppliers:** To reduce Scope 3 emissions, Stora Enso commits to have 70% of suppliers and downstream transportation suppliers in terms of spend set their own emission reduction targets by 2025, towards the aim that these suppliers adopt science-based emission reduction targets by 2030
- **Customer-facing staff education:** The company will educate 100% of customer-facing staff on the advantages of setting science-based targets by 2020.

Stora Enso has been actively reducing the energy intensity of their operations and dependence on fossil fuels<sup>1</sup>. Their SBTs cover emissions from operations but also include engagement targets for their partners throughout the value chain. Their strategy includes:

- improving the energy efficiency of our production processes
- replacing fossil fuels with biomass fuels from sustainable sources
- investigating renewable energy purchasing
- engagement with suppliers.

To date, Stora Enso is tracking in line with their SBTs. In Q3/2019, Stora Enso achieved an emissions reduction of 26%, while the reduction achieved for Q1-Q3/2019 was 21%.

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<sup>1</sup> <https://www.storaenso.com/en/newsroom/news/2018/1/taking-the-lead-with-science-based-targets>

## Kingspan Group

Kingspan Group is the world's leading manufacturer of high-performance insulation and building envelope solutions for the global construction market. They now have over 13,000 employees across 5 business divisions and continents. Kingspan pride themselves on their innovative methods, and their vision is to lead the way in creating energy-efficient buildings – incorporating efficiency, sustainability, style and safety into all their products.



Kingspan have committed to SBTs, which were verified September 2018. The commitments within their SBT include:

- Kingspan Group plc commits to reduce absolute Scope 1 and 2 greenhouse gas emissions 10% by 2025 from a 2017 base-year
- The company also commits to reduce absolute Scope 3 greenhouse gas emissions from purchased goods and services, business travel, transport and distribution and end-of-life treatment of sold products 10% by 2025 from a 2017 base-year.

In 2017, 69% of the total energy used by Kingspan's operations came from renewable sources, and the Group is on target to achieve its goal of Net Zero Energy (NZE) status by 2020. As part of its journey to achieve NZE status, Kingspan Group has seen a 77% reduction in carbon intensity across its operations and is benefitting from 34.5 GWh of on-site energy it is generating.

Kingspan will continue to drive energy efficiency improvements, increase renewable energy usage, and extend the scope of its emissions reduction programme to drive improvements throughout its supply chain.

## Klabin SA, Brazil

Klabin is the largest paper producer, exporter and recycler in Brazil. The Company is headquartered in Sao Paulo. It is the leading manufacturer of packaging paper and board, corrugated boxes, industrial sacks and timber in logs. It has 17 industrial plants in Brazil and one in Argentina.



**Klabin**

Klabin has a commitment to SBTs, which have not yet been approved. However, Klabin has a strong commitment to reducing their carbon emissions in alignment with the Brazilian GHG Protocol emission and has a wealth of carbon data freely available on their company website.

Ongoing actions to reduce energy consumption from non-renewable sources were reflected in the 2018 results when Klabin reduced Scope 1 GHG emissions by 6%. A reduction of 8% in Scope 1 biogenic emissions was also recorded with respect to 2017.

Goal	2017 Goal	2017 Results	2018 Results	2022 Goal	Analysis of results
Reduce greenhouse gas emissions (Scope 1+2) per ton of product produced	Reduce emissions by 1%, reaching 205 kg CO <sub>2</sub> eq/t product	193.53 kg CO <sub>2</sub> eq/t product	178.677 kg CO <sub>2</sub> eq/t product	185 kg CO <sub>2</sub> eq/t paper product	Goal reached
Reduce direct emissions of greenhouse gases (Scope 1, absolute value)	Have a maximum increase of 7% in the direct emissions	Increase of 8%	Increase of 6%	Reduce by up to 1%	Goal reached
Reduce purchased energy	Do not exceed the purchase of energy: 1,100,000.00 MWh/year	Purchased energy: 1,143,797.950 MWh/year	1,150,437.53 MWh/year	Reduce by up to 5%	Goal not reached

# Companies with Science-Based Targets or commitments

## Forest and pulp products category

Company	HQ Location	Target	Products
UPM-Kymmene Corporation	Finland	2°C target	Timber, Plywood, Pulp, Biofuels, Energy, Paper
Stora Enso	Finland	2°C target	Timber and wood products, biomaterials, pulp, paper, packaging
PNZ-Productt GmbH	Germany	Committed	Wood treatments
Mondi	UK	Committed	Packaging, paper
Metsa Board Corporation	Finland	Committed	Paper, boards
Klabin S.A	Brazil	Committed	Paper, packaging
Arkhangelsk Pulp and Paper Mill	Russia	Committed	Pulp, paper
Timberlink Australia	Australia	1.5°C target	Timber and wood products

## Building products category

Company	HQ Location	Target	Products
YKK AP, Inc.	Japan	2°C	Aluminium building products
SAINT-GOBAIN	France	2°C	Plastics and ceramics
Nippon Sheet Glass, Co., Ltd.	Japan	2°C	Glass
LIXIL Group Corporation	Japan	2°C	Steel, aluminium, plumbing fixtures and interior furnishings
Kingspan Group Plc	Ireland	2°C	Insulated panels, insulation, roofing
Fletcher Building Limited	New Zealand	Well-below 2°C	Insulation, plasterboard, steel products, laminate surfaces and plastic and concrete piping
LafargeHolcim Ltd	Switzerland	Well-below 2°C	Construction materials
Owens Corning	USA	1.5°C	Roofing, insulation, and composite materials
Diab International AB	Sweden	1.5°C	Composite materials
Steelcase Inc.	USA	1.5°C	Furniture
VALLOUREC	France	Committed	Steel products
Thermguard	South Africa	Committed	Insulation
Danfoss	Denmark	Committed	Cooling and heating products
Company Inc	Japan	Committed	Internal partitions and fixtures

Appendix 10: [Embodied Carbon in Green Star](#)

# Embodied Carbon in Green Star

Both the World Green Building Council (WGBC) and Green Building Council of Australia (GBCA) have recognised that reducing embodied carbon in construction is critical in reaching Australia's targets under the Paris agreement for a 1.5-degree world.

Globally, buildings are currently responsible for 39% of global carbon emissions. In Australia, this number sits at 23%. Therefore, the built environment sector has a crucial role to play in responding to the climate emergency and meeting Australia's Paris Agreement obligations.

In the past, sustainable building design has focused on reducing carbon emissions from operations. However, as the Australian power grid is set to decarbonise over the next 30 years, carbon from building materials and construction will become much more significant. These emissions, commonly referred to as embodied carbon, have largely been overlooked historically but contribute around 11% of all global carbon emissions.

The WGBC has recently released a global initiative and report 'Bringing Carbon Emissions Upfront' that sets a clear approach to reducing embodied carbon in building. The increased focus on embodied carbon is being reflected in updates to Green Star and will provide opportunities for low carbon building products and industries to support the delivery of sustainable buildings.

## Green Star in focus

Green Star is the leading sustainability rating tool in Australia and has driven the demand for sustainable construction products for over 10 years. Since 2003, 2,500 properties, fitouts and communities have achieved a Green Star rating. Green Star has also influenced many government policies and guidelines.

In the current version of Green Star for buildings, Green Star – Design & As Built, projects are rewarded for:

- undertaking a life cycle assessment that demonstrates a reduction in environmental impacts
- specifying products that have environmental product declarations and timber that has a sustainable supply chain certification.

The GBCA is currently developing a major update to their suite of rating tools and will be releasing Green Star – New Building towards the end of 2020. This rating tool will have an increased focus on carbon emissions throughout a building's lifecycle, including a new credit for embodied carbon.

### 25 King Street, Brisbane Showgrounds

25 King is Australia's tallest and largest engineered timber office building. Developed by Lendlease and designed in collaboration with engineers Aurecon and architects Bates Smart, it is a world-class working environment for Aurecon's 600 plus people. The engineered timber structure is substituted for concrete or steel but with a significantly lower carbon footprint, with sequestered carbon locked within the timber structure.

- 6 Star Green Star rating
- 5 Star NABERS Rating
- World's largest engineered timber office
- 40% reduction in embodied carbon.



# Impacts from Resources and Life Cycle Assessment

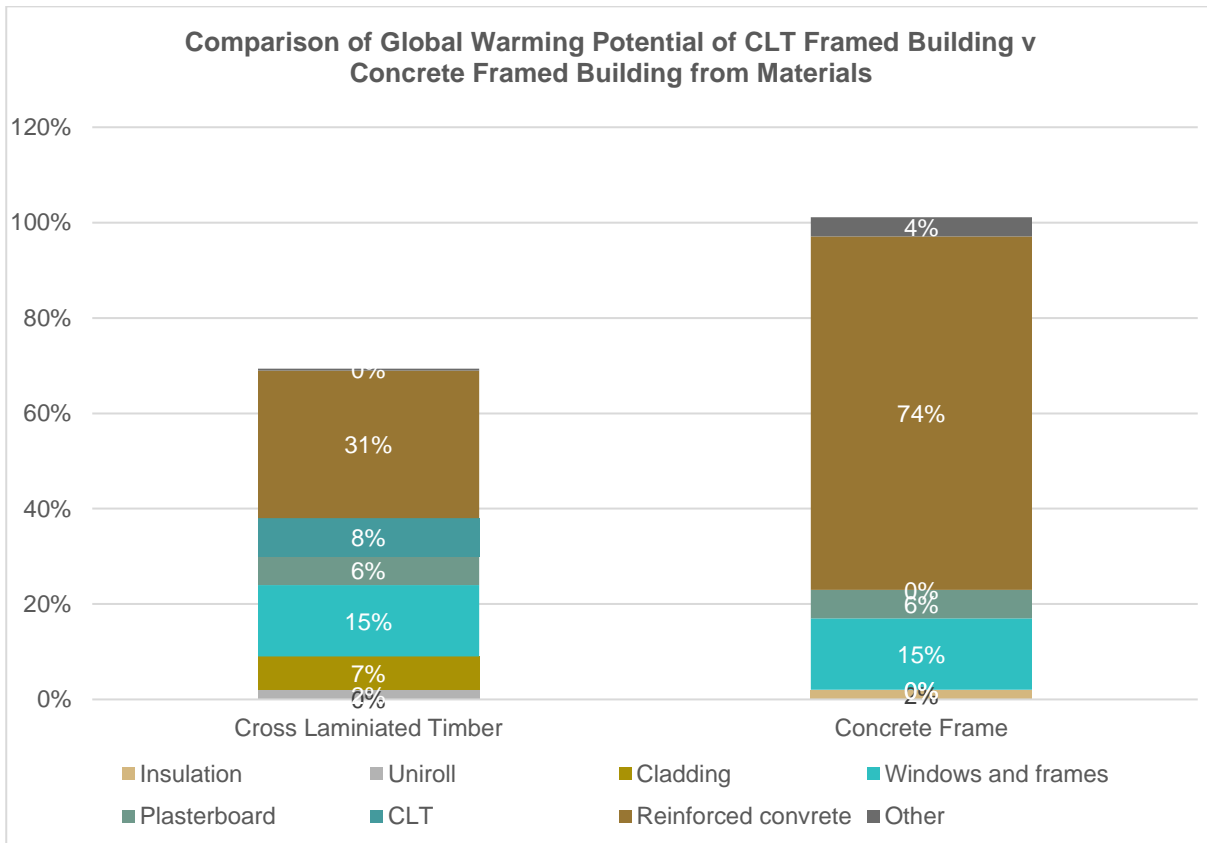
In the new rating tool Green Star – New Building, the GBCA has developed a credit that rewards projects that can demonstrate a reduction in environmental resources over its design life, when compared to standard-practice.



A life cycle assessment (LCA) is a technique to assess environmental impacts associated with all the stages of a building’s life from raw material extraction through materials processing, manufacturing, distribution, use, repair and maintenance, and disposal or recycling. The goal of LCA is to compare the full range of environmental effects assignable to the building by quantifying all inputs and outputs of material flows and assessing how these material flows affect the environment.

In Green Star, LCA is required to calculate the reduction in environmental impacts. The LCA provides the data from which impacts of design and construction decisions can be compared and trade-offs made. For example, LCA can provide data on whether the additional embodied impacts of increased insulation will be offset by reduced operational energy use. Figure 1 below demonstrates how LCA can be used to demonstrate the reduction in embodied carbon in a cross laminated timber structure, when compared to a traditional reinforced concrete structure.

The new credit includes a weighting system that will place a greater emphasis on reduction of the impacts most important to the GBCA, climate change and water.



**Figure 1** | Global warming potential during the materials phase. 100%-931 tonne CO<sub>2</sub> eq, sequestering excluded<sup>1</sup>

<sup>1</sup> B. Durlinger, E. Crossin, J. Wong: Life Cycle Assessment of a cross laminated timber building, 2013 for FWPA



## Upfront Carbon Emissions

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The GBCA is introducing a new minimum requirement that requires a building's upfront carbon emission contribution from materials and products to be reduced and offset. To be eligible for a Green Star rating the building must emit at least 10% less carbon than a standard practice reference building. Projects will be rewarded for more significant reductions in upfront carbon, up to 40%.

The new credit will also allow the use of carbon neutral products and offsets to demonstrate a reduction in upfront carbon emissions.

### Carbon Neutral Products



Carbon Neutral Products will now be recognised in Green Star credits.

Products that are claimed to be carbon neutral must be certified carbon neutral under the National Carbon Offset Standard (now Climate Active), or other equivalent international standard to be considered zero-emissions in the credit calculation.

### Offsets



Carbon offsets will now be recognised in Green Star credit calculations.

Residual upfront carbon emissions past the minimum requirement, and carbon emissions from demolition works, may be offset through verified offset schemes.

Offsets must be from reforestation and afforestation activities, or domestic renewable energy generation.