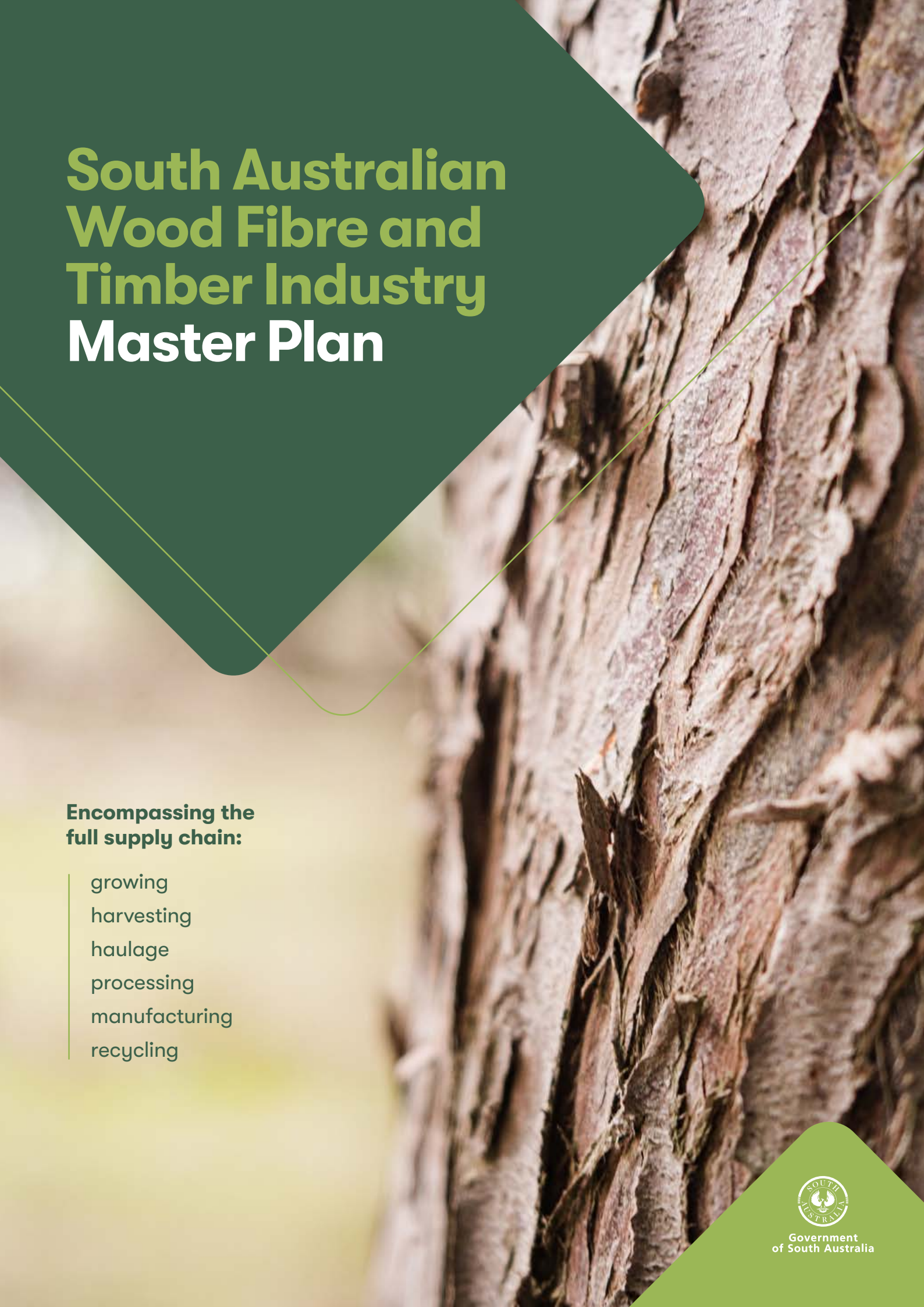
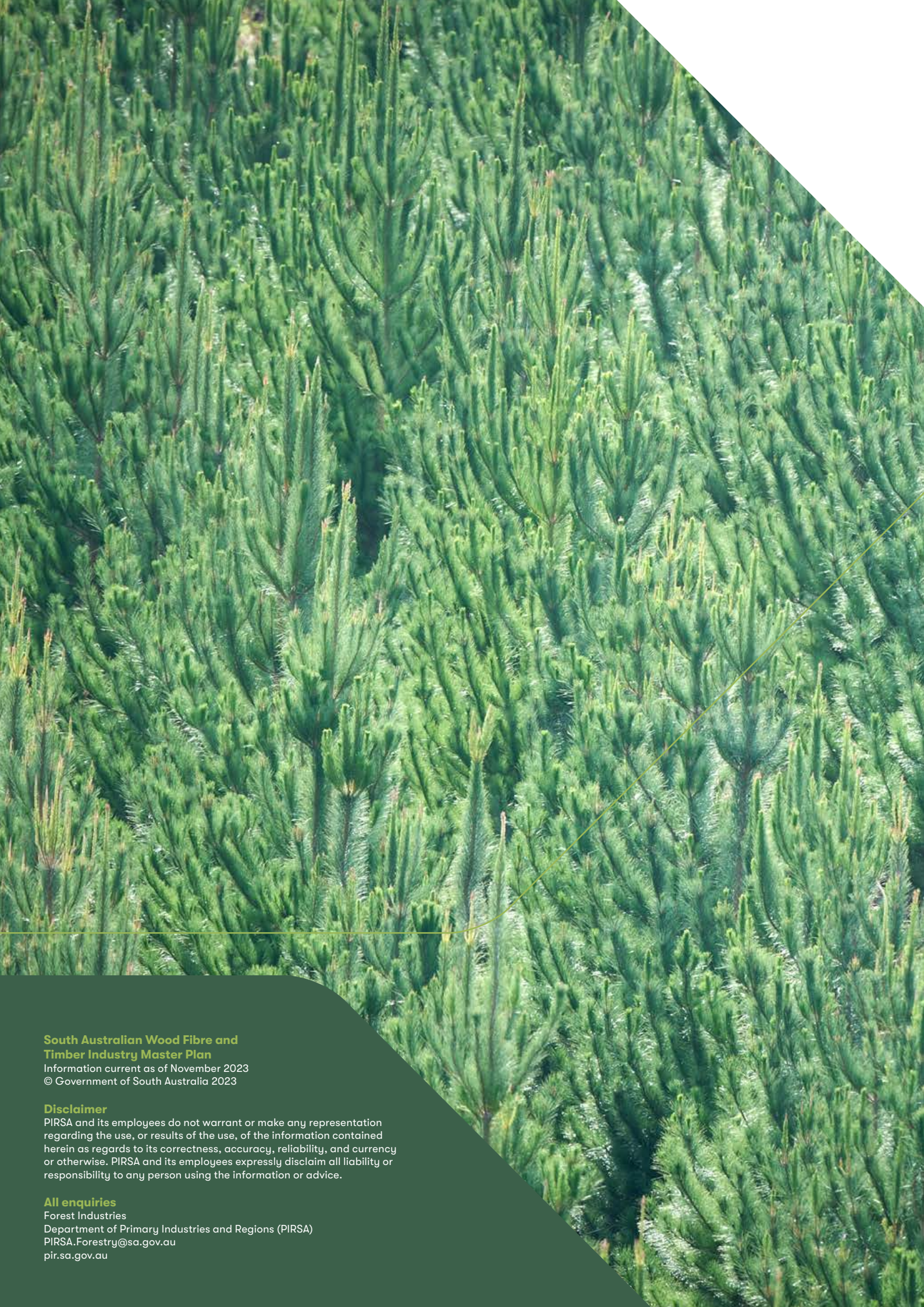
South Australian Wood Fibre and Timber Industry Master Plan



Encompassing the full supply chain:

- growing
- harvesting
- haulage
- processing
- manufacturing
- recycling

Government of South Australia



South Australian Wood Fibre and Timber Industry Master Plan
Information current as of November 2023

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All enquiries
Forest Industries
Department of Primary Industries and Regions (PIRSA)
PIRSA.Forestry@sa.gov.au
pir.sa.gov.au

Contents

The plan

Forestry industries are an integral and significant part of South Australia's economy, the environment, and its people. More than ever, the industry, government and the community are challenged to integrate economic growth, social wellbeing, and environmental sustainability, and capture the opportunities in the transition to a low carbon circular economy.

The Master Plan delivers an election commitment with a vision to be a future focused circular economy, sustainably driving the state's economic prosperity with globally recognised skills and innovation. The plan outlines priorities and actions for government and industry, with a wide range of options to consider. Outcomes will include an optimal fibre resource that is extracting maximum resource value for the supply chain; strong incentive to invest in new plantations, new technology, and new processing facilities; and a skilled and competitive forest industries workforce incorporating support and investment in people, diversity, and positive culture.

Collaboration is key and I am confident the consideration of the Master Plan and its projects will ensure all South Australians continue to benefit from the sustainable growth and future success of South Australia's forest industries.

I look forward to the partnership with industry, through FIAC-SA, to realise the vision of future-focused, sustainable, prosperous forest industries for the benefit of all South Australians.

The Hon Clare Scriven MLC
Minister for Forest Industries

Foreword

The South Australian Wood Fibre and Timber Industry Master Plan is the result of extensive consultation with stakeholders in industry, government, and the community. The Forest Industries Advisory Council of South Australia (FIAC-SA) acknowledges the substantial involvement and input that has contributed to the development of this Master Plan.

With Australia's longest history of plantation forestry development, South Australia's forest industries have numerous strengths, such as optimising inherent characteristics and nurturing a forward-thinking and innovative mindset.

There is significant scope to further increase the regional contribution of the industry by further investing in major value-adding activities such as sawn timber, engineered wood products, and in emerging markets such as carbon farming and biomass.

This Master Plan provides direction through strategic actions to achieve the three goals: the right resource and capability; a future focused workforce; and a clean green circular economy.

FIAC-SA will take a proactive role in driving the regular review, update, and implementation of the Master Plan by consistently engaging with a diverse range of stakeholders, encompassing those from industry, government, and the community. Your participation and contribution are vital as meaningful impact can only be achieved by creating solutions that are supported by industry, government, and the community.

Tammy Auld and Michelle Ingley-Smith
Co-Chairs, Forest Industries Advisory Council - South Australia

Forest Industries Advisory Council of South Australia

The Forest Industries Advisory Council of South Australia (FIAC-SA) provides an ongoing platform for government, industry and other stakeholders to work together.

It delivers an agreed priority works program, advising the Minister for Forest Industries about emerging considerations for the forestry and forest products sector. This information supports development across the state and the value chain in South Australia.

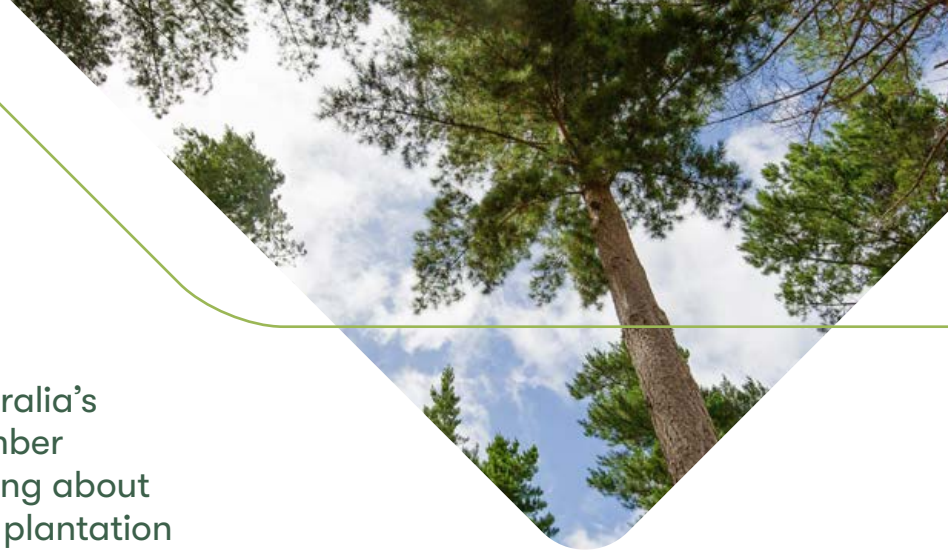
FIAC-SA uses the skills and networks of its membership to facilitate consultation and engagement. The council acts as a high-level conduit to address identified economic opportunities and challenges.

Current membership:

- Tammy Auld and Michelle Ingley-Smith (Co-chairs)
- Greg Boulton, South Australian Forest Products Association
- Peter Badenoch, South Australian Timber Processors Association
- Alicia Langfield, National Timber and Hardware Association
- Laurie Hein, Green Triangle Forest Industries Hub
- Wendy Fennell, Green Triangle Forest Contractors Group
- Cathy Bell, OneFortyOne Wood Products
- Peter Hewlett, Timberlink Australia
- Travis Lawson, Construction Forestry Maritime Mining and Energy Union
- Prof Mehdi Doroudi, Department of Primary Industries and Regions
- Dan Jordan, Department for Environment and Water
- Andrew Dunbar, Department for Industry, Innovation and Science
- Andrew Excell, Department for Infrastructure and Transport
- Sandy Burness, Department of Treasury and Finance

List of Acronyms

AFPA	Australian Forest Products Association
ATMAC	Australian Trade and Market Access Co-operation Program
CFA	Country Fire Authority – Victoria
CFMMEU	Construction, Forestry, Maritime, Mining and Energy Union
CFS	Country Fire Service – South Australia
CLT	Cross Laminated Timber
FCoE	Forestry Centre of Excellence
FIAC-SA	Forest Industries Advisory Council of South Australia
GLT	Glue Laminated Timber
GSP	Gross State Production
GTFA	Green Triangle Fire Alliance
GTFCG	Green Triangle Forest Contractors Group
GTFIH	Green Triangle Forest Industries Hub
HPV	High Productivity Vehicles
IoT	Internet of Things
LITA	Logging Investigation and Training Association
NTHA	National Timber and Hardware Association
PIRSA	Primary Industries and Regions South Australia
RDA	Regional Development Australia
RTO	Registered Training Organisation
SA	South Australia
SAFPA	South Australian Forest Products Association
SATPA	South Australian Timber Processors Association
TAFE	Technical and Further Education
VET	Vocational Education and Training



Background

The Green Triangle is Australia's epicentre of forest and timber production, accommodating about 20 percent of the nation's plantation estate (336,000 hectares).

As one of the world's oldest commercial plantation communities, the Green Triangle region has all the ingredients to meet the globe's growing global fibre consumption needs, which are anticipated to quadruple by 2050. Domestic softwood sawlog availability is forecast to significantly fall short of demand over the coming decades, reaching 3.4 million cubic metres per year by 2050 (Whittle *et al.* 2019).

A Green Triangle Forest Industries Hub (GTFIH) study from 2021, Building the Nation: Growing the Future – Opportunities for Green Triangle Plantation Forestry, shows the Green Triangle already produces 35 percent of locally produced house framing, 25 percent of the particleboard used in houses, townhouses and apartments, 48 percent of the nation's fibre for packaging and industrial grade timber, and 60 percent of the poles, posts and similar products used in the domestic agricultural industry and external environment.

With a mindset of 100 percent utilisation of fibre - ensuring every part of every tree is used, creating more product through a reduction in waste, increased local processing and manufacturing with greater focus on higher value products – there is capacity to grow the industry further and generate more direct and indirect jobs.

Historic growth in agricultural land prices, market challenges from the global pandemic and SA state water policy have inhibited investment in new plantations. However, industry has been successful in the short term in diversifying its economic base.

Investment by Timberlink in Australia's first softwood CLT (Cross Laminated Timber) and GLT (Glue Laminated Timber) manufacturing plant at Tarpeena, and an upgraded sawmill, is showcasing some of the world's best new timber innovations whilst generating 27 new full-time permanent jobs, growing to 50 when the plant reaches capacity. Borg have also earmarked a $50 million expansion at its particle board manufacturing site at Mount Gambier which would provide potential to double its current manufacturing capability.

The ERC (2022) report, Economic Contributions Study of the SA Forestry Industry, shows that by increasing turnover by 10 percent, SA based sawmilling would generate increased income to the state of $210 million, supporting an additional 1200 jobs.

The report also shows that doubling the proportion of forestry and logging product that is processed in the region, rather than sent out of the region, would increase Gross State Production (GSP) by $2.9 billion and generate 24,300 jobs.

Industry is calling on the government to invest in the following Master Plan projects which would support the supply chain, stimulating new investment, innovation, and opportunities for new job creation statewide.

Forest Industries Vision

To support a future focused circular economy, sustainably driving the state's economic prosperity with globally recognised skills and innovation.

Summary

Priorities

Goal 1 The right resource and capability	Goal 2 A future focused workforce	Goal 3 A clean green circular economy

Projects

The Value Proposition for Plantations - stocktake and economic study	Standardise Firefighter Training - address cross border differences	Building a Circular Economy - investigate recycling waste into new or existing product lines
Next Generation Biomass - investigate new wood product opportunities	Workforce Development Strategy - implement the GTFIH strategy	Forestry Renewables Roadmap - identify opportunities to reduce emissions and contribute to renewable energy
Digital Economy Plan - make the South East the most connected regional community in the nation	Forestry Trainers and Assessors for targeted courses - support training needs of businesses	Green Fleet Exploration - develop a renewed Green Triangle Freight Action Plan that supports transition to a green fleet.
Long Term Impacts of Fire on the Plantation Estate - explore bioeconomic impacts, insurance benefits and policy measures	Building a Workforce of Tomorrow - report card on skills and training needs of the sector	High Productivity Freight Vehicle Digital Network - improve cross border road permits and telematics

Outcomes

a. An optimal fibre resource that is extracting maximum resource value for the supply chain
b. A reduced carbon footprint from a closed loop forest economy
c. Greater collaboration and partnerships between industry, stakeholders and government
d. Strong impetus to invest in new plantations, new technology, and new processing facilities
e. A skilled and competitive forest industries workforce that supports a future-focused, sustainable, prosperous forest industry for the benefit of all South Australians
f. Increased protection of the estate against fire, pests and diseases
g. Forest industries have a reputation for being a trusted workplace of choice
h. Improve society's knowledge of the positive contributions of forest industries

Approach

Open minded and innovative collaboration across the entirety of the Green Triangle and South Australian supply chain.

The Master Plan's Purpose

Three goals with specific actions have been identified by the Forest Industries Advisory Council of South Australia (FIAC-SA) as priorities to strengthen the state's forest industries, domestic manufacturing, and infrastructure capability, taking into consideration key industry and global trends. They are the right resource and capability, a future focused workforce, and a clean green circular economy.

As a collaborative forum of industry representatives and government agencies, FIAC-SA provides opportunities for efficient input at the operational and policy levels. This Master Plan further strengthens the government-industry partnership and better prepares the industry to address emerging challenges and opportunities in the immediate and long-term future.

It is envisaged for the Master Plan to be a living document to be reviewed annually as forest industries are highly receptive to changing socioeconomic and environmental conditions, including international trade and climate change. In addition, the 'living' nature of the document allows for it to be adaptive to developments in technology and political environments, both nationally and internationally.

Increased collaboration between the production, research and education sector is necessary for a sustainable and resilient forest industry, particularly given the ever-changing world of technology and innovation. The establishment of the Forestry Centre of Excellence (FCoE) in Mount Gambier is a unique opportunity for further collaboration to showcase and develop industry's capabilities across the supply chain.

Extensive stakeholder engagement on the development of the Master Plan was undertaken during 2022 and 2023 and captured the key barriers and opportunities for the sector, resulting in the stated outcome.

Outcomes from achieving the three goals include:

a. An optimal fibre resource that is extracting maximum resource value for the supply chain
b. A reduced carbon footprint from a closed loop forest economy
c. Greater collaboration and partnerships between industry, stakeholders, and government
d. Strong impetus to invest in new plantations, new technology, and new processing facilities
e. A skilled and competitive forest industries workforce that supports future-focused, sustainable, prosperous forest industries for the benefit of all South Australians
f. Increased protection of the estate against fire, pests and diseases
g. Forest industries have a reputation for being a trusted workplace of choice
h. Improve society's knowledge of the positive contributions of forest industries

Government of South Australia's Investment

A total of $2 million is available over three years for this Master Plan.

In addition, the Government's $15 million investment over ten years for the new Forestry Centre of Excellence will position the State as a leader in forest industries research, education, products, and market development, and there are opportunities for the FCoE to play a key role in Master Plan projects.

Annual review of Master Plan Projects and Priorities

Given the living nature of the Master Plan, priorities identified in this document will be reviewed annually by FIAC-SA and adjusted if required, to ensure they continue to meet the needs of stakeholders.

Detailed project plans under the Master Plan are to be drafted and will address the scope, stakeholder responsibilities and budgets of priority projects.

The Multiple Benefits of Wood

In addition to the stated outcomes, it is recognised that producing and using responsibly sourced wood provides multiple benefits over its life cycle. Wood can deliver positive environmental, social, and economic advantages that set it apart from other materials, including:

Renewable Resources

Wood grown from responsibly managed forests is a sustainable material, forests have the ability to regenerate and regrow, creating a resource that can be used sustainably by current and future generations.

Wood products tend to have smaller carbon footprints than other construction materials. About half the dry weight of wood is carbon, which remains locked up when used in buildings and construction.

Construction Efficiencies

Wood is a light-weight material that can provide significant cost savings and reduce construction times, particularly when incorporating mass timber and prefabricated wood systems.

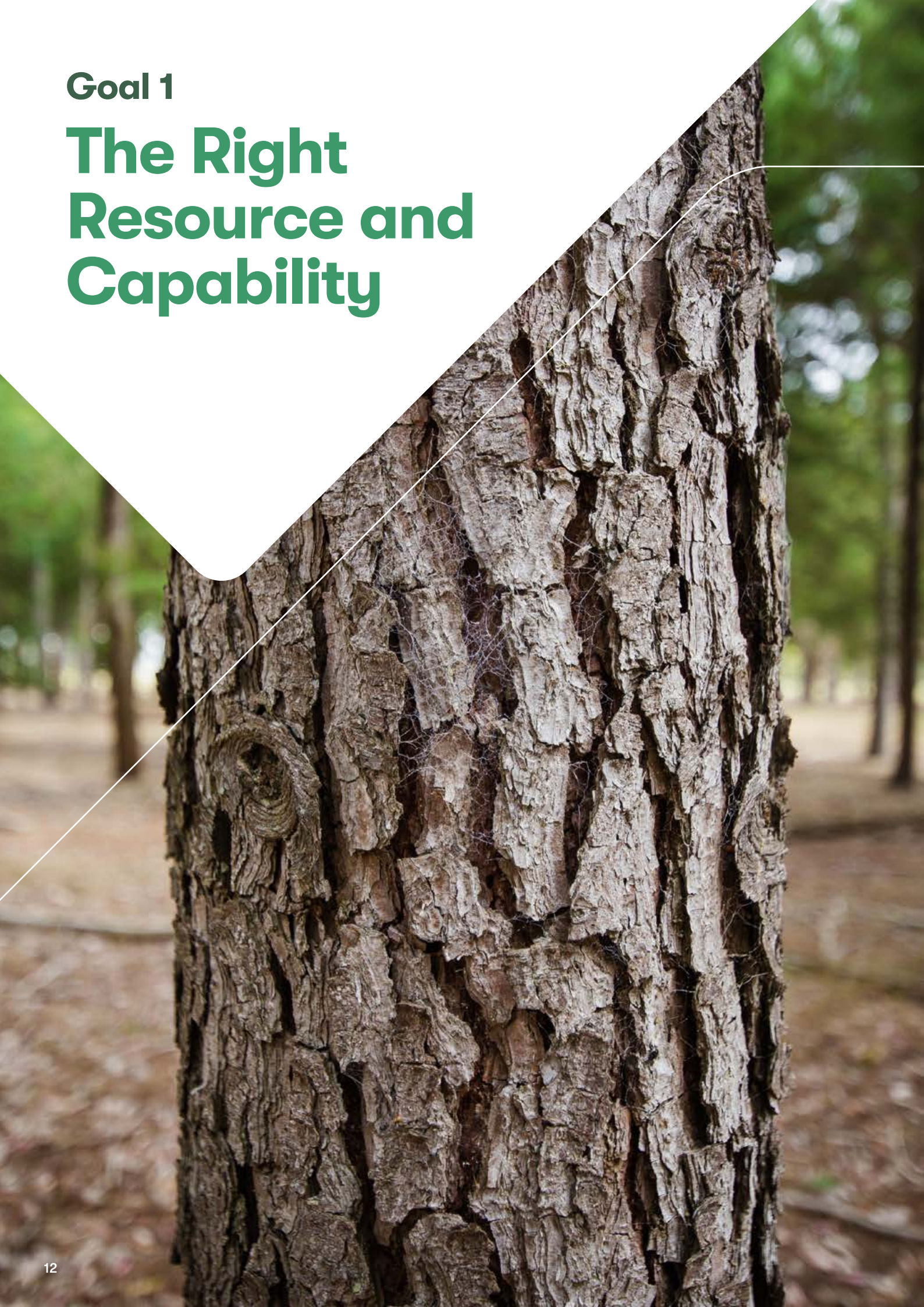
Health, Wellbeing and Productivity

Wood in construction is increasingly being recognised to have health, wellbeing, and productivity benefits.

Exposure to wood in buildings reduces the stress of those living and working within them. Recent research has shown that incorporating wood into workplace design can raise productivity by 15 percent, raise creativity, improve staff retention, and reduce absenteeism.

Goal 1

The Right Resource and Capability



The Right Resource and Capability

The Green Triangle plantation estate has reduced by about 30,000 hectares over the past five years, with predictions of further losses in the short term.

The recent decline in the Green Triangle region's plantation estate is largely due to limitations brought on by water availability, the economic climate, and environmental conditions. Decline has also continued Australia- wide with the national estate reducing by 230,000 hectares over recent years.

This decline comes at a time when domestic and global demand for fibre resources continues to climb. Industry is making efforts to optimise the use of its existing resource, utilising almost 100 percent of the log with a greater focus on domestic value-add but despite this more than 40 percent of industry output still leaves the region unprocessed. Furthermore, the current fibre resource exceeds supply by 0.6 million cubic metres annually, with the gap forecast to further grow as global demand continues to increase.

There are vast opportunities to explore the use of woody biomass, which has no specific domestic use and largely stays on the forest floor, for use in renewable energy or to support the establishment of new products, biochemicals or add value to existing wood products. The GTFIH Building the Nation study illustrated that little is known about the quality and quantity of biomass across the Green Triangle region, from either the softwood or hard wood plantation estate.

OneFortyOne and BioGro have recently conducted trials to explore the use of this biomass, which is traditionally piled and burnt, for use in mulch and compost products. It is estimated there is up to 30,000 tonnes currently burnt in softwood across the region. There are huge opportunities to use this biomass to support the agricultural market which is seeking opportunities to increase the carbon content in crop soils. Such an investigation into the biomass resource would further support the optimisation of wood flows across the state, ensuring the highest value can be derived from every piece of fibre.

Furthermore, the Federal Government's plan to recycle or reuse 100 percent of plastic waste by 2040 and end plastic pollution provides additional opportunity for industry to generate new paper-based replacement products utilising pulp log.

Stakeholder engagement explored the opportunity of undertaking a feasibility study into transitioning a percentage of existing estate, or new land mass, to short rotation estate however there was little appetite for this shift in silvicultural practice. Growers argued it would be too disruptive to the existing business model, which is reliant on thinning and clearfell regimes which support the full breadth of the supply chain, generating sought after 30-year-growth structural logs which generate the largest economic return.

Little is yet understood about the potential to turn first and second thinning pulp log into wood products. The GTFIH in partnership with the FWPA is exploring opportunities to generate a new structural timber product from either hardwood log or softwood pulp log funded by a $1.3 million ATMAC (Australian Trade and Market Access Co-operation program) grant. Wood trials, including the peeling of wood samples is planned to occur in Green Triangle sawmills.

There is currently no specific domestic use for *Eucalyptus globulus* (hardwood) which is exported via the Port of Portland to Asian markets (China and Japan) for use in paper products, making the market susceptible to global shutdowns. *Pinus radiata* (softwood) pulp log up to 300 millimetres are used in posts and some structural products, with smaller logs chipped and used in bark for garden products or exported.

Fire – dealing with climate change

One of the greatest threats to the state's timber supply is fire. Over the past five years, about 5,000 hectares of Green Triangle plantation estate has been lost to fire, stripping an estimated $60 million in lost fibre from the local economy. This growing threat from climate change, particularly the major losses from the Black Summer fires, has resulted in insurance premiums quadrupling in price over recent years and the number of available insurers dwindling. At present, it is believed there is only one remaining insurer available to the forestry industry.

The inability to manage risk through insurance increases the likelihood of investors converting plantations to alternative land uses. Furthermore, it is posing a major disincentive to invest in new plantations, particularly for smaller growers and for the earmarked farm forestry market.

Owners of larger estates can manage some risk through geographic separation of assets, which is not feasible for smaller operators. Industry seeks an affordable and available system to reduce the nation's sovereign risk, protecting local jobs and to support long-term reinvestment in plantation forestry.

Furthermore, little is known about the economic ramifications of a major fire event. The Ash Wednesday fires in 1983 resulted in about 19,000 hectares of burnt plantations and a merchantable volume of 6 million cubic metres destroyed, altering the industry overnight. There is little understanding about the bio-economic risk of large scale fires and the threat to plantations and long-term timber supplies, economic development and natural capital loss to support a broader evidence base for insurance protection.

The Green Triangle Fire Alliance, a subcommittee of the GTFIH, was established in 2021 to explore opportunities to improve the efficiency and effectiveness of fire suppression, detection and prevention, working in partnership with cross border agencies, the CFS (Country Fire Service – SA) and CFA (Country Fire Authority Victoria).

The organisation is actively working with the SA Government to invest over $2 million in new technologies for fire detection, transitioning from the ageing fire towers in the Lower Limestone Coast region and therefore reduce the risk profile.

Digital connectivity - investing in new innovation to futureproof our forests and region

Digital connectivity across the Green Triangle forest estate is largely poor, with significant black spots which pose a significant safety risk for forest growers who rely on portable radio networks to keep track of staff.

This lack of connectivity is also limiting management techniques, with forest growers unable to efficiently apply new innovations, such as the Digital Twin and the Internet of Things (IoT), due to poor connectivity. This also restricts sawmilling activities with some sites, such as Tarpeena, where poor connectively restricts efficient running of digital meetings. Industry seeks support to undertake greater investigation into the gaps inhibiting business growth and development.

It seeks support towards greater movement of data, information, and ideas. The transition to machine learning, particularly in sawmilling and harvesting operations, can only be realised through reliable connectivity.

With gigabit internet capability available in Mount Gambier, it is time to realise the opportunities of this network, encouraging new innovation, entrepreneurial investment and creation of new jobs, allowing industry to operate more effectively and reach new growth markets.

Research shows increased telecommunication can boost population growth, improve well-being and health outcomes, improve education outcomes, social cohesion, safety and employment outcomes for all regional locations. Such an investigation would incentivise infrastructure investment, allowing the sector to improve efficiency and compete with more regions globally, while acting as a lever to attract more economic development.

Goal 1

The Right Resource and Capability

Outcomes

from the right resource and capability

✓	An optimal fibre resource that is extracting maximum resource value for the supply chain
✓	Greater collaboration and partnerships between industry, stakeholders and government
✓	Strong incentive to invest in new plantations, new technology, and new processing facilities
✓	Increased protection of the estate against fire, pests and diseases

Strategic Actions

to achieve the right resource and capability

1.a	Review relevant government water policies with reference to the growth and operations of South Australia's forestry sector
1.b	Conduct a stocktake of the State's and Green Triangle region's fibre resources (volume, characteristics, value), assess the benefits to people, the planet and profit (triple bottom line), and identify opportunities for improvement
1.c	Explore opportunities to achieve 100 percent fibre utilisation in the Green Triangle, including research and development in biochemicals and biofuels, based on the stocktake
1.d	Develop a digital economic plan which includes a road map to understand digital gaps and builds a pathway for investment to improve connectivity. Ensure better connectivity to underpin effective operations (transport, fire, safety). Improve productivity of fleets and freight.
1.e	Encourage relevant agencies to support and recognise best available science, including further investigation into proof of concepts in capturing drainage water for environmental benefit and economic growth
1.f	Understand bioeconomic risks of fire and impact to our communities
1.g	Support delivery of new product lines, incentivise domestic value-add to generate more local jobs
1.h	Develop mechanisms to support plantation establishment including trees on farms

Priority Projects for Goal 1

under the Master Plan

The Value Proposition for Plantations

1.b Response to Strategic Action

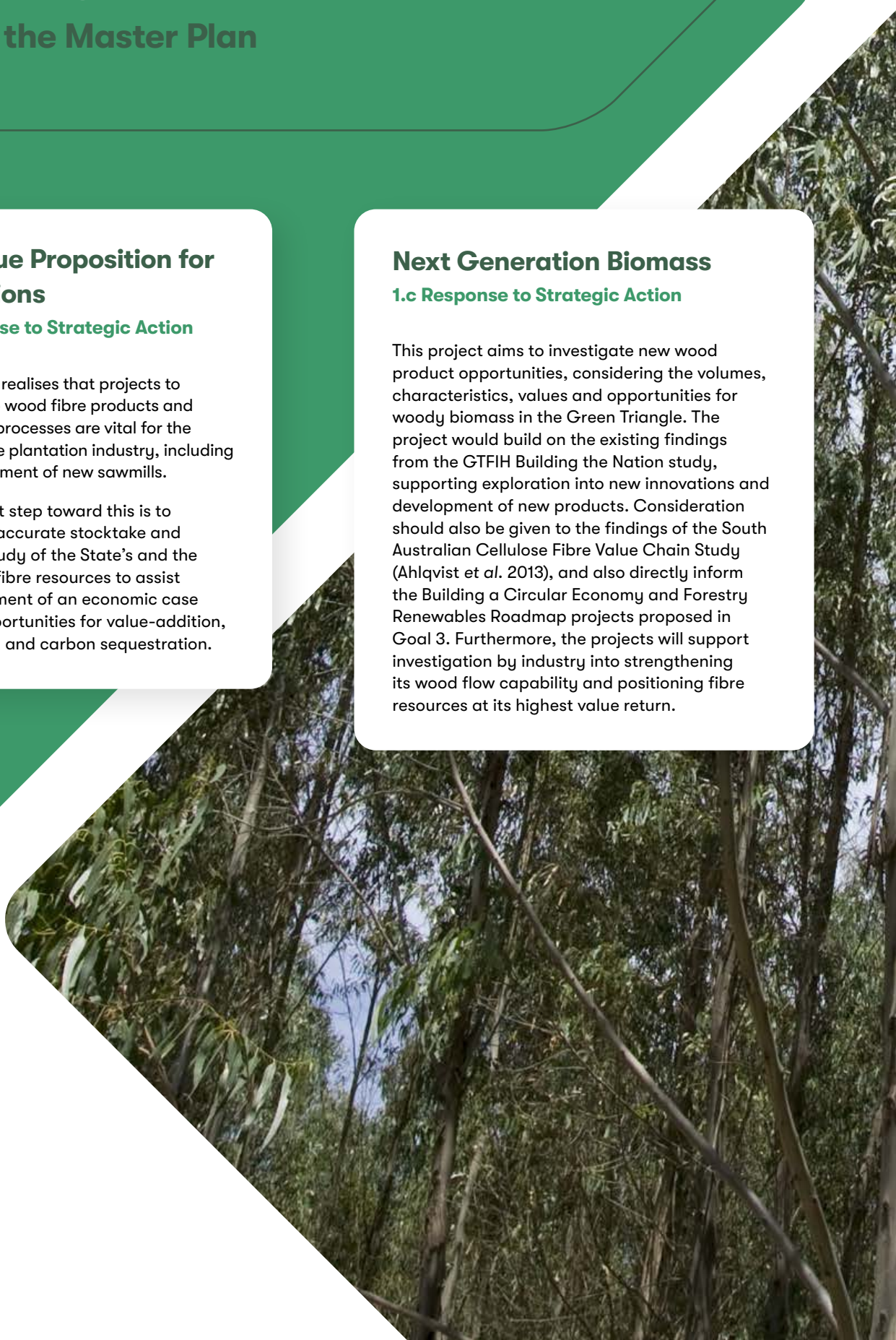
The industry realises that projects to value-add to wood fibre products and operational processes are vital for the growth of the plantation industry, including the establishment of new sawmills.

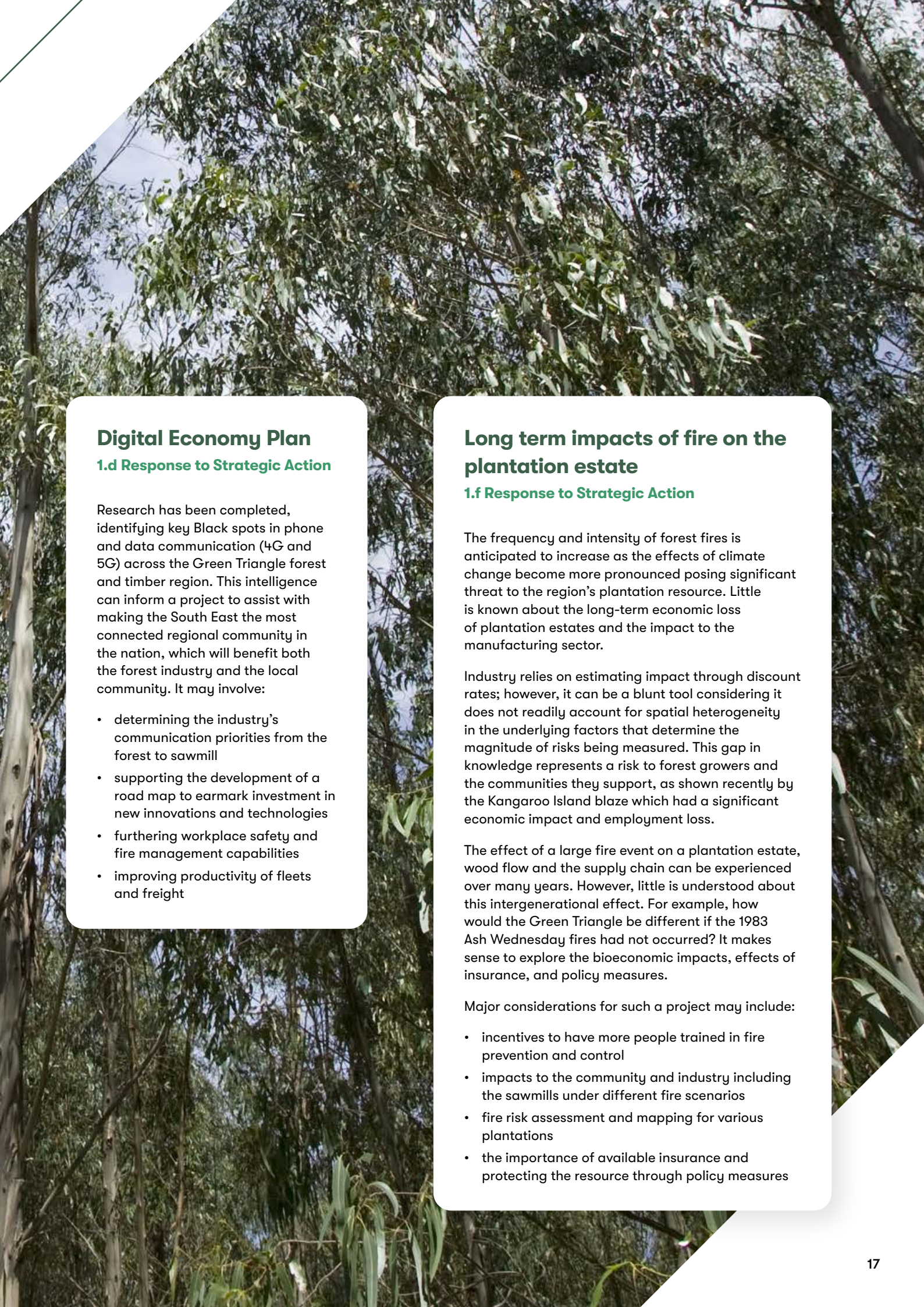
An important step toward this is to conduct an accurate stocktake and economic study of the State's and the GT region's fibre resources to assist the development of an economic case showing opportunities for value-addition, job creation, and carbon sequestration.

Next Generation Biomass

1.c Response to Strategic Action

This project aims to investigate new wood product opportunities, considering the volumes, characteristics, values and opportunities for woody biomass in the Green Triangle. The project would build on the existing findings from the GTFIH Building the Nation study, supporting exploration into new innovations and development of new products. Consideration should also be given to the findings of the South Australian Cellulose Fibre Value Chain Study (Ahlqvist *et al*. 2013), and also directly inform the Building a Circular Economy and Forestry Renewables Roadmap projects proposed in Goal 3. Furthermore, the projects will support investigation by industry into strengthening its wood flow capability and positioning fibre resources at its highest value return.





Digital Economy Plan

1.d Response to Strategic Action

Research has been completed, identifying key Black spots in phone and data communication (4G and 5G) across the Green Triangle forest and timber region. This intelligence can inform a project to assist with making the South East the most connected regional community in the nation, which will benefit both the forest industry and the local community. It may involve:

- determining the industry's communication priorities from the forest to sawmill
- supporting the development of a road map to earmark investment in new innovations and technologies
- furthering workplace safety and fire management capabilities
- improving productivity of fleets and freight

Long term impacts of fire on the plantation estate

1.f Response to Strategic Action

The frequency and intensity of forest fires is anticipated to increase as the effects of climate change become more pronounced posing significant threat to the region's plantation resource. Little is known about the long-term economic loss of plantation estates and the impact to the manufacturing sector.

Industry relies on estimating impact through discount rates; however, it can be a blunt tool considering it does not readily account for spatial heterogeneity in the underlying factors that determine the magnitude of risks being measured. This gap in knowledge represents a risk to forest growers and the communities they support, as shown recently by the Kangaroo Island blaze which had a significant economic impact and employment loss.

The effect of a large fire event on a plantation estate, wood flow and the supply chain can be experienced over many years. However, little is understood about this intergenerational effect. For example, how would the Green Triangle be different if the 1983 Ash Wednesday fires had not occurred? It makes sense to explore the bioeconomic impacts, effects of insurance, and policy measures.

Major considerations for such a project may include:

- incentives to have more people trained in fire prevention and control
- impacts to the community and industry including the sawmills under different fire scenarios
- fire risk assessment and mapping for various plantations
- the importance of available insurance and protecting the resource through policy measures

Goal 2

A Future Focused Workforce

A Future Focused Workforce

Like many sectors, the forest and wood products industry have a long-standing workforce shortage.

Data collected from the RDA Limestone Coast shows there are on average 79 vacancies every month (March 2022 – July 2022) in forestry, manufacturing (timber) and harvest and haulage. The total monthly figures across all industries for that same period was 550 advertised roles.

Data collected by the office of the South Australian Skills Commission showed there were a total of 4,060 roles advertised in the South East in 2022. This is expected to climb to 4,368 by 2023 with almost 30,000 job openings over an eight-year period by 2029.

Filling this gap is challenged by the region's largely stable and ageing population. The Limestone Coast median age of residents is above the South Australian average, with a greater number of older couples without children.

There is also a lower proportion of people holding formal qualifications in the region, such as a Bachelor or higher degree, Advanced Diploma or Diploma, or Vocational qualifications. Furthermore, an even greater proportion have no formal qualifications.

In April 2022, the GTFIH coordinated a Workforce Development Strategy session, resulting in an industry led strategy and action plan to address the growing gap in human capital. The action plan focuses on addressing workforce challenges by using data to understand existing and future workforce needs, collaboration to activate and drive change, with the goal of equipping people with tomorrow's skills to drive industry competitiveness.

The sector recognises it needs to take a more strategic approach to ensure the labour force is equipped and more responsive to current and future market needs. Industry seeks greater connection with local students to promote the opportunities and pathways that exist across the supply chain, working collaboratively with the Department for Education, Vocational Education and Training (VET) providers, Technical and Further Education (TAFE), universities and Registered Training Organisations (RTO) to deliver appropriate connections to build rewarding careers.

The linkages between industry and providers needs to be stronger, with clearer pathways to jobs while young people are still in school. Through the new Forestry Centre of Excellence there is an opportunity to provide a multi-faceted approach to training delivery, addressing accessibility, cost, and quality of training.

As technological advances and the digitisation of the workforce occur, it is important that local training capability (tertiary and RTO) meets industry's expectation. Workforce skills also need to keep pace as these changes occur.

The National Workforce Strategy 2022-27 states that the addition of these new technologies will result in the creation of new high quality, high skilled and well-paid jobs across the manufacturing supply chain, from pre-production through to post-production, underpinning growth across the economy.

Employment growth in regional Australia will account for about one quarter of new jobs over the five years to 2025 with nine out of 10 jobs projected to require post-secondary school qualifications. Greater understanding of the workforce needs of the forest and timber industry is required to support better coordination of workforce programs, policies, and initiatives in partnership with the government. Industry should play a central role in policymaking design and delivery.

Migration is another opportunity to fill future labour market gaps, attracting a global skill-base to help strengthen the industry's growth targets. Industry has identified the use of the Designated Area Migration Agreement to assist in attracting skills in relevant areas. The sector has a long-standing history with attracting migrant workforce in specialty areas, largely in forestry management roles.

Strategies for attracting industry employees

Attracting people to the industry has been identified by all eleven Regional Forestry Hubs as an industry priority. Industry stakeholders note the industry is undergoing an image change to highlight the many technical roles available and to reframe perceptions of an industry being dominated by manual labour. This is in part a reflection of evolving job roles that are being shaped by three main factors as below:

- Whole of industry efforts to efficiently utilise its primary resource (trees) by engaging in circular economy and sustainable practices.
- Rapid developments in technology, including optimisation across many functions, and the greater use of digital and automation technologies. For example, even small harvesting crews are utilising log software in machine operations that are digitally linked between the forest manager and the sawmills which will use the logs being harvested.
- Industry restructuring due to changing forest types and the size of businesses utilising those forests.

Goal 2

A Future Focused Workforce

Outcomes

from a future focused workforce

✓	Greater collaboration and partnerships between industry, stakeholders, and government
✓	A skilled and competitive forest industries workforce incorporating support and investment in people, diversity, and positive culture
✓	Forest industries have a reputation for being a trusted workplace of choice
✓	Improve society's knowledge of the positive contributions of forest industries

Strategic Actions

to achieve a future focused workforce

2.a	Standardisation of cross jurisdictional firefighting training with increased staff training opportunities
2.b	Develop a long-term Workforce Development Strategy which considers the training needs for the sector in the short, medium, and long term
2.c	Increase the availability of qualified Trainers and Assessors and investigate opportunities to support business with on-the-job training for the value chain
2.d	Improve efficiency of competency-based training. Look at licensing for heavy vehicles
2.e	Develop marketing tools to promote opportunities in the sector, highlighting the diverse opportunities available
2.f	Stocktake of workforce and education gaps

Priority Projects for Goal 2

under the Master Plan

Standardise firefighting training

2.a Response to Strategic Action

This project aims to standardise firefighting training to address cross border differences, while also increasing training opportunities for the staff. This clearly involves closer engagement with the Cross Border Commissioners to ensure inter-jurisdictional issues are also considered in the project.

Workforce Development Strategy

2.b Response to Strategic Action

A project to assist with the implementation of the GTFIH Workforce Development Strategy has been identified. A workplan was developed by key industry leaders in 2021-22 to identify opportunities to deal with short- and long-term workforce needs, which are affecting industry's competitiveness and productivity. It aims to attract, retain, and develop people with tomorrow's skills, delivering a desirable and rewarding workplace with greater leadership and managerial capabilities. This includes revitalisation of the industry managed Forest Pathway Program, which provides forestry training opportunities for students in years 10 to 12 utilising local RTO, LITA Training. The workplan also includes a focus on safety, embracing diversity and prioritises industry promotion, highlighting sustainable career pathways.

Forestry Trainers and Assessors for targeted courses

2.c Response to Strategic Action

The nature and methods of training should address the ever-growing needs of the industry to form a consistent and inclusive knowledge base across the supply chain. A project to support the training needs of businesses is proposed.

This can be achieved through the delivery of targeted training that improves skillsets of the existing and potential workforce as well as introducing new tools and techniques to incentivise and assist forestry-based businesses with their training needs. Consideration of on-the-job training and the availability of qualified trainers and assessors is also required.

Building a workforce of tomorrow

2.d, 2.e and 2.f Response to Strategic Actions

To deliver a report card and strengthen the future workforce, a project in partnership with TAFE-SA could explore the skills and training needs of the sector in the short, medium, and long terms. This partnership may also explore opportunities for the development of new training, short courses, and curriculum in the fields of forest management, sawmilling, harvest and haulage, in line with the Workforce Development Strategy. The project may be modelled off information by the defence sector, illustrating future defence and aerospace jobs, including the creation of distinct marketing materials to promote career pathways.

Goal 3

A Clean Green Circular Economy

A Clean Green Circular Economy

There is growing global expectation to regulate impacts not only on the environment but our social outcomes too.

To remain globally competitive, it is critical that forest industries provide and measure sustainability targets, to transition to a more circular economy.

This transformation will reduce environmental impact and regenerate fibre use, keeping resources circulating as long as possible to extract maximum value and "close the loop". This transition has the potential to generate additional "recycled" fibre to be utilised in new or existing product lines, or as a renewable energy source.

Forest industries have a valuable role to play in meeting the nation's net-zero targets. Collectively, industry must improve its energy efficiency, and increase its resilience and sustainability.

The region's plantation estate can be a driver for meeting the nation's and indeed state's carbon abatement ambitions, while boosting the nation's future timber supply.

With more than $350 million of new manufacturing investment allocated in the short term, availability of green, reliable, low-cost base load power is necessary to protect and secure markets, ensuring the Green Triangle remains globally competitive.

Green Fleet - Freight Efficiency from First to Last Mile

Significant new manufacturing investment is earmarked across the Green Triangle over the next five years, led by growth in new engineered wood products and export pellet products, which will result in a larger freight task.

Multi-million dollar expansions at Timberlink in Tarpeena and Borg in Mount Gambier will build on the 527,000 vehicle trips recorded on the Limestone Coast road network (McFallan *et al.* 2020)

On any given day, industry estimate more than 250 forestry diesel trucks are operating across the supply chain, making it one of regional Australia's busiest freight tasks. It is important that the right infrastructure and processes are in place to support ongoing market growth, addressing cross border regulation inefficiency while ensuring ongoing safety for our community. There are challenges in road maintenance across the region with roads strained by the increasing impact of freight movements.

The transition to larger High Productivity Vehicles (HPV) is moving fast, supporting fewer vehicle movements, with industry now exploring the introduction of electricity and hydrogen powered vehicles to the fleet to reduce carbon emissions to play a prominent role in meeting Australia's net zero emission targets by 2050.

Furthermore, volatile diesel costs in recent times are motivating industry's appetite to explore more sustainable transport options by reducing the combustion of fossil fuels, and supporting better driving conditions for its drivers with reduced noise, vibration and fumes. This transition will require government to put the right planning in place to fast track a green fleet transition, supported by a more innovative cross-border permit system to improve efficiency across the supply chain.

The highly successful Green Triangle Freight Action Plan is due to be updated with the third instalment of industry data, forecasting the future freight task and potential impact to the road network and neighbouring communities. It is important this industry-led action plan takes a greater focus on supporting a green fleet and the transition to new digital connectivity tools.

Research by Fennell Forestry, one of fifteen harvest and haulage companies operating in the Green Triangle, shows the move to an electrified fleet would reduce carbon emissions by almost 138,000 tonnes. It is also estimated to reduce total operating costs by more than $96 million, based on a truck using 17,000 litres of diesel each month.

Goal 3

A Clean Green Circular Economy

Outcomes

from a clean green circular economy

✓	An optimal fibre resource that is extracting maximum resource value for the supply chain
✓	A reduced carbon footprint from a closed loop forest economy
✓	Strong incentive to invest in new plantations, new technology, and new processing facilities
✓	Improve society's knowledge of the positive contributions of forest industries

Strategic Actions

to achieve a clean green circular economy

3.a	Investigate opportunities to recycle waste fibre from building sites and other sources for use in existing or new products with considerations for regional recycling and end of life disposal of treated timber
3.b	Encourage business opportunities to minimise waste and emissions through reuse and recycling for improved social licence and environmental performance
3.c	Develop a forestry renewables roadmap for SA and recognise opportunities to transition away from fossil fuels to base load renewable energy
3.d	Assist the harvest and haulage sector with appropriate tools to transition to a decarbonised fleet
3.e	Develop a pilot for the introduction of telematics to the Green Triangle fleet, to support government planning and greater cross border freight efficiency

Priority Projects for Goal 3

under the Master Plan

Building a Circular Economy

3.a and 3.b Response to Strategic Action

The joint Green Industries SA and RDA report (2022) highlights circular economy opportunities that exist specifically in for Green Triangle region. This includes economically and environmentally sound disposal technology for treated timber, using sustainable timber in smart building design, and reusing construction materials. For example, BioGro currently process waste building product into sawdust, which is used as a feedstock in Holla-Fresh's pyrolysis process to provide green energy for its herb farm. This generates a by-product of biochar, which can support agricultural crop production. A project focused on converting wood waste into new or existing product lines could support new business opportunities to minimise waste and generate additional value from existing fibre resources.

This project could include exploring freight options to move the product from metropolitan sites into the Forestry Hub region, taking into consideration biosecurity constraints. Ultimately, the addition of this waste product would support the optimisation of existing resource to ensure it is used to its highest market value. It is understood there is more than 400,000 tonnes of recycled product available in the Melbourne metropolitan market, with currently only 20,000 tonnes used by BioGro.

Forestry Renewables Roadmap

3.c Response to Strategic Action

This project aims to identify forest industry opportunities to reduce emissions and contribute to renewable energy and support expansion in wood manufacturing. The project could support positioning the region as a leader in alternative energy solutions (biomass), acting as a drawcard for future manufacturing investment in the region. Long term investment could increase the competitiveness of the local energy market and support local energy consumers. The project may draw on the Department for Energy and Mining's Bioenergy Roadmap Program Summary (Government of South Australia 2021) and the Bioenergy Roadmap for South Australia (Johnson *et al.* 2015).

Green Fleet Exploration

3.d Response to Strategic Action

Through collaboration between the Victorian and SA government, a project could assist with the development of a renewed Green Triangle Freight Action Plan and identify strategies to support the transition to a green fleet.

The project will draw information and learnings from various foundational studies and research tackling technological and consumer challenges in mobility and energy systems, together with the South Australian Freight and Supply Chain Strategy (proposed for release in 2024) and work being progressed under the South Australian Government's Hydrogen Jobs Plan and the Hydrogen Technology Cluster.

These initiatives both complement and leverage work by the Australian Government's National Electric Vehicle Strategy to address barriers limiting the availability of low and zero emissions heavy vehicles and identify solutions for electric or hydrogen recharging and re-fueling, and the Australian Renewable Energy Agency's focus on the decarbonisation of heavy road transport.

The project will also consider skill requirements such as drivers and mechanics, and an evidence base to understand the economic, social, environmental benefits of new technologies.

High Productivity Freight Vehicle digital network

3.e Response to Strategic Action

There is scope for a project to identify opportunities to address current barriers to market access, including cross-border permits and telematics, supporting a faster transition to High Productivity Freight Vehicles (HPFVs). The existing cross border permit system is inefficient and costly to industry as state systems between SA, Victoria and New South Wales do not align, and require operators to apply for road access multiple times. An opportunity also exists to explore a transition to a unified telematics system (such as the Intelligent Access Program) which has the potential to communicate cross-state to support greater freight efficiency and tracking of movements. These investigations would involve a partnership between the Victorian and South Australian Transport Departments and consultation with the National Heavy Vehicle Regulator.

Stakeholder Engagement

Extensive stakeholder engagement was undertaken during 2022 and 2023, with FIAC-SA leading the development of this Master Plan. Information on organisations represented on FIAC-SA is provided below.

Green Triangle Forest Industries Hub

The GTFIH is one of eleven regional forestry hubs established nationally by the Australian Government. Its members cover the full breadth of the Green Triangle value chain from forest management through to final fibre processing, including large and small companies, growers and processors, softwood, and hardwood.

Its purpose is to grow a vibrant industry, sustainable for our community for future generations. It has set the strategy of growing the right tree, in the right place, at the right scale, with no waste, to support a world leading, local processing and manufacturing industry.

Its sub-committees include the Green Triangle Fire Alliance, which is focused on harmonising cross border fire policy. It pursues opportunities to improve the efficiency and effectiveness of fire suppression, detection, and prevention, working in partnership with cross border agencies, the CFS (Country Fire Service – SA) and CFA (Country Fire Authority Victoria).

South Australian Forest Products Association

SAFPA was formed in June 2020 and is a Committee of the Board of the Australian Forest Products Association (AFPA) under a special delegation.

SAFPA represents all elements of the value chain from the sustainable establishment and management of plantations, harvesting and haulage, processing of timber resources and manufacture of products and bioproducts.

SAFPA is a policy development, lobbying and advocacy organisation for its members interests. SAFPA have established a sub-committee structure to ensure the range of issues affecting the industry in South Australia are actively managed.

Green Triangle Forest Contractors Group

The GTFCG is a collaboration of Harvesting and Haulage Contractors in the Green Triangle region in Australia. This region represents around 20 percent of Australia's commercial timber plantations. The contractors are a critical part of the supply chain, harvesting timber and transporting it for processing or export.

South Australian Timber Processors Association

The SATPA was formed in August 2017 to represent the smaller Timber processors in the Limestone Coast Region, principally to address the main issues facing processors being Volume of Wood Fibre, Term of Supply Agreements and Transparency of Agreements with plantation owners.

National Timber and Hardware Association

The NTHA is proud to represent over 700 members across Australia from the timber, hardware, and building materials industries. The Association was created after the successful merger of the Timber and Building Materials Association (TABMA) and Hardware Australia in March 2023.

The Association is focused on: Developing careers and pathways; Building the workforce; Keeping people safe; Serving and strengthening the industry; and Advocating for change.

Construction Forestry Maritime Mining and Energy Union

The CFMMEU is Australia's main trade union in building and construction, forestry and furnishing products, maritime and mining and energy production.

There are four Divisions that cover workers employed in the construction and building industry, the forestry and furnishing products industry, the maritime industry and the mining and energy industries.

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