



# Australian Forest and Wood Products Industry Sector

## Annual Update 2020

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### IRC Skills Forecast and Proposed Schedule of Work

Prepared on behalf of the Forest Management and Harvesting Industry Reference Committee (IRC), Timber and Wood Processing IRC and Timber Building Solutions IRC for the Australian Industry Skills Committee (AISC).



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# Purpose of this Skills Forecast

This Skills Forecast and Proposed Schedule of Work presents the latest industry intelligence from the Forest Management and Harvesting Industry Reference Committee (IRC), Timber and Wood Processing IRC and Timber Building Solutions IRC, inclusive of national and industry data sources and input from key stakeholders. It further proposes vocational education and training (VET) Training Package review and development work that the IRC deems necessary to meet the needs of industry. The Australian Industry and Skills Committee (AISC) considers this information and includes commissioned work in the National Schedule<sup>1</sup>.

At its June 2019 meeting, the AISC changed the requirements for the annual Skills Forecast. IRCs are now required to submit comprehensive Skills Forecasts once every three years, with abridged annual updates in the intervening two years. As IRCs submitted comprehensive Skills Forecasts in 2019, the next are due in 2022.

This document is not intended to be representative of every issue encountered across all industry sectors; it identifies and addresses the challenges and opportunities that industry has determined as 'priority' for this stage of the schedule, and is a resource for industry and associated skills, learning and accreditation bodies seeking to act upon them.

Detailed information concerning industry skills needs across all sectors covered by the Forest Management and Harvesting IRC, Timber and Wood Processing IRC and Timber Building Solutions IRC, including information from previous Skills Forecasts, can be found on the Skills Impact website: <https://www.skillsimpact.com.au/forest-management-and-harvesting/skills-forecast/>.

## Method & Structure

This is an annual update to the comprehensive Skills Forecast submitted in 2019. IRCs are required to answer the questions in **Section A** to provide updates on issues such as industry skills and workforce development, and qualification utilisation.

IRC's are also permitted to propose additional Training Package development work projects to be included in the Proposed Schedule of Work. Where relevant, these are included in **Section C**, which includes:

- Evidence of employer and industry need for graduates;
- Alignment to Ministers' Priorities;
- Consultation plan.

**Section B** details the extensive, robust and ongoing industry consultation undertaken by IRC members and Skills Impact, including with rural, regional and remote stakeholders. In line with Skills Impact's values<sup>2</sup>, this helps to ensure transparency and accountability in the process of industry research and Training Package development work.

This Skills Forecast and Proposed Schedule of Work is developed in line with:

- Standards for Training Packages 2012<sup>3</sup>;
- Training Package Products Policy<sup>4</sup>;
- Training Package Development and Endorsement Process Policy<sup>5</sup>.

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<sup>1</sup> <https://www.aisc.net.au/content/national-schedule>

<sup>2</sup> <https://www.skillsimpact.com.au/about/>

<sup>3</sup> <https://docs.education.gov.au/documents/standards-training-packages-2012>

<sup>4</sup> <https://docs.employment.gov.au/documents/training-package-products-policy>

<sup>5</sup> <https://docs.employment.gov.au/documents/training-package-development-and-endorsement-process-policy-0>

# Industry Reference Committee

The Forest Management and Harvesting Industry Reference Committee (IRC), Timber and Wood Processing IRC and Timber Building Solutions IRCs are responsible for national training package qualifications relevant to forest and wood products.

Qualifications overseen by these IRCs are in the *FWP Forest and Wood Products Training Package*.

These IRCs are supported by the Skills Service Organisation, Skills Impact.

## Forest Management and Harvesting IRC

Name	Organisation or Area of Expertise
Alan Cole	Forest Industry Council
Alan Rossouw	Timberlands Pacific
Bill Paul	Vic Forests
Craig Hallam	ENSPEC
David White	Sustainable Timber Tasmania
Denise Campbell-Burns	CFMMEU Manufacturing Division
Gieta Jibodh	Forests Products Commission WA
Martin Crevatin	PF Olsen
Nick Roberts	Forestry Corp of NSW
Stacey Gardiner	Australian Forest Contractors Association (AFCA)
Tim Morrissey	Victorian Association of Forest Industries (VAFI)
Yvonne Webb	Industry Skills Advisory Council NT (ISACNT)

## Timber and Wood Processing IRC

Name	Organisation or Area of Expertise
Clarissa Brandt	Timber Queensland
Dave Gover	Engineered Wood Products Association of Australasia
Denise Campbell-Burns	CFMMEU Manufacturing Division
Gieta Jibodh	Forests Products Commission WA
Maree McCaskill	Timber NSW
Tim Johnston	Victorian Association of Forest Industries (VAFI)
Victor Violante	Australian Forest Products Association (AFPA)

## Timber Building Solutions IRC

Name	Organisation or Area of Expertise
Alicia Oelkers	Timber and Building Materials Association (TABMA)
Dave Gover	Engineered Wood Products Association of Australasia
Denise Campbell-Burns	CFMMEU Manufacturing Division
Phil Ladson	Frame and Truss Manufacturers Association of Australia (FTMA)
Richard Hill	MGA Independent Retailers/Timber Merchants Association

# Executive Summary

As Prime Minister Scott Morrison has said, whatever you thought 2020 was going to be like, it is now something completely different. The impact of COVID-19 on supply chains has intensified the necessity of being able to produce our own paper products – from toilet paper to tissues and sanitary products, from food packaging to newsprint – and, flowing from that, the need for raw product also to be produced in Australia, culminating in one of the most integrated and domestically self-contained supply chains in the economy.

Aside from these national challenges, the Forest and Wood Products (FWP) industry continues to grow, both in terms of revenue and employment. With that, demand for training will continue, albeit at lower levels than larger industries in the economy.

Government policy is increasingly focused on escalating the supply of timber, including in response to climate change, with industry hubs commencing operations in key forestry regions this year. These hubs have identified the need for a skilled workforce amongst their key priorities. The need for career pathways into and within our industry continues to preoccupy employers throughout the country.

The key trends affecting our industry relate to climate change which is driving a push for planting more trees, as well as less carbon intensive construction methods, and novel uses of biomass for energy and other purposes.

Bushfires are also impacting keenly on the industry – not just in terms of the resources available to the industry – but also in terms of the new training challenges that it poses. Ensuring workplaces are as safe as possible – particularly in remote areas, is also a key concern for the industry.

Finally, the industry continues to deal with the challenges of accessing training in thin, regionally dispersed, markets.



# Section A: Overview

## Preliminary Note

The three relevant IRCs have reviewed the guidance for the Annual Update to Skills Forecasts and Program of Works process. This document will be developed at a strategic level while addressing the information requests outlined in the guidance. Much of the information being requested is not currently available to the IRC. Where relevant and in keeping with the strategic approach of the IRC, additional data will be collected during 2020 for the next Annual Update.

The IRCs also support the work of NCVET, and have tried to identify areas in which NCVET should be supported to provide the relevant data to IRCs and resources to undertake additional research work. The IRCs have also tried to identify areas where data may be held by other bodies, which would need to take decisions as to whether they are prepared to share that information. This is outside both the influence and scope of these IRCs.

The IRCs believe that the needs of industry as a whole are best served by ensuring it has most of its focus on strategy, rather than focusing on a transactional approach to skills needs. This is a common approach taken throughout forestry and timber businesses, and is the approach these IRCs have taken to all of their work, including the creation of this Annual Update.

## Industry Developments

### Impact of COVID-19

#### *Essential Services*

Australia's forest products industries manufacture and deliver a range of essential services and products, many of which are experiencing record demand as a result of COVID-19.

The integrated nature of the industry means the continued supply of these vital products is contingent upon the continuation of the entire forest products supply chain. Harvesting pulp logs for paper and cardboard manufacturers is only commercially and operationally feasible if higher-value timber for sawmills is also harvested.

Forest product industries must continue to operate throughout the COVID-19 crisis to ensure Australians continue to have access to essential goods and services, including:

- Toilet paper, tissues, medical products, sanitary products and other paper products experiencing record demand;
- Cardboard packaging for supermarket and retail deliveries, including pharmaceuticals;
- Food and beverage packaging;
- Wooden pallets for supermarkets and other retailers' distribution operations;
- Timber for housing and building construction, which could prove even more vital should the urgent construction of new makeshift hospitals and temporary structures be required;
- Kerbside, wastepaper and packaging recycling services;
- Newspaper for most of Australia's metropolitan and regional newspapers, which are an essential source of information for the community;
- Supply of wood residues to the agriculture sector, essential for food production;
- Bushfire mitigation and suppression conducting significant fuel load reduction and frontline fire suppression, as they were during the recent bushfires;

- Sawn timber and LVL are used to make poles for electricity and telecommunications services, as well as fence posts. These are in high demand after the catastrophic bushfires; and
- Firewood, which is the main source of heating for many households.

### *Registered Training Organisations*

Discussions with the main registered training organisations (RTOs) delivering to our industry<sup>6</sup> have confirmed that, while the operating environment is fluid, they are presently continuing with training delivery on worksites in forests as they can easily maintain a healthy distance between the learner and the trainer.

Training delivery in classrooms has, however, been affected. Rooms with a capacity of 18 students are now limited to eight people at a time. Some RTOs have reported that reduced class sizes is rendering some courses financially unviable to deliver.

Some training that requires the trainer to be close to the learner, such as in first aid and chainsaw courses, has been cancelled or postponed.

TAFE NSW has paused all training and educational delivery until 27 April. When training re-commences it will be through connected and blended delivery, which may include some face-to-face delivery where adequate social distancing measures can be implemented. TasTAFE courses have also been deferred temporarily to allow teaching staff to prepare course content for online delivery<sup>7</sup>.

TAFEs in some jurisdictions have indicated that they presently lack the resources to develop online content. Private RTOs are likely to be in the same situation.

The Training and Skills Development Service (TSDS) Steering Committee has recommended that funds be made available to assist delivering courses online where feasible.

It is expected that the common practice of sending trainers interstate to deliver training and assessment will discontinue for the foreseeable future.

### *Individual Companies and Associations*

With the assistance of associations, individual companies are implementing management strategies for COVID-19 in accordance with state and federal restrictions and protocols. At the time of writing, most industry companies have implemented travel and meeting bans, adopted work from home and physical distancing protocols, and are re-arranging operations and processes to mitigate the spread of the disease.

Discussions are also underway on a regional level; for example, the Tasmanian OH&S Committee is meeting to discuss the implementation of industry-wide control measures, including restrictions on people travelling together and field supervisors working from home. Lack of hand sanitiser has been identified as a critical issue.

### *Other Professional Development*

Industry examining what training and professional development activities can occur in the event of a broader lockdown. Forest and Wood Products Australia (FWPA) is intending to ramp up online communication practices and upskilling opportunities through webinars, e-learning, podcasts, videos and social media posts. Appita is also looking at webinars and e-learning opportunities.<sup>8</sup>

The Frame & Truss Manufacturers Association of Australia (FTMA) has been talking to WoodSolutions about delivering a webinar on mid-rise timber building construction for builders.

<sup>6</sup> These include LVTAC, TAFE NSW, TasTAFE, Timber Training Creswick and TABMA.

<sup>7</sup> TAFE Directors Australia, 2020, *Newsletter*, 30 March 2020

<sup>8</sup> APPITA, 2020, *Message to Members*, 31 March 2020



## Supply Chains

The United States, Canada, South Africa, Finland and Scotland have defined their forest products industries as essential services<sup>9</sup>. Australia is a net importer of forest and wood products<sup>10</sup> and the precise impact of COVID-19 on timber industry supply chains is not yet clear. It is expected that the full impact of COVID-19 on the supply chain will remain unclear until February and March trade data is released by sources such as Australian Bureau of Statistics (ABS).<sup>11</sup>

At their respective meetings in early 2020, the Forest Management and Harvesting (FMH), Timber and Wood Processing (TWP), Timber Building Solutions (TBS) Industry Reference Committees (IRCs) were advised that, in most cases, work has been able to continue; however, trade is beginning to slow due to export challenges and restrictions. Early impacts have included news of a veneer peeling mill closing temporarily due to curtailed exports.

### Impact on the Rest of the Forecast

The remainder of this report represents industry contexts prior to the outbreak of the COVID-19 global pandemic. Much of it remains pertinent to the recovery of the economy after the pandemic passes.

## Change in Industry Structure

### Establishments

Since the last Skills Forecast<sup>12</sup>, the number of non-employing businesses and small (1-19 employees) businesses has declined, particularly in forestry. However, this is the result of consolidation within the industry, which has seen a doubling in the number of large businesses (200+ employees). The log sawmilling sector has consolidated, with companies increasing their scale, and smaller hardwood millers exiting the industry. The number of large businesses has also increased in Logging, Timber Resawing and Dressing and Wooden Structural Fitting and Component Manufacturing.

**Table 1: Businesses operating in the Forest and Forest Products industry, June 2019**

ANZSIC INDUSTRY (4-digit level)	Non Employing	1-19 Employees	20-199 Employees	200+ Employees	Total
Prefabricated Wooden Building Manufacturing	67	62	12	0	140
Log Sawmilling	311	273	64	0	646
Timber Resawing & Dressing	124	93	28	9	256
Wooden Structural Fitting and Component Manufacturing	1,714	2,251	271	10	4,246
Timber Wholesaling	448	467	83	3	1,005
Wood Chipping	24	21	8	0	58
Forestry	2,250	270	35	6	2,552
Logging	732	612	47	3	1,395
Forestry Support Services	558	322	51	0	936
Veneer and Plywood Manufacturing	9	14	11	3	38
Reconstituted Wood Product Manufacturing	31	45	8	3	85
Other Wood Product Manufacturing n.e.c.	395	314	58	0	763

Source: ABS, 2020, 8165.0 Counts of Australian Businesses, including Entries and Exits, June 2015 to June 2019

<sup>9</sup> Australian Forest Products Association, 2020, *Australian Forest products industries essential for food and medicine production and transport*, viewed April 2020 <<https://ausfpa.com.au/media-releases/australian-forest-products-industries-essential-for-food-and-medicine-production-and-transport/>>

<sup>10</sup> ABARES, 2019, *Snapshot of Australia's Forest Industry*

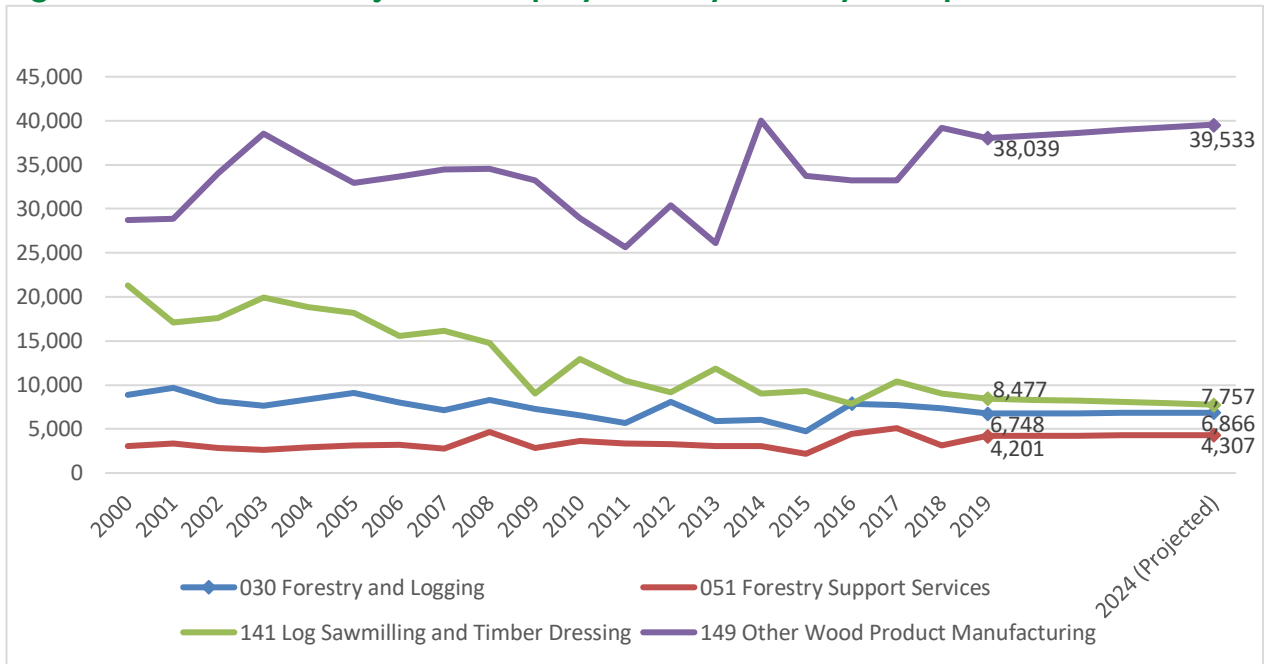
<sup>11</sup> Industry Edge, 2020, *Import disruptions minimal to date: COVID-19 Update*, viewed March 2020 <<https://industryedge.com.au/import-disruptions-minimal-to-date-covid-19-update/>>

<sup>12</sup> Skills Impact, 2019, *Forest and Wood Products Industry Sector: IRC Skills Forecast and Proposed Schedule of Work, 2019-2022*

## Employment

Overall, employment in the industry is expected to continue to grow, albeit at a moderate rate (see Figure 1).

**Figure 1: Actual and Projected Employment by Industry Group of Main Job**



Source: a) ABS, 2019, 6291.0.55.003 - EQ06 - Employed persons by Industry group of main job (ANZSIC), Sex, State and Territory, November 1984 onwards; b) Labour Market Information Portal, 2020, Industry projections - five years to May 2024

There is considerable variation between industry sectors but employment growth is expected in most sectors, particularly in Wood Chipping (9%), Prefabricated Wooden Building Manufacturing (5%), Log Sawmilling (5%) and Wooden Structural Component Manufacturing (4%).

In Forestry and Logging, logging volumes are expected to rise, while demand for, and employment in, forest management services is expected to grow<sup>13</sup>. With continued need for replanting and forest maintenance, employment is also anticipated to rise in Forest Services, including in forestry research and consulting.<sup>14</sup>

Although employment in the Log Sawmilling industry has declined over the last five years, it is expected to rise in the future, albeit at a low level, due to increased investment in capital plant and equipment to improve productivity<sup>15</sup>. Although wood chipping is less labour intensive than other value-added forestry industries like log sawmilling, employment is expected to increase over the next five years as a result of steady export demand.<sup>16</sup>

As a result of overall growth in the market, employment is also expected to grow in Prefabricated Building Products, in spite of improving labour productivity.<sup>17</sup>

In relation to Timber Resawing and Dressing, despite increased investments in technology, employment is expected to grow for labour-intensive processes such as timber dressing and for highly skilled machine

<sup>13</sup> IBISWorld, 2019, *IBISWorld Industry Report: Forestry and Logging in Australia*

<sup>14</sup> IBISWorld, 2020, *IBISWorld Industry Report: Forestry Support Services in Australia*

<sup>15</sup> IBISWorld, 2019, *IBISWorld Industry Report: Log Sawmilling in Australia*

<sup>16</sup> IBISWorld, 2019, *IBISWorld Industry Report: Wood Chipping in Australia*

<sup>17</sup> IBISWorld, 2019, *IBISWorld Industry Report: Prefabricated Wooden Building Manufacturing in Australia*

operators<sup>18</sup>. On the other hand, while demand for Wood Structural Products (timber frames, trusses and doors) is likely to increase, the sector is expected to invest in capital plant and equipment to improve productivity and efficiency, limiting employment growth.<sup>19</sup>

Increased import competition is likely to lead to declining employment in Fabricated Wood Manufacturing (particleboard, MDF, timber veneers and plywood<sup>20</sup>). Similarly, import and substitute competition will result in downsizing in the Pallets and Other Wood Product Manufacturing industry<sup>21</sup>. Employment in Timber Wholesaling is expected to stay reasonably steady, although the sector overall is in decline.<sup>22</sup>

#### Contribution to the economy

In 2019/20, the FWP industry generated \$23.1 billion in revenue. It also contributed \$7.2 billion to Australian gross domestic product (also known as a measure of 'Industry Value Added': see Table 2), an increase of \$200 million on 2018/19<sup>23</sup>. This was projected to grow by a further \$754 million over the medium term prior to the current crisis. The latest IBISWorld data is projecting growth for all industry sectors except Pallets and Other Wood Product Manufacturing.

The FWP industry generated export revenues of almost \$2 billion in 2019/20, with growth in Timber Resawing and Dressing and Forestry and Logging exports offsetting declines in Wooden Structural Component Manufacturing, Fabricated Wood Manufacturing and Pallets and Other Wood Product Manufacturing.

**Table 2: Sectoral Growth by Industry Sector 2019/20 to 2024/25**

Industry	Annual Growth		Exports				Industry Value Added			
	%	%	\$m	\$m	\$m	%	\$m	\$m	\$m	%
	2014-19	2019-24	2019	2024	change		2019	2024	change	
Prefabricated Wooden Building Manufacturing	3.9	1.5	2.5	2.5	0	0%	80.8	85.9	5.1	6%
Log Sawmilling	4.6	1.9	90.6	105	14.4	16%	480	523	43	9%
Timber Resawing & Dressing	-0.4	1.6	16.7	20.3	3.6	22%	553	598	45	8%
Wooden Structural Component Manufacturing	3.3	2.4	12.9	14	1.1	9%	2,096	2,367	271	13%
Timber Wholesaling	-2.2	1.2	n/a	n/a	n/a	n/a	708	734	26	4%
Wood Chipping	6.0	2.8	1,086	1,287	201	19%	368	429	61	17%
Forestry and Logging	3.7	2.6	688	818	130	19%	1,816	2,124	308	17%
Fabricated Wood Manufacturing	-0.2	1.1	65.7	67.2	1.5	2%	415	401	-14	-3%
Forestry Support Services	2.7	1.8	n/a	n/a	n/a	n/a	382	414	32	8%
Pallets and Other Wood Product Manufacturing	-2.1	-1.8	23.4	22.1	-1.3	-6%	319	296	-23	-7%

Source: IBISWorld, 2020, Australia Industry Wizard

<sup>18</sup> IBISWorld, 2019, *IBISWorld Industry Report: Timber Resawing and Dressing*

<sup>19</sup> IBISWorld, 2019, *IBISWorld Industry Report: Wooden Structural Component Manufacturing in Australia*

<sup>20</sup> IBISWorld, 2019, *IBISWorld Industry Report: Fabricated Wood Manufacturing in Australia*

<sup>21</sup> IBISWorld, 2020, *IBISWorld Industry Report: Pallets and Other Wood Products Manufacturing in Australia*

<sup>22</sup> IBISWorld, 2019, *IBISWorld Industry Report: Timber Wholesaling in Australia*

<sup>23</sup> IBISWorld, 2020, *Australia Industry Wizard*

## New Investments

Since the last Skills Forecast<sup>24</sup> there has been some consolidation in the industry:

- New Forests has acquired Bunbury Fibre's hardwood plantation assets<sup>25</sup> as well as Norske Skog's timber assets in Tasmania.<sup>26</sup>
- As a result of the 2019/20 bushfire season, the NSW Government decided not to proceed with their plans to privatise Forestry Corporation NSW.<sup>27</sup>
- The Big River Group, which manufactures softwood and hardwood formply and structural plywood products in Grafton and Wagga Wagga, has expanded its national distribution network with the acquisition of Big Hammer Building Supplies in Townsville, North Queensland.<sup>28</sup>
- Britton Timbers has acquired Speciality Veneers timber, veneer and panel processing facility in Somerset, Tasmania adding to their timber processing business in Smithton, Tasmania and timber distribution centres in Melbourne, Sydney and Brisbane. The company now directly employs 180 people, including 105 in regional Tasmania.<sup>29</sup>

There have also been substantial investments in new technology:

- Timberlink has invested \$90 million in their mill in Tarpeena, South Australia, to increase production of softwood products such as timber framing. A new contra flow kiln (CFK) and electrical substation currently being constructed will give the mill the largest continuous drying capacity in the southern hemisphere and will operate with renewable biomass pine plantation residues. Safety systems are also being upgraded, with a new dispatch yard, woodchip collection point and roll out of the Home Safe program.<sup>30</sup> Timberlink has also invested \$3.5 million to upgrade the Bell Bay Softwood Mill with a new laser-based Green Mill Vision Scanning system that identifies quality timber for high-grade applications. Both mills employ around 200 people.
- OneFortyOne has announced a \$19 million investment in the Jubilee Highway Sawmill for the purchase and installation of a new scanner and two highly efficient Continuous Drying Kilns. These projects are due for completion in 2020.<sup>31</sup>
- Hyne Timber in Tumberumba, NSW, has invested \$3.7m in seven robots to stack timber into packs and have trained existing team members to operate them.<sup>32</sup>
- Australian Sustainable Hardwoods has commissioned a new \$3 million timber manufacturing plant, including a high-strain twin band resaw which can maximise the amount of useable timber for staircases, windows, doors and furniture while minimising sawdust and woodchip waste.<sup>33</sup>
- Parkside Timber has expanded from Queensland to Western Australia with the acquisition of the Auswest Timbers' Greenbushes Mill and Nannup Timber Processing. The company will also invest \$1.5 million in a finger jointing machine to process high-value products such as furniture, long-length flooring and decking.
- The Eden Sawmill, badly damaged during the 2019/20 bushfire season, will be rebuilt to a higher

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<sup>24</sup> Skills Impact, 2019, *Forest and Wood Products Industry Sector: IRC Skills Forecast and Proposed Schedule of Work, 2019-2022*

<sup>25</sup> New Forests, 2020, *New Forests to Acquire Forestry Assets of Bunbury Fibre Plantations*, viewed April 2020 <<https://newforests.com.au/new-forests-to-acquire-forestry-assets-of-bunbury-fibre-plantations/>>

<sup>26</sup> New Forests, 2020, *New Forests to Purchase Tasmanian Plantations from Norske Skog*, viewed April 2020 <<https://newforests.com.au/new-forests-to-purchase-tasmanian-plantations-from-norske-skog/>>

<sup>27</sup> ABC News, 2020, *NSW Government dumps plan to sell off forestry corporation because of bushfire damage to plantations*, viewed April 2020 <<https://www.abc.net.au/news/2020-02-20/timber-plantations-will-not-be-privatised-state-government/11983622>>

<sup>28</sup> Timberbiz, 2019, *Big River expands with Big Hammer*, viewed April 2020 <<https://www.timberbiz.com.au/big-river-expands-with-big-hammer/>>

<sup>29</sup> Timberbiz, 2019, *Britton Timbers acquires Specialty Veneers*, viewed April 2020 <<https://www.timberbiz.com.au/britton-timbers-acquires-specialty-veneers/>>

<sup>30</sup> Timberbiz, 2019, *Tarpeena mill progress report*, viewed April 2020 <<https://www.timberbiz.com.au/tarpeena-mill-progress-report/>>

<sup>31</sup> Timberbiz, 2019, *OFO to invest another \$19m in Jubilee sawmill*, viewed April 2020 <<https://www.timberbiz.com.au/of-to-invest-another-19m-in-jubilee-sawmill/>>

<sup>32</sup> Timberbiz, 2020, *Hyne says bushfire recovery will take years*, viewed April 2020 <<https://www.timberbiz.com.au/hyne-says-bushfire-recovery-will-take-years/>>

<sup>33</sup> Timberbiz, 2020, *ASH commissions \$3m plant in Heyfield*, viewed April 2020 <<https://www.timberbiz.com.au/ash-commissions-3m-plant-in-heyfield/>>

standard and will continue to employ 70 staff.<sup>34</sup>

### *Implications*

Despite industry consolidation and improvements in labour efficiency through automation, demand for training in the FWP Training Package will be driven by increases in scale and skill requirements for operating new equipment.

## **Changes in Government Policy**

### *Increasing Supply*

There is Australia-wide support for increasing plantations to meet increased domestic and global demand for wood and fibre. In response, the Federal Government outlined a plan<sup>35</sup> to increase the scale of plantations by a billion trees, which is seen as an investment in establishing new jobs across Australia, especially in rural and regional areas:

**“If our plantation estate expands by a billion trees, industry has projected that 18,000 jobs would be created over the next 10 years in our forest industries”**

[Australian Government, 2018, p.5, *Growing a better Australia: A billion trees for jobs and growth*]

Since the last Skills Forecast<sup>36</sup>, the Federal Government has:

- Proposed a plan to allow growers to access \$500m in low interest loans to support additional plantations of up to 150,000 ha.<sup>37</sup>
- Established an inquiry into short-term timber supply chain constraints in the national plantation sector.<sup>38</sup>
- Established a number of Forestry Hubs (see below), which play a key role in supporting increased supply.

Western Australia plans to expand their forest industry by supporting new plantations and farm forestry. The Government has invested \$22m in new softwood plantations since 2017, including as part of the Farm Forestry Assist grants program, which has resulted in farm plantings of more than 4,000,000 seedlings<sup>39</sup>. They are also supporting ecological thinning in jarrah-marri regrowth forests to improve forest health and resilience and growing sawlogs for the future<sup>40</sup>. In addition, a 12-month freeze has been placed on logging mixed-age Karri Forests in the South West region.<sup>41</sup>

The South Australian Government has established the Forest Industry Advisory Council to provide advice to Government about growing the state's forestry industry, including expanding plantations to ensure future supply.<sup>42</sup>

The Queensland Government, through their timber industry action plan, has committed to continuing hardwood

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<sup>34</sup> ABC News, 2020, *Eden woodchip mill to resume operations this week despite devastation of Border bushfire*, viewed April 2020 <<https://www.abc.net.au/news/2020-01-20/eden-woodchip-mill-counting-the-cost-of-border-bushfire/11880718>>

<sup>35</sup> Australian Government, 2018, *Growing a better Australia: A billion trees for jobs and growth*, Department of Agriculture and Water Resources

<sup>36</sup> Skills Impact, 2019, *Forest and Wood Products Industry Sector: IRC Skills Forecast and Proposed Schedule of Work, 2019-2022*

<sup>37</sup> Timberbiz, 2019, *Senator Duriam declares support for forestry at DANA conference*, viewed April 2020 <<https://www.timberbiz.com.au/senator-duriam-declares-support-for-forestry-at-dana-conference/>>

<sup>38</sup> *ibid.*

<sup>39</sup> Forest Products Commission, 2020, *Grants open to help farmers grow WA's pine resource*, viewed April 2020 <<https://www.fpc.wa.gov.au/grants-open-help-farmers-grow-was-pine-resource>>

<sup>40</sup> Timberbiz, 2019, *Djarlma Plan part of new strategic direction for WA forestry*, viewed April 2020 <<https://www.timberbiz.com.au/djarlma-plan-part-of-new-strategic-direction-for-wa-forestry/>>

<sup>41</sup> Timberbiz, 2019, *Karri freeze in WA*, viewed April 2020 <<https://www.timberbiz.com.au/karri-freeze-in-wa/>>

<sup>42</sup> PIRSA, 2018, *Forest Industry Advisory Council of SA*, viewed April 2020 <[https://pir.sa.gov.au/forestry/forest\\_industry\\_advisory\\_council\\_of\\_sa](https://pir.sa.gov.au/forestry/forest_industry_advisory_council_of_sa)>

forest harvesting around Maryborough. The objective is to guide the preservation of Queensland's timber industry, which employs around 8,800 people and injects \$3.8 billion into the state economy each year.<sup>43</sup>

Private Forests Tasmania is a statutory authority tasked with facilitating the expansion and development of the private forest resource in Tasmania. In February 2020, they appointed a project manager to engage with and support farmers interested in farm forestry with the objective of developing practical financial mechanisms that will expand this sector in Tasmania.<sup>44</sup>

The Victorian Government has resolved to phase out native forest harvesting by 2030 (with reductions from 2024-25)<sup>45</sup>. This native timber logging ban on public lands is forecast to result in a deficit of wood supply and, to address this, the Victorian Government has committed to an extra 50,000 hectares for timber plantation by 2030. However, the Commissioner for Environmental Sustainability Victoria<sup>46</sup> expects that there will still be a supply gap due to the time needed to establish these plantations for harvesting and producing high quality sawlogs.

Following the devastating bushfire season, the Victoria Government is reviewing its existing plans, but updates have yet to be announced.

### *Innovation*

Government policy is supporting investment in forest products innovation. The Australian, South Australian and Tasmanian Governments, in collaboration, have committed an initial \$8 million to enable two National Institute for Forest Products Innovation Centres to be established<sup>47</sup>. These centres' remit is to support pioneering research, foster collaboration, boost innovation, increase profitability, maintain jobs and grow the forest products market. The centre based in Launceston, for example, had, by May 2019, already provided funding for 17 forestry and environmental projects across Tasmania, worth nearly \$10 million<sup>48</sup>. The Tasmania Government has further invested \$4m in a Forest Industry Growth Plan to double the value-add of their timber industry to \$1.2 billion by 2036.<sup>49</sup>

Western Australia's Djarlma plan includes research into:

- Improving the productivity of commercial trees species in a drying climate;
- using new and emerging technologies in aerial imaging; and
- using drones to improve harvest planning and review the success of regeneration.<sup>50</sup>

The Djarlma Plan further supports:

- new plantations and farm forestry;
- new investment in native forestry;
- a Wood Encouragement Policy;
- ecological thinning in native forests to promote tree growth; and
- optimising the use of harvested wood fibre to produce environmentally sustainable products such as engineered timbers and bioplastics.

<sup>43</sup> Queensland Government, 2019, *Palaszczuk Government takes action to support timber industry jobs*, viewed April 2020 <<http://statements.qld.gov.au/Statement/2019/11/4/palaszczuk-government-takes-action-to-support-timber-industry-jobs>>

<sup>44</sup> Private Forests Tasmania, 2020, *PFT Welcomes David Monckton*, viewed February 2020, <[https://www.pft.tas.gov.au/home/home\\_articles/pft\\_welcomes\\_david\\_monckton](https://www.pft.tas.gov.au/home/home_articles/pft_welcomes_david_monckton)>

<sup>45</sup> ABC News, 2019, *Victorian Government announces multi-million-dollar plan to end native logging by 2030*, viewed April 2020 <<https://www.abc.net.au/news/2019-11-06/native-timber-logging-in-victoria-to-be-phased-out-by-2030/11678590>>

<sup>46</sup> Commissioner for Environmental Sustainability Victoria, 2019, *Victorian Government's action for long-term sustainability of Victoria's native timber forests*, viewed April 2020 <<https://www.ces.vic.gov.au/articles/victorian-governments-action-long-term-sustainability-victorias-native-timber-forests>>

<sup>47</sup> National Institute for Forest Products Innovation, 2020, *About us*, viewed April 2020 <<https://nifpi.org.au/about-us/>>

<sup>48</sup> Timberbiz, 2019, *Tasmanian minister says state's timber industry to double*, viewed April 2020 <<https://www.timberbiz.com.au/tasmanian-minister-says-states-timber-industry-to-double/>>

<sup>49</sup> *ibid.*

<sup>50</sup> Timberbiz, 2019, *Djarlma Plan part of new strategic direction for WA forestry*, viewed April 2020 <<https://www.timberbiz.com.au/djarlma-plan-part-of-new-strategic-direction-for-wa-forestry/>>



The Forest and Wood Products Association (FWPA) supports a range of R&D projects, funded jointly by industry and the Australian Government, including to:

- Design and test new sustainable models to encourage investment in planted forests;
- Enable efficient offsite prefabrication for Australian mid-rise timber systems by adapting a structural design software package to align with Australian codes and standards;
- Support national tree improvement program databases for more efficient plant genetics.

### *Wood Encouragement*

For public infrastructure construction, some state governments have begun specifying a preference for timber over concrete<sup>51</sup>. Planet Ark and the FWPA are both advocating for the greater use of Wood Encouragement Policies<sup>52</sup>. In 2020, Western Australia joined Tasmania in adopting the Forest Products Commission Wood Encouragement Policy, which encourages the use of responsibly-sourced wood in the construction and fit-out of buildings<sup>53</sup>. Eighteen local governments have now adopted Wood Encouragement policies, including Fraser Coast, East Fremantle, East Gippsland, Gympie and Latrobe.

### *Regional Forestry Hubs*

In February 2019, the Federal Government announced the establishment of nine Regional Forestry Hubs<sup>54</sup> in areas with high concentrations of forestry resources, processing facilities, available workforce and access to markets:

- South West – Western Australia
- Green Triangle – South Australia and Victoria
- North/North West – Tasmania
- North East – New South Wales
- Gippsland – Victoria
- South West Slopes – New South Wales and Victoria
- Central West – New South Wales
- South East – Queensland
- North – Queensland.

While these Regional Forestry Hubs are situated to harness existing benefits associated with geography and infrastructure, they will in turn stimulate growth, including through the development of new plantation opportunities.

The Regional Forestry Hubs will also seek to address workforce needs identified by companies in their respective regions. The Green Triangle Regional Forestry Hub is focused on offering opportunities to school leavers and will encourage training programs to attract suitable candidates<sup>55</sup>. The South West Slopes Hub is also looking at workforce issues as part of its planning.<sup>56</sup>

The Tasmanian hub, which is amongst the most advanced hubs, has identified key growth constraints for the state's industry, including the lack of clear information and pathways to education and training, and a resulting

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<sup>51</sup> Timberbiz, 2019, *Ballarat GovHub promotes timber use*, viewed April 2020 <<https://www.timberbiz.com.au/ballarat-govhub-promotes-timber-use/>>

<sup>52</sup> FWPA, 2020, *Wood encouragement policies continue to grow*, viewed April 2020 <<https://www.fwpa.com.au/forwood-newsletters/1285-wood-encouragement-policies-continue-to-grow.html>>

<sup>53</sup> Timberbiz, 2019, *WA joins Tasmania and adopts Wood Encouragement Policy*, viewed April 2020 <<https://www.timberbiz.com.au/wa-joins-tasmania-and-adopts-wood-encouragement-policy/>>

<sup>54</sup> Timberbiz, 2019, *Regional Forestry Hubs announced by Scott Morrison*, viewed April 2020 <<https://www.timberbiz.com.au/regional-forestry-hubs-announced-by-scott-morrison/>>

<sup>55</sup> Timberbiz, 2019, *Nine companies launch \$1b growth plan for 200 million trees*, viewed April 2020 <<https://www.timberbiz.com.au/nine-companies-launch-1b-growth-plan-for-200-million-trees/>>

<sup>56</sup> Timberbiz, 2019, *Federal Government invests in the future of forestry*, viewed April 2020 <<https://www.timberbiz.com.au/federal-government-invests-in-forestry/>>

deficit of skilled operators. Their priority solutions<sup>57</sup> to address growth constraints include:

- attracting and retaining new people to the industry;
- articulating clear career paths (and associated plans);
- skills development for those already in the industry;
- clearer training pathways, which reflect the real skills that workers need.

### *Implications*

Government support clearly demonstrates that Forest and Forest Products are a critical regional industry for the future for Australia and will need a skilled workforce to sustain it. This is a primary challenge for industry across the country.

### **Climate Change**

Climate change is, and will continue to be, a significant industry driver.

As reported by the AFPA<sup>58</sup>, the latest Intergovernmental Panel on Climate Change report outlines the many contributions of the Forest and Wood Products Industry to emissions reductions:

***Sustainable forest management aimed at providing timber, fibre, biomass, non-timber resources and other ecosystem functions and services, can lower GHG emissions and can contribute to adaptation. B5.3.***

***Sustainable forest management can maintain or enhance forest carbon stocks, and can maintain forest carbon sinks, including by transferring carbon to wood products, thus addressing the issue of sink saturation...Where wood carbon is transferred to harvested wood products, these can store carbon over the long-term and can substitute for emissions-intensive materials reducing emissions in other sectors. B5.4.***

***Most mitigation pathways include substantial deployment of bioenergy technologies. B7.4. The use of residues and organic waste as bioenergy feedstock can mitigate land use change pressures associated with bioenergy deployment. B3.3.***

To maximise opportunities for the industry through the emissions reduction process and to increase forest managers' and wood processors' participation in the Emissions Reduction Fund (now the Climate Solutions Fund), the FWPA has developed greenhouse gas reduction methodologies<sup>59</sup> for:

- Carbon sequestration in long-rotation plantations;
- Carbon sequestration through the retention of plantations on economically marginal sites;
- Carbon storage in harvested wood products;
- Use of biomass from forest harvest operations and wood processing facilities to generate bioenergy;
- Increasing carbon stocks in forests through enhanced forest management; and
- Reduced emissions through bushfire prevention.

### **Tree Planting**

Tree planting has multiple environmental, industry and socio-economic benefits.

It is recognised worldwide as crucial for addressing climate change and achieving a net zero emissions target. When trees grow, they absorb carbon dioxide from the atmosphere and store the carbon as wood. Research

<sup>57</sup> Tasmanian Forest and Forest Products Network, 2019, p.6, *North-North West Tasmania Regional Forestry Hub Industry/Community Consultation Forum* <<https://www.tffpn.com.au/wp-content/uploads/2019/07/TFFPN-HUB-Consultation-MAY-REPORT.pdf>>

<sup>58</sup> AFPA, 2019, *IPCC report backs sustainable forest industries to help tackle climate change*, viewed April 2020 <<https://ausfpa.com.au/media-releases/ipcc-report-backs-sustainable-forest-industries-to-help-tackle-climate-change/>>

<sup>59</sup> H. Smith & F. Ximenes, 2019, *Production Forest Methodologies for the Emissions Reduction Fund*, FWPA

presented by Thomas Crowther at the American Academy for the Advancement of Science in 2019 found that planting one trillion trees worldwide could sequester 205 gigatonnes of carbon, wiping out “at least 10 years of anthropogenic emissions completely”<sup>60</sup>. This is consistent with the Australian Government’s 2018 commitment to establishing a billion plantation trees over 10 years, which is projected to create 18,000 jobs<sup>61</sup>.

Government and state policies focus on growing plantation stock in ways that maintain forests’ sustainability and repair the damage caused by bushfires to existing stock. Planting is carried out by hand, and planting crews usually include experienced professionals and new industry entrants, with a range of permanent and seasonal workers.

Tree planting involves planting sites to be prepared, cultivated and treated for weeds. Any natural features and heritage conservation are also considered on a site-by-site basis. Seeds are prepared for germination and seed sow during October and November. They are then fertilised, watered and nurtured to prepare for planting with nursery staff monitoring the stem diameter, height and nutrient status of seedlings. Seedlings are then planted from June to September the following year. Trees planted in 2019 will be harvested in 2050-2055.

The Federal Government’s *Regional Forestry Hubs* (see above), some of which commenced operations in 2019, are intended to drive additional plantings in existing forest and forest product areas. For example, the Green Triangle Forest Industries Hub aims to plant an extra 200 million trees by 2030<sup>62</sup>. Outside of the plantation sector, the Federal Government has committed to planting 20 million additional trees by 2020 to re-establish green corridors and urban forests.<sup>63</sup>

Across Australia in 2019, seedling plantings included:

- The Forestry Corporation of NSW planted 10 million pine seedlings between June and September; Forestry Corp then prepared around nine million seeds for germination and sowing between October and November<sup>64</sup>;
- Forestry SA planted 480,000 pine seedlings across its Mount Lofty Ranges plantation<sup>65</sup>;
- In Victoria, nearly 200 million seedlings were planted across 18,200 hectares by Australian Bluegum Plantations, HVP Plantations and PF Olsen Australia<sup>66</sup>.
- VicForests has overseen the planting of 250,000 Eucalyptus seedlings in the Latrobe Valley as part of a Victorian State Government program<sup>67</sup>.

#### *Construction: Cross Laminated Timber and Glue Laminated Timber*

Replacing concrete and steel with timber building products has significant environmental benefits. ‘Bringing Embodied Carbon Upfront’, a report by the World Green Building Council<sup>68</sup>, found that 11% of world carbon emissions are associated with the materials and construction processes used throughout the building lifecycle. Lowering these emissions requires a reduced reliance on carbon-intensive raw materials.

<sup>60</sup> J. Gabbatiss, 2019, Massive restoration of world’s forests would cancel out a decade of CO2 emissions, analysis suggests, *The Independent*, viewed April 2020 <<https://www.independent.co.uk/environment/forests-climate-change-co2-greenhouse-gases-trillion-trees-global-warming-a8782071.html>>

<sup>61</sup> Australian Government, 2018, *Growing a better Australia: A billion trees for jobs and growth*, Department of Agriculture and Water Resources

<sup>62</sup> Timberbiz, 2019, *Nine companies launch \$1b growth plan for 200 million trees*, viewed April 2020 <<https://www.timberbiz.com.au/nine-companies-launch-1b-growth-plan-for-200-million-trees/>>.

<sup>63</sup> Australian Government, 2017, *20 million trees*, Department of Agriculture, Water and the Environment, viewed April 2020 <<https://www.environment.gov.au/land/20-million-trees>>

<sup>64</sup> Forestry Corporation of NSW, 2019, *First of 10 million seedlings planted in 2019 softwoods program*, viewed April 2020 <<https://www.forestrycorporation.com.au/about/releases/2019/first-of-10-million-seedlings-planted-in-2019-softwoods-program>>

<sup>65</sup> ForestrySA, 2019, *Planting season to begin across the Mount Lofty Ranges*, viewed April 2020 <<https://www.forestrysa.com.au/2019/07/03/planting-season-to-begin-in-the-mount-lofty-ranges/>>

<sup>66</sup> Timberbiz, 2019, *Victoria’s plantations add \$600m to economy*, viewed April 2020 <<https://www.timberbiz.com.au/victorias-plantations-add-600m-to-economy/>>

<sup>67</sup> VicForests, 2019, *VicForests to support native timber sector transformation*, viewed April 2020 <<http://www.vicforests.com.au/static/uploads/files/native-timber-transformation-wfxmjrfgbak.pdf>>

<sup>68</sup> World Green Building Council, 2019, *Bringing embodied carbon upfront*

Developments to support this objective include the development of a Carbon Calculator for Construction, which tracks the embodied carbon of raw building materials. Timber building products have relatively little embodied energy and new technology is seeing engineered wood products increase the range of timber uses in construction.

Engineered wood products, including Glue Laminated Timber (GLT or glulam), Laminated Veneer Lumber (LVL) and Cross Laminated Timber (CLT), are increasingly being used in Australia, particularly in midrise buildings. WoodSolutions<sup>69</sup> has produced a Technical Design Guide for Mid-rise Timber Building Structural Engineering that provides structural engineers with information to facilitate design of mid-rise (three to eight storey) timber buildings<sup>70</sup>.

CLT, which is relatively new to Australia, has been used overseas for decades. Deakin University is currently analysing the performance of Australian-made CLT and its range of structural applications<sup>71</sup>. IndustryEdge estimates that the current CLT market in Australia is at least 50,000 cubic metres per annum, with domestic capacity providing around 40% of that volume<sup>72</sup>. IndustryEdge projects that the market will grow by more than 25% in 2019-20 and, on its current trajectory, will be more than 80,000 cubic metres by the end of 2022.

CLT/GLT facilities across Australia include:

- A new CLT and GLT plant, CLTP, has been established in Burnie, Tasmania, and is expected to be in production in 2020. It will use juvenile hardwood plantation timbers to develop a structural product for the CLT Panel and prefabricated housing market.<sup>73</sup>
- In February 2020, Timberlink announced that it had decided to build a softwood CLT and GLT manufacturing facility in the Green Triangle (South Australia and Victoria). This facility will open in 2023, creating 27 full-time permanent jobs.<sup>74</sup>
- An XLam manufacturing facility in Albury, New South Wales. This facility, reported to be producing 60,000 cubic metres of CLT each year, employs 30 people.<sup>75</sup>
- A \$20m Hyne Timber GluLam timber manufacturing plant in Maryborough, Queensland. This plant, when operational, will employ 42 people.<sup>76</sup>

## Biomass

Biomass energy is carbon neutral, can decrease methane emissions and is renewable. It also provides an additional value stream for timber product residues.

Laminex is conducting a feasibility study for an energy cogeneration plant at its fibreboard manufacturing facility in Toolara. If the project proceeds, it will create 10 new operational jobs. The plant, which would support the electricity and thermal energy requirements for the facility, will divert 100,000 tonnes of demolition wood waste and green waste from landfill each year.<sup>77</sup>

<sup>69</sup> WoodSolutions 2020, *New Design Guide: Mid-rise Timber Building Structural Engineering*, viewed April 2020 <<https://www.woodsolutions.com.au/blog/new-design-guide-mid-rise-timber-building-structural-engineering/>>

<sup>70</sup> Worldwide, tallest timber construction is 16 stories.

<sup>71</sup> < Deakin University, 2019, *Deakin researchers put Australian-made mass timber to the test*, viewed April 2020 <<https://www.deakin.edu.au/about-deakin/media-releases/articles/deakin-researchers-put-australian-made-mass-timber-to-the-test/>>

<sup>72</sup> Timberbiz, 2020, *IndustryEdge estimates of CLT and Glulam for the future*, viewed April 2020 <<https://www.timberbiz.com.au/industryedge-estimates-of-clt-and-glulam-for-the-future/>>

<sup>73</sup> Timberbiz, 2020, *Stirling new hardwood CLT plant for Tasmania*, viewed April 2020 <<https://www.timberbiz.com.au/stirling-new-hardwood-clt-plant-for-tasmania/>>

<sup>74</sup> Timberbiz, 2020, *Timberlink to build CLT and GLT manufacturing in SA or VIC*, viewed April 2020 <<https://www.timberbiz.com.au/timberlink-to-build-clt-and-glt-manufacturing-in-sa-or-vic/>>

<sup>75</sup> ABC News, 2016, *XLam to open Australia's first cross laminated timber manufacturing plant in Albury-Wodonga*, viewed April 2020 <[https://www.abc.net.au/news/2016-05-24/albury-wodonga-to-get-\\$25m-cross-laminated-timber-plant/7440092](https://www.abc.net.au/news/2016-05-24/albury-wodonga-to-get-$25m-cross-laminated-timber-plant/7440092)>

<sup>76</sup> AFPA, 2019, *AFPA welcomes start of construction on Hyne Timber's new GLT plant*, viewed April 2020 <<https://ausfpa.com.au/news/afpa-welcomes-start-of-construction-on-hyne-timbers-new-glt-plant/>>

<sup>77</sup> Sustainability Matters, 2020, *Qld timber industry to investigate waste-to-resource opportunities*, viewed 2020 <<https://www.sustainabilitymatters.net.au/content/waste/news/qld-timber-industry-to-investigate-waste-to-resource-opportunities-630751702>>

HQ Plantations is also testing the use of forest-floor materials for a biomass plant turning waste from treetops and other offcuts into energy for use in the region.<sup>78</sup>

Besides energy generation, biomass has potential as a new source of technical products; for example, there are projects underway in Tasmania to develop new industrial chemicals from wood biomass. Circa Group has established a prototype plant in Tasmania to produce 20 metric tonnes per year of a new cellulose-derived solvent called Cyrene (dihydrolevoglucosenone).<sup>79</sup>

### Implications

The Forest and Forest Products Industry has the capacity to provide considerable support for the Australian economy in a carbon-constrained world. Developing a skilled workforce in planting, engineered wood products and the use of biomass will be critical to capitalising on these opportunities.

### Trends in Technology

Technology is being adopted by the industry to produce more from less resources. Examples include a new twin band resaw (Australian Sustainable Hardwoods)<sup>80</sup>, a Green Mill Vision Scanning System (Timberlink)<sup>81</sup> and a new contra flow kiln with biomass energy generation (Timberlink)<sup>82</sup>.

New products are also under development in Australia and internationally, including a viscose fibre mixing pulp and recycled cotton (China)<sup>83</sup>, waterproof timber able to be used in bathrooms (Finland)<sup>84</sup> and a new cellulose-derived solvent called Cyrene (Tasmania).<sup>85</sup>

Technologies developed in other industries are being adapted for use by the Forest and Wood Products industry. Drones have been trialled for use in aerial ignition to support safe and effective hazard reduction burning in NSW<sup>86</sup> and for drone-assisted survival assessments in Western Australia<sup>87</sup>. Other industry uses include:

- fauna survey visualisation and pre-harvesting animal welfare surveying;
- tree count and height assessment in mid and long rotation;
- damage assessments; and
- control burning monitoring.

The industry is primarily concerned with the data obtained from the use of the drones and tend to outsource the drone piloting.

As in other industries, data collection and analysis is also becoming increasingly important. The Department of Environment, Land, Water and Planning has made Victoria's largest ever acquisition of data on public forests

<sup>78</sup> The Chronicle, 2020, *\$600k Laminex plan will create at least 50 new jobs*, viewed April 2020 <<https://www.thechronicle.com.au/news/600k-laminex-plan-will-create-at-least-50-new-jobs/3939779/>>

<sup>79</sup> M. McCoy, 2019, *New solvent, Cyrene, takes on NMP*, *Chemical and Engineering News*, viewed April 2020 <<https://cen.acs.org/business/biobased-chemicals/New-solvent-Cyrene-takes-NMP/97/i22>>

<sup>80</sup> Gippsland Times, 2020, *Australian Sustainable Hardwood's new \$3 million timber plant opens in Heyfield*, viewed April 2020 <<https://www.gippslandtimes.com.au/story/6688947/3m-timber-plant-opens-in-heyfield/>>

<sup>81</sup> Woodtech, 2019, *Timberlink welcomes commitment to invest*, viewed April 2020 <<https://woodtech.events/timberlink-welcomes-commitment-to-invest/>>

<sup>82</sup> Timberbiz, 2019, *Tarpeena mill progress report*, viewed April 2020 <<https://www.timberbiz.com.au/tarpeena-mill-progress-report/>>

<sup>83</sup> Timberbiz, 2019, *Viscose fibre uses timber pulp and recycled cotton*, viewed April 2020 <<https://www.timberbiz.com.au/viscose-fibre-uses-timber-pulp-and-recycled-cotton/>>

<sup>84</sup> Timberbiz, 2019, *Waterproof wood makes a splash*, viewed April 2020 <<https://www.timberbiz.com.au/waterproof-wood-makes-a-splash/>>

<sup>85</sup> M. McCoy, 2019, *New solvent, Cyrene, takes on NMP*, *Chemical and Engineering News*, viewed April 2020 <<https://cen.acs.org/business/biobased-chemicals/New-solvent-Cyrene-takes-NMP/97/i22>>

<sup>86</sup> About Regional, 2019, *Drone trials put fire in the sky during hazard reduction burn window*, viewed April 2020 <<https://aboutregional.com.au/drone-trials-put-fire-in-the-sky-during-hazard-reduction-burn-window/>>

<sup>87</sup> Timberbiz, 2019, *Djarlma Plan part of new strategic direction for WA forestry*, viewed April 2020 <<https://www.timberbiz.com.au/djarlma-plan-part-of-new-strategic-direction-for-wa-forestry/>>



using Lighting Detection and Ranging (LiDAR) technology<sup>88</sup>. LiDAR will allow the creation of detailed, accurate forest maps, providing the foundation for long-term monitoring programs and management strategies. Trials are underway to use radio-frequency identification tracking for prefabricated timber systems, making information about components available immediately and so improving on-site processes<sup>89</sup>. Internationally, a new forestry tech start-up has developed a platform that will predict forest inventory more accurately.<sup>90</sup>

The industry is also investing heavily in research through the National Institute for Forest Products Innovation. Projects relate to the better use of data, higher environmental and safety standards, and optimising the use of plantation, water and environmental assets<sup>91</sup>. As part of the Building 4.0 CRC, Hyne Timber and Sumitomo Forestry are partnering in research looking to optimise all phases of building delivery, from development and design to production, assembly, operation, maintenance and end-of-life.<sup>92</sup>

As demonstrated at Ligna 2019, the world-renowned wood processing trade fair, there is a global emphasis on automation and integrated systems. The use of robotics is increasing for materials handling, processing and surfacing. Virtual reality machines are being used to envisage work-steps and machine states as well as for machine control. High-performance sensor systems for material detection is making saw technology safer. Other emerging technologies include a six-axis aggregate that can process work on all sides without repositioning, a membrane press that can veneer curved and uneven surfaces, and new software that can generate challenging decorative laminate layers in a single pass.<sup>93</sup>

### *Implications*

Investments in research and technology show the pipeline of future skills needs. The acquisition of these skills across the workforce has begun and will gradually transform the way work is performed in the forest and wood products industry.

### **Bushfires**

The 2019 FWP Industry Skills Forecast<sup>94</sup> cited the increased risk of bushfires to current and future projections of available forest resources.

The impact of the 2019-2020 bushfire season on native and plantation timbers was far greater than anticipated and will have a significant impact on the industry now and into the future, particularly in NSW, Victoria and on Kangaroo Island (where around 90% of Kangaroo Island Plantation Timbers' tree stock was damaged by fire<sup>95</sup>). Many businesses that had taken out insurance policies intend to replant.

More than 50,000 ha of pine plantations were affected in NSW. Fire has affected more than 60% of softwood plantations in northern NSW, and, on the south coast, 80% of state forests. Overall, almost one-fifth of NSW forestry assets have been affected.<sup>96</sup>

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<sup>88</sup> Forest Tech, 2019, *Victoria's largest acquisition of forest LiDAR*, viewed April 2020 <<https://foresttech.events/victorias-largest-acquisition-of-forest-lidar/>>

<sup>89</sup> FWPA, 2019, *Trialling the Value of RFID Technology in Prefabricated Timber Construction*, viewed April 2020 <<https://www.fwpa.com.au/resources/reports/market-access/1707-trialling-the-value-of-rfid-technology-in-prefabricated-timber-construction.html>>

<sup>90</sup> Timberbiz, 2019, *CollectiveCrunch a solution for the forestry sector*, viewed April 2020 <<https://www.timberbiz.com.au/collectivecrunch-a-solution-for-the-forestry-sector/>>

<sup>91</sup> National Institute for Forest Products Innovation, 2019, *Projects*, viewed April 2020 <<https://nifpi.org.au/projects/>>

<sup>92</sup> The University of Melbourne, 2020, *\$28 million grant to transform design and production of buildings in Australia*, viewed April 2020 <[https://about.unimelb.edu.au/newsroom/news/2020/march/\\$28-million-grant-to-transform-design-and-production-of-buildings-in-australia](https://about.unimelb.edu.au/newsroom/news/2020/march/$28-million-grant-to-transform-design-and-production-of-buildings-in-australia)>

<sup>93</sup> Timberbiz, 2019, *Ligna 2019 trends and innovations*, viewed April 2020 <<https://www.timberbiz.com.au/ligna-2019-trends-and-innovations/>>

<sup>94</sup> Skills Impact, 2019, p.24, *Forest and Wood Products Industry Sector: IRC Skills Forecast and Proposed Schedule of Work, 2019-2022*

<sup>95</sup> ABC Country Hour, 2020, *Fire damages 90% of Kangaroo Island Plantation Timbers' tree stock*, viewed April 2020 <<https://www.abc.net.au/radio/programs/sa-country-hour/ki-timber-damage/11914554>>

<sup>96</sup> The Australian, 2020, *Bushfires take toll on timber supplies*, viewed April 2020 <<https://www.theaustralian.com.au/business/economics/bushfires-take-toll-on-timber-supplies/news-story/ab62ed8159b3bf4ff2f20778806ce877>>



Industry meetings taking place in NSW in March 2020 were focused on industry cooperation to maximise salvage operations, and preliminary estimates of the significant impact on resource availability. There were also discussions about the timeframe for replanting plantations. Regarding plantation softwoods, in the short term, the demand for harvesting and haulage is exceeding the capacity of the industry, and sawmills are putting on extra shifts to process salvaged wood. Salvage operations for hardwood are on a longer time-frame, but also have higher environmental hurdles. Prior to the outbreak of COVID-19, the industry was starting to consider the implications of this for future workforce and skills requirements.

In Victoria, 40% of forests in East Gippsland that were slated for harvesting were lost to bushfires. These fires may end up affecting the Government's plan to shut down the hardwood timber industry by 2030. In the short term, workers unable to harvest timber in Victoria have been redeployed to building firebreaks and emergency road clearance. At the time of writing, the Victorian Government have not announced modifications to their decision. In the meantime, the Victorian Supreme Court has granted injunctions against logging in areas unaffected by bushfires until the impact of the fires on affected areas has been determined.<sup>97</sup>

Working in bushfire management, mitigation and firefighting has been described by the industry as being “as much a core part of work” as tree harvest operations or planting. Forest workers are involved in firefighting activities, including:

- defending resource and forestry assets;
- salvage operations after the fire has passed;
- make-safe operations and road clearing; and
- re-establishing plantations.

It is unclear whether all current workers have the skills to perform all of these roles. A 2018 report found that Queensland forestry staff were not given the chance to improve their fire management skills<sup>98</sup>. Industry has also advised that the environmental constraints on re-establishing plantations require a different skill set than the work ordinarily undertaken by contractors.

In addition to these traditional management activities, industry is reporting an increased demand for mechanical thinning as a means of managing fuel load (an alternative to prescribed burning). This is planned for Western Australia<sup>99</sup> and Tasmania<sup>100</sup>. The former Victorian emergency management commissioner has also argued that selective logging is a crucial fire management tool<sup>101</sup>. This is likely to be given greater consideration in other jurisdictions as the period of time available for prescribed burns becomes shorter.

### *Implications*

The impact of fire on resources is likely to affect new entrants to the industry in the medium-term, particularly in harvesting and haulage, but also in sawmilling.

Further, from a skills and workforce perspective, forest workers are increasingly being deployed during the bushfire season to perform roles that are distinct from their roles as harvesting and haulage contractors. It is also likely that mechanical thinning will become an important role for workers in the industry in jurisdictions where it is adopted. (See Section C – Proposed Project).

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<sup>97</sup> ABC News, 2020, *Victorian Supreme Court orders temporary halt to logging due to impact of Gippsland bushfires*, viewed April 2020 <<https://www.abc.net.au/news/2020-01-30/court-halts-logging-due-to-impact-of-gippsland-bushfires/11913528>>

<sup>98</sup> The Australian, 2020, *Queensland forestry staff not trained to face bushfire crisis: expert*, viewed April 2020 <<https://www.theaustralian.com.au/nation/politics/queensland-forestry-staff-not-trained-to-face-bushfire-crisis-expert/news-story/e484149120f34339da5ad5b2bc762261>>

<sup>99</sup> Timberbiz, 2019, *Djarlma Plan part of new strategic direction for WA forestry*, viewed April 2020 <<https://www.timberbiz.com.au/djarlma-plan-part-of-new-strategic-direction-for-wa-forestry/>>

<sup>100</sup> Timberbiz, 2020, *Tasmania opens up to fuel reduction burns*, viewed April 2020 <<https://www.timberbiz.com.au/tasmania-opens-up-to-fuel-reduction-burns/>>

<sup>101</sup> Timberbiz, 2020, *Better management needed by government to reduce bushfire risk*, viewed April 2020 <<https://www.timberbiz.com.au/better-management-needed-by-government-to-reduce-bushfire-risk/>>

## Career Pathways

The industry is increasingly engaging with the question of how to attract new workers to the industry. This is illustrated by the breadth of approaches being trialled:

- industry involvement in National Trees Day (South Australia);
- teacher education days (Western Australia);
- working with google expeditions to take virtual tours of working forests (United Kingdom); and
- trialling virtual reality resources developed as part of the Forest Learning program by Forest and Wood Products Australia.<sup>102</sup>

## Approaches to Attract New Workers to the Industry

In Tasmania, Arbre Forest Industries runs a Cadet Forester Program, which provides an opportunity for eight senior school students to complete the Certificate II in Forest Growing and Management through a School-Based Apprenticeship during year 12, including one day per week spent with industry. Arbre envisages that their cadets will work towards achieving a Certificate IV in Forest Operations within four years of employment, subject to annual performance-based reviews by respective employers and training providers.<sup>103</sup>

Southern Region Cadet at Sustainable Timber Tasmania, Jamie is working with the seeding team and roading crew, assisting in recovery work from the 2018/19 bushfire season. He enjoys the work culture and the variety of challenges he is presented with in his position as Cadet Forester.

**“One day I would love to complete my Certificate III in Forest Operations and join the regeneration team at Sustainable Timber Tasmania,” said Jamie.**

In South Australia, the Ultimate Renewables Forest Learning Pathway Program will be made available to 14 students in Limestone Coast Secondary Schools in 2020<sup>104</sup>. It aims to provide a pathway for students, from Years 8 to 12, for entering the industry. The program delivers Certificate III-level FWP Training Package qualifications, including for Forest Growing and Management, Harvesting and Haulage and Sawmilling and Processing. It involves classroom and field-based delivery and is intended to educate students about career options in forestry, and grow talent within the community.<sup>105</sup>

**Linda Cotterill, from OneFortyOne, said “The forest and timber industry in the Green Triangle is a world class, sustainable industry that underpins thousands of jobs and environmental outcomes, it is something we are incredibly proud of.**

**Workforce planning is a priority for OneFortyOne. There are times when we do have to search outside of the region, even the country to find the level of expertise we need within the business but our preference is always to find local people for local jobs.**

**We are invested in this forest industry training package because it will help familiarize our youth with our great industry and develop the skills we need locally, as we plan for our future workforce. We’re in this long-term.”**

In Victoria, the Gippsland Forestry Hub was established to address the problem of attracting qualified or experienced people to work in the industry. Their objective is to work with the education sector to pursue training, up-skilling and promotion of the forest industry to secure well-trained candidates from within the local community.<sup>106</sup>

<sup>102</sup> Forest Learning, 2018, *ForestVR 360 Filming has commenced!*, viewed April 2020 <<https://forestlearning.edu.au/news-and-events/article/121/forestvr-update-december-2018.html>>

<sup>103</sup> Arbre Forest Industries, 2020, *Training and Careers Hub Newsletter, March 2020*

<sup>104</sup> Timberbiz, 2019, *Forests & timber pathway program for Mount Gambier high schools*, viewed April 2020 <<https://www.timberbiz.com.au/forests-timber-pathway-program-for-mount-gambier-high-schools/>>

<sup>105</sup> Timberbiz, 2019, *Secondary students’ first step into forestry*, viewed April 2020 <<https://www.timberbiz.com.au/secondary-students-first-step-into-forestry/>>

<sup>106</sup> GFHub, 2020, *A Gippsland initiative to link forestry education and career Opportunities*, viewed April 2020 <<http://gfhub.com.au/>>

### Implications

The consistently expressed need to attract new entrants to the Forest and Forest Products industry, which remains unmet, suggests that there may be something missing from the skills ecosystem which needs to be addressed. (See proposed Project 2 on page 47).

### Safety

The industry remains focused on driving safety measures. As well as physical safety, industry has identified mental health training as an area of focus as a result of the devastating bushfires.

The harvesting and haulage sector continues to work to improve safety standards across the sector. One area of success and progress is through the introduction and development of a range of industry programs that verify and confirm that contractors have the necessary skills to carry out high-risk harvesting operations.

The Australian Forest Contractors Association (AFCA) is developing a Contractor Training and Certificate Scheme (ForestFit)<sup>107</sup> which will leverage training and certification to increase business sustainability by demonstrating the professionalism, safety and environmental compliance of contractors in the forestry industry. AFCA are currently working with Skills Impact and ForestWorks to determine how the FWP Training Package can meet the training needs related to Certification.

### Implications

Despite the universal take-up of work health and safety units of competency in the Harvesting and Haulage sector, industry continues to identify the need for additional support that recognises the unique circumstances associated with remote operations, in particular mental health first aid (See Section C – Proposed Project).

## VET Qualifications & Employment Outcomes

### Most of the people enrolling in Forest and Wood Products Qualifications are employed.

Between 2015 and 2018, all learners who enrolled in an FWP Training Package qualification at or above Certificate IV-level were employed (see Table 3)<sup>108</sup>.

**Table 3: FWP qualification enrolment level by employment status, 2015-2018**

Qualification Level	Employed	Unemployed	Not in the labour force
Certificate I	0	0	0
Certificate II	3,472	326	658
Certificate III	4,920	292	65
Certificate IV	235	0	0
Diploma	96	0	0
Advanced Diploma	2	0	0

Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

<sup>107</sup> Australian Forest Contractors Association, 2020, *Achieving forestry contracting best practice*, viewed April 2020 <<https://www.afca.asn.au/forest-fit-old>>

<sup>108</sup> Excluding learners whose employment status was recorded as 'not known' in NCVET data sets.

With the exception of the those who enrolled in the Certificate II in Timber Merchandising (75% 'Not in the labour force') and Certificate II in Timber Manufactured Products (31% 'Unemployed' and 23% 'Not in the labour force'), most people were employed when they enrolled in their FWP qualification. Overall, a higher proportion of Certificate III enrollees (93%) were employed than Certificate II enrollees (78%).

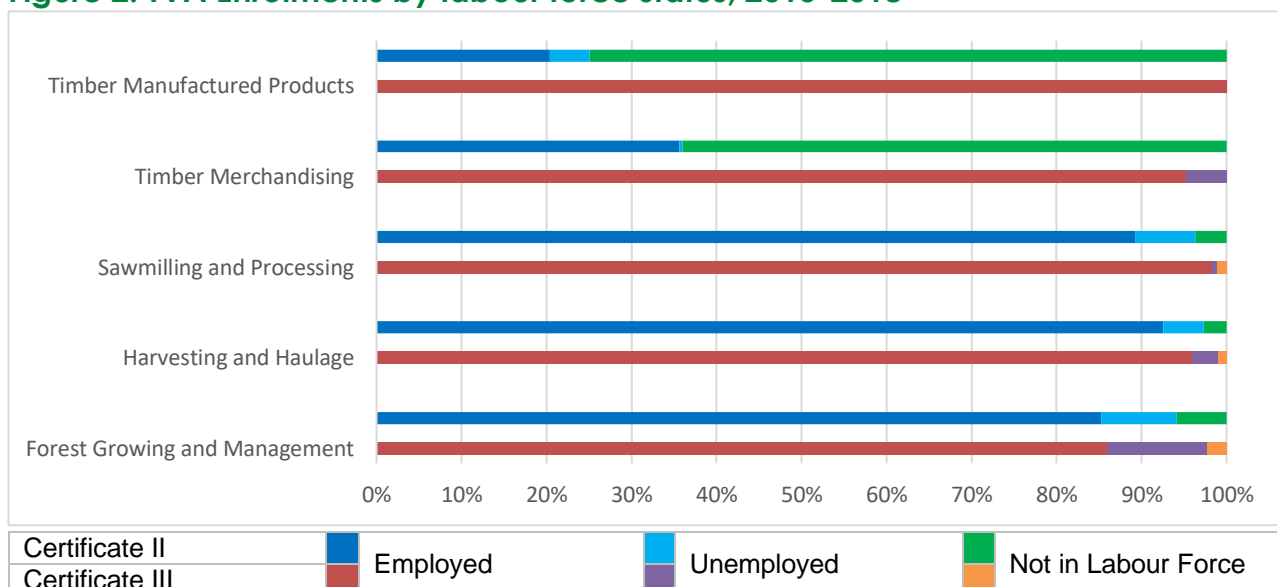
Most people *completing* FWP qualifications between 2015 and 2018 were employed (84% across all qualifications), with the exception being in Forest Growing and Management qualifications, where there were higher-than-average proportions of people completing the Certificates II (34%) and III (66%) who were not employed.

NCVER data, sourced from the National Student Outcomes Survey, on FWP Training Package graduates<sup>109</sup> shows that:

- 57.0% of those not employed before FWP training became employed after training (compared with 46.8% for all graduates).
- 95.9% of those employed before FWP training were employed after training (compared to 89.6% for all graduates).
- 15.6% of those employed before training became employed at a higher skill level after training.
- 77.0% of those employed after training received at least one job-related benefit.
- 23.0% of those employed after training were in the 'Manufacturing' industry (the most common industry of employment).
  - 18.2 % of those employed after training were in the 'Agriculture, Forestry and Fishing' industry.
- The top occupations of those employed after training were: 'Technicians and Trade Workers' (25.4%), 'Machinery Operators and Drivers' (23.0%) and 'Labourers' (14.1%).

While data is unavailable regarding graduates' industry of employment *pre*-enrolment (i.e. the proportions of people working in the forest and forest products industry), industry feedback suggests that, for many roles, employment comes first and training follows. Before investing in employees' training, employers often assess peoples' inclination and aptitude for working in the industry, hence the large proportions of people who are already employed when they enrol in a Certificate II or III qualification (see Figure 2).

**Figure 2: TVA Enrolments by labour force status, 2015-2018**

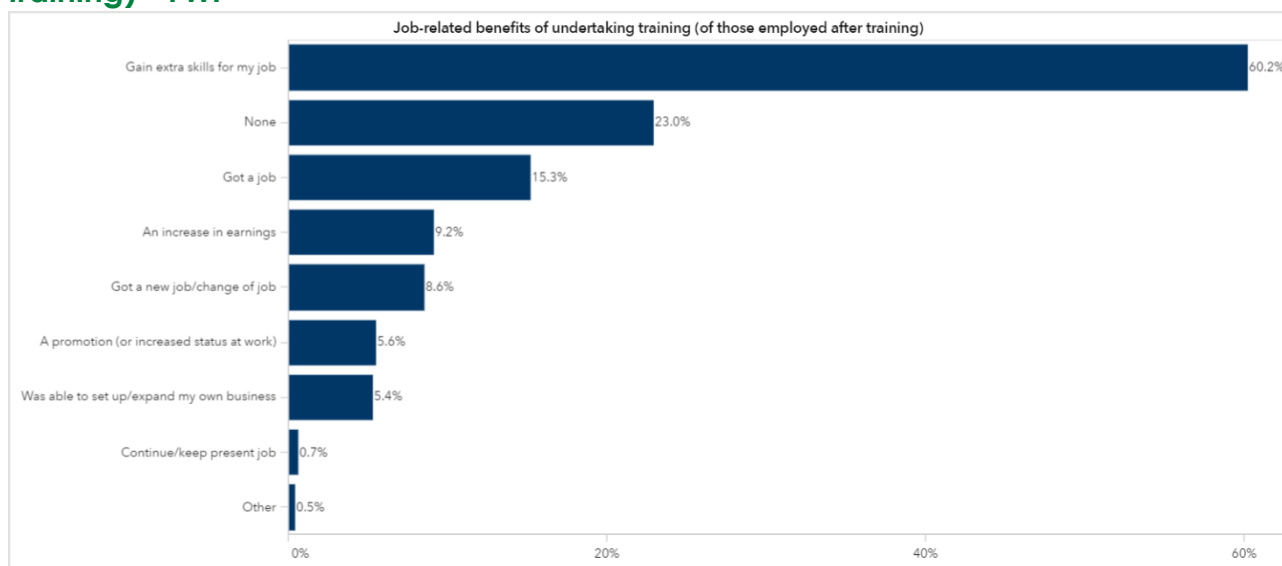


Source: NCVER VOCSTATS, TVA program enrolments 2015-2018

<sup>109</sup> NCVER, 2019, VET graduate outcomes, SAS Visual Analytics

This is also indicated by VET graduate outcomes data which shows that, of those employed after training, the greatest job-related benefit is gaining ‘extra skills for my job’ (which is an outcome for 60.2% of FWP graduates, compared with 48.0% across all training packages)<sup>110</sup>. Relatively few FWP graduates (8.6%) reported that they got a new job or changed their job as a result of training (compared with 19.4% across all training packages).

**Figure 3: Job-related benefits of undertaking training (of those employed after training) - FWP**



Source: NCVER, VET graduate outcomes

Australian Industry Group’s ‘Workforce Development Needs Survey’<sup>111</sup> reports that the main approach to meeting skills needs used by employers is retraining existing staff on-the-job, and that there has been a significant increase in the strategy of employing workers with basic skills – often new entrants to an industry – and then upskilling them. For this, some employers engage directly with the VET system to facilitate learning. NCVER found for the ‘agriculture, forestry and fishing’ industries that around 21% use nationally recognised training:

**Table 4: Employers’ use of the VET system, 2017 and 2019 (%)**

Employer characteristics	The VET system					
	Employers with vocational qualifications as a job requirement		Employers with apprentices/trainees		Employers using nationally recognised training	
	2017	2019	2017	2019	2017	2019
<b>Industry</b> (Base: all employers within industry)						
Agriculture, forestry and fishing	18.5	15.7	9.6	12.6	21.3	21.5

Source: NCVER, 2019, p.13, Australian vocational education and training statistics: employers’ use and views of the VET system 2019

<sup>110</sup> NCVER, 2019, VET graduate outcomes, SAS Visual Analytics

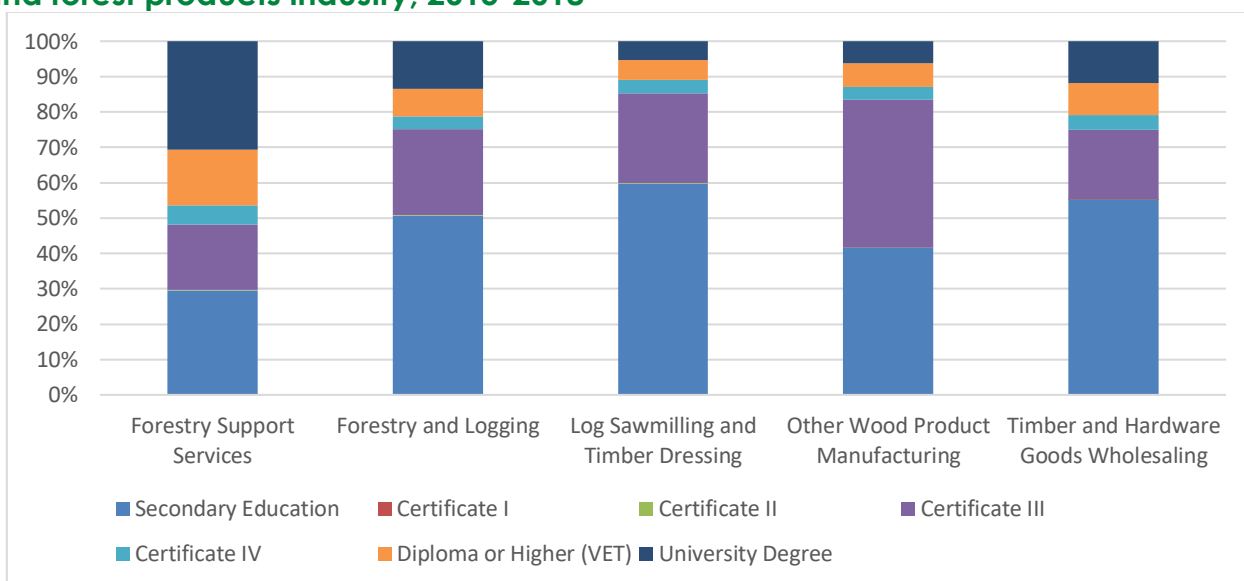
<sup>111</sup> Australian Industry Group, 2018, Workforce Development Needs Survey Report – Skilling: A National Imperative, AIGroup, Adelaide, viewed January 2020, <[https://cdn.aigroup.com.au/Reports/2018/Survey\\_Report\\_WFDNeeds\\_Skilling\\_Sept2018.pdf](https://cdn.aigroup.com.au/Reports/2018/Survey_Report_WFDNeeds_Skilling_Sept2018.pdf)>

**Nearly half of the industry has a VET or University qualification.**

People employed in Forestry Support Services have the highest level of educational attainment in the industry, with around 70% possessing a Certificate III or higher, and the greatest number of people holding university degrees<sup>112</sup>. At the other end of the spectrum, 40% of people working in Log Sawmilling and Timber Dressing have a Certificate III or higher.

The sectors with the greatest proportions of employees whose highest level of educational attainment is in VET are Other Wood Product Manufacturing (52%), followed by Forestry Support Services (40%). In the other sectors, around one-third of employees' highest level of educational attainment is in VET: Forestry and Logging (36%); Log Sawmilling and Timber Dressing (35%) and Timber and Hardware Good Wholesaling (33%).

**Figure 4: Highest level of educational attainment of people employed in the forest and forest products industry, 2015-2018**



Source: 2016 Census TableBuilder – Employment, Income and Education

According to the NCVET research, the main reasons for having vocational qualifications as a job requirement are to provide the skills required for the job (65.6%) and for legislative, regulatory or licensing requirements (56.4%).<sup>113</sup>

The IRC advises that, in relation to the FWP Training Package, circumstances in which employers are more likely to employ people with VET qualifications include:

**Trades Workers**

Employers will generally require Wood Machinists and Saw Technicians (Saw Doctors) to obtain qualifications. Only a small number of Wood Machinists are required in a Wood Product Manufacturing enterprise and only a small number of Saw Technicians are required in a Saw Mill.

<sup>112</sup> ABS, 2016, 2016 Census TableBuilder - Employment, Income and Education


<sup>113</sup> NCVET, 2019, p.13, Australian vocational education and training statistics: employers' use and views of the VET system 2019



## Compliance

Most Forest Managers require their forestry contractors to employ operators who have demonstrated specific units of competency. This is the biggest driver of enrolments in qualifications in Harvesting and Haulage. Members of the Australian Forest Products Association (AFPA) and the Australian Forest Contractors Association (AFCA) have committed all workers driving heavy plant or log trucks, using hand held motorised equipment or working near heavy plant and tree falling operations to attaining certain units of competency (See Figure 5 below). Implementation of these standards was to be achieved by 31 December 2020.

**Figure 5: Safe and Skilled, AFPA/AFCA Essential Training Standards**



### Essential Training Standards

#### Member statement of commitment

The Forest Grower members of AFPA and Contractor members of AFCA are committed to ensure that all workers in the forests we manage or work in hold a statement of attainment of approved nationally recognised units of competency when undertaking any task that involves:

- Driving heavy plant or log trucks
- Using hand held motorised equipment
- Ground based workers working near heavy plant and tree falling operations.

We endorse the agreed units of competence and commit to ensuring the list is reviewed annually to ensure its ongoing relevance.

We understand that the costs associated with training delivery are significant and will work collaboratively to ensure training and assessment services are delivered efficiently and effectively and funded training opportunities are maximised.

New workers to the industry when undertaking the above tasks must be supervised and undergoing training. All workers must hold the relevant statements of attainments 6 months after commencing work.


For existing workers members will accept pre-existing training against a national competency which may be verified by a statement of attainment, or through previously recognised State based industry standards.

We recognise that Forestworks' FOLS Skill Verification Program is a useful online tool which companies may use to demonstrate conformance with this commitment.


We will review our contracts and move towards ensuring this commitment is adequately reflected in their terms.

As a first step we will work to identify the existing level of training within our workforce by 31 December, 2018.


We commit to achieve implementation of essential training standards by 31 December 2020.




Mr Greg McCornack,  
Chair



AFPA  
TREES | WOOD | PAPER



Mr Adam Taylor,  
Chair



AFCA

#### Approved units of competency

All workers must hold a statement of attainment for units of competency equivalent to:

- FWPCOR2205B Follow OHS policies and procedures.
- FWPCOR2203B Follow environmental care procedures.

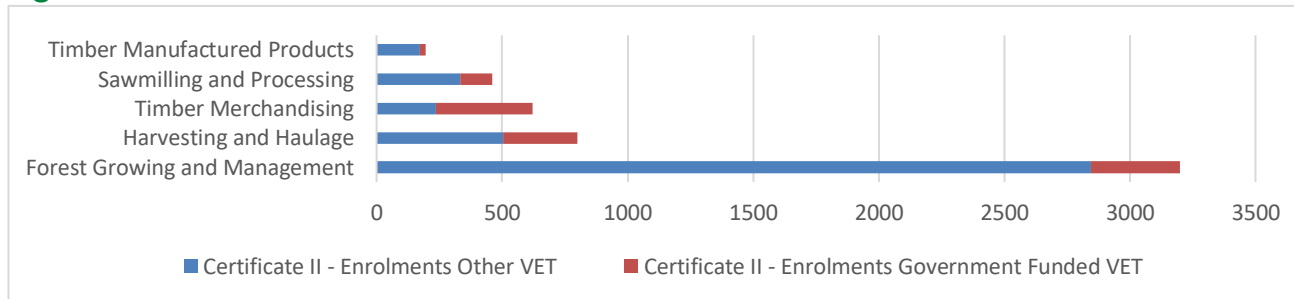
In addition to these general requirements, they must also hold a statement of attainment for a unit of competency related to the hazardous activity they are conducting as below:

MACHINE TYPE	UNIT OF COMPETENCY APPROVED FOR HAZARDOUS ACTIVITIES
Single grip harvester	FWPHAR3229 Operate single grip harvester
Processor	FWPHAR3210 Conduct mechanical processor operations
Feller buncher	FWPHAR3207 Conduct feller buncher operation
Forwarder	FWPHAR3206 Conduct forwarder operations
Log truck	FWPCOT3261 Transport forestry logs using trucks
Static mobile chipper	FWPHAR3215 Operate a heavy production mobile chipper
Skidder	FWPHAR3217 Conduct skidder operations
Dozer	FWPHAR3216 Conduct crawler operations
Tractor	RIIMPO315D Conduct tractor operations
Excavator – for loading / shovelling logs	FWPHAR3219 Conduct excavator operations with grabs
Wheeled loader	FWPHAR3218 Conduct loader operations
Chainsaw units based on operational activity.	FWPHAR2207 Trim and cut harvested trees
	FWPCOT2236 Fall trees manually (basic)
This may include commercial harvesting operations, plantation silviculture, road and firebreak maintenance operations.	FWPHAR3220 Harvest trees manually (intermediate)
	FWPHAR3221 Harvest trees manually (advanced). This unit is considered mandatory for commercial harvesting operations
Cable Logging (Choker Setter)	FWPHAR2203 Hook up felled logs using cables (choker)
Cable Logging (Chaser)	FWPHAR2204 Perform landing duties (chaser)
Cable Logging (Yarder)	FWPHAR3211 Operate yarder
Truck mounted loaders	TLILIC0012 Licence to operate a vehicle loading crane (capacity 10 metre tonnes and above)

## Funding Availability

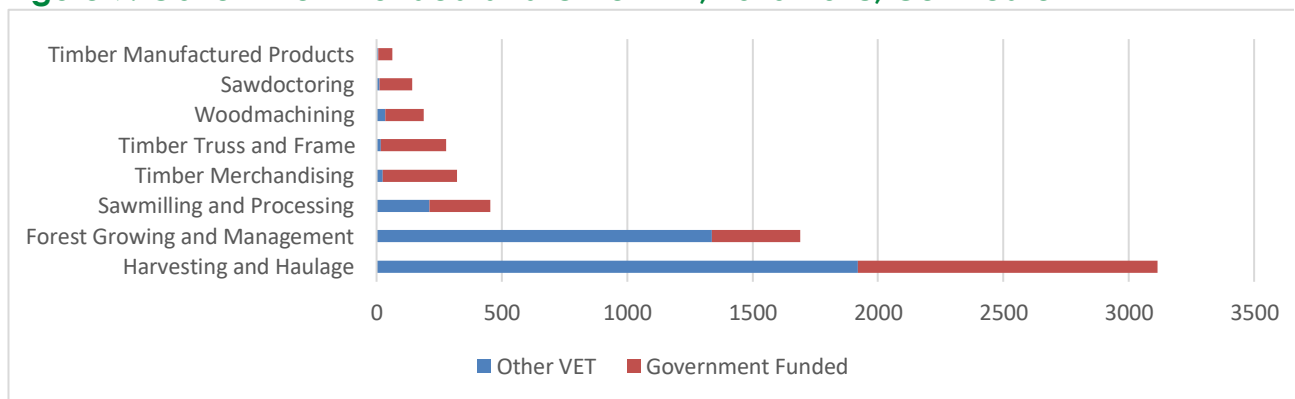
As is apparent in Figure 6 and Figure 7, a significant majority of FWP training delivery at Certificate II- and III-level is not government-funded (i.e. fee-for-service), particularly in harvesting and haulage and forest growing and management. It is not yet clear what the reason for this is, or whether access to more government funding would result in higher levels of enrolment and subsequent employment.

**Figure 6: Government-Funded and Other VET, 2015-2018, Certificate II**



Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

**Figure 7: Government-Funded and Other VET, 2015-2018, Certificate III**



Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

## Other Training Used by Employers

Table 5 below shows results from NCVET's 2019 'Survey of Employers' Use and Views of the VET System'<sup>114</sup>, which found that around 40% of 'Agriculture, forestry and fishing' employers use unaccredited training (a program of structured training or unstructured, on-the-job instruction), which is roughly double the proportion who use nationally-recognised training.

**Table 5: Use of the VET system and unaccredited training in the last 12 months by employer characteristics, 2017 and 2019 (%)**

Industry (Base: all employers within industry)	Employers using nationally recognised training		Employers using unaccredited training	
	2017	2019	2017	2019
Agriculture, forestry and fishing	21.3%	21.5%	43.0%	41.6%

Source: NCVET, 2019, *Australian vocational education and training statistics: employers' use and views of the VET system 2019*

Industry has advised that businesses undertake a significant amount of informal or non-accredited training due to a range of factors, including:

- The belief that it is too costly to have employees off the job to undertake training;
- Perceived difficulty in dealing with the VET system;
- The lack of availability of local training providers able to offer training the business needs;
- Relatively high costs of obtaining accredited training in thin markets because of the lack of scale;
- The reduction in or absence of government funding for training; and
- Views that national competencies do not cover regional or specialised needs.

NCVER has found that the reason organisations use nationally recognised training include legislative, regulatory or licensing requirements (54.9%), to provide the skills required for the job (49.0%) and for staff career development (40.4%)<sup>115</sup>. By comparison, the reasons for using unaccredited training were to provide the skills required for the job (57.0%), to meet and maintain professional/industry standards (36.0%) and to meet highly specific training needs (34.5%)<sup>116</sup>. The reasons for employers choosing unaccredited training in preference to nationally recognised training were that it was more cost effective (51.2%) and that it was more convenient or more flexible times (34.3%)<sup>117</sup>. The reasons for dissatisfaction with nationally recognised training echoed those for dissatisfaction with vocational training as an employment requirement: that the relevant skills are not taught (52.3%) and that training is of a poor quality or low standard (36.1%)<sup>118</sup>.

For the agriculture, forestry and fishing industry, non-accredited training was mainly provided internally (53.5%, compared to 56.8% across all industries). Regarding external training providers, the industry mainly used private training providers (17.5%, compared to 16.3% for all industries), followed by supplier/manufacturer of equipment/product (12.9%, compared to 10.5% for all industries); and professional or industry associations

<sup>114</sup> NCVET 2019, *Australian vocational education and training statistics: employers' use and views of the VET system 2019*, NCVET, Adelaide.

<sup>115</sup> NCVET, 2019, *Survey of Employer Use and Views of the VET System 2019*, Table 10 <<https://www.ncver.edu.au/research-and-statistics/data/all-data/survey-of-employer-use-and-views-2019-additional-tables>>

<sup>116</sup> NCVET, 2019, *Survey of Employer Use and Views of the VET System 2019*, Table 12 <<https://www.ncver.edu.au/research-and-statistics/data/all-data/survey-of-employer-use-and-views-2019-additional-tables>>

<sup>117</sup> NCVET, 2019, *Survey of Employer Use and Views of the VET System 2019*, Table 14 <<https://www.ncver.edu.au/research-and-statistics/data/all-data/survey-of-employer-use-and-views-2019-additional-tables>>

<sup>118</sup> NCVET, 2019, *Survey of Employer Use and Views of the VET System 2019*, Table 18 <<https://www.ncver.edu.au/research-and-statistics/data/all-data/survey-of-employer-use-and-views-2019-additional-tables>>

(12.2%)<sup>119</sup>. The main reason for using a private training provider was the content (35.6%), but for professional/industry associations and supplier/manufacturers the main reason was specialists with a high level of industry knowledge (54.7% and 56% respectively).<sup>120</sup>

The data collected by the NCVET does not however provide this information on a Training Package level. The Frame and Truss Manufacturers Association conducted a survey of 185 frame and truss manufacturers which found that only 28.9% had used accredited training in the last 12 months compared with 51.9% who had used non-accredited training. Accredited training was delivered to 4.3% of employees, compared to the more than one-fifth of employees (21.1%) who received non-accredited training.

The main reason for not using accredited training was that the business could not afford staff time away from the job (14.8%). Other key reasons included that the course content did not meet the company's needs (8.1%), a perceived lack of return on investment (7.4%), difficulty in accessing training (6.7%) and not seeing the value in the current training (6.7%).

Where funding was provided on an equitable basis for accredited and non-accredited training as part of the Tasmanian Training and Skills Development Service, less than half of the 3,792 training places were in industry-endorsed non-accredited training (45.0%).

### **Enterprises use units of competency as skills standards**

Many enterprises use FWP units of competency as skills standards for purposes other than training. This includes using the skills standards to map the requirements of a particular job role, or to map the requirements of a particular function. Units of competency, or skills standards as they are sometimes referred to, are also used as the basis of determining individual career pathways, workforce development plans, and are often reflected in position descriptions.

### **Using training packages for non-accredited training**

The IRC is aware that the FWP Training Package is being used to deliver training which is nationally accredited training in all but name. The main barrier to conducting this training within the VET system is created by changes to the TAE requirements for trainers and assessors.

In the past, the FWP Training Package has successfully been delivered by workplace trainers and assessors who are overseen and facilitated by an RTO. The reasons for this include:

- the regional location of the industry;
- the need to use enterprises' own equipment;
- the small number and low turnover of people employed in the industry, resulting in a lack of scale;
- the benefits of experienced industry-based trainers; and
- reduced time required for the employee to be off-site.

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<sup>119</sup> NCVET, 2019, *Survey of Employer Use and Views of the VET System 2019*, Table 25 <<https://www.ncvet.edu.au/research-and-statistics/data/all-data/survey-of-employer-use-and-views-2019-additional-tables>>

<sup>120</sup> NCVET, 2019, *Survey of Employer Use and Views of the VET System 2019*, Table 26 <<https://www.ncvet.edu.au/research-and-statistics/data/all-data/survey-of-employer-use-and-views-2019-additional-tables>>

This model has now become too difficult to maintain because of the revised TAE requirements for workplace trainers and assessors.

“The Certificate III in Wood Machining had 2 providers last year. Now one – operating in NSW – have flagged their intention to remove the qualification from scope because it cannot maintain the workplace trainer and assessor model.

David has previously used an employer’s head machinist, trained in a Certificate IV in Training and Assessment, to provide the technical component of training delivery. The RTO provided the other side of assessment.

Due to changes in the Certificate IV, smart, experienced and competent trainers are being excluded from the system. They struggle with classroom based work and meeting the assessment requirements for TAELN411 Address adult language, literacy and numeracy skills and TAEASS502 Design and develop assessment tools because they themselves have problems with literacy.

Highly competent, experienced trainers are having barriers placed in front of them when trying to deliver nationally accredited training. Training will still be conducted in-house by experienced workers, it just won’t be done under the national framework.”

[David McElvanny, Workplace Training]

#### **Using non-accredited training that is culture-based, knowledge-based, mindset-based**

There is an increased aspiration for training that is not ‘competency-based’ but rather ‘culture-based’. An example of this is in the area of workplace health and safety. Industry, in particular forest managers and harvesting contractors, would like to see training in more specialised areas of health and safety, such as Safety Leadership in Remote areas and Mental Health First Aid.

“The Committee noted that operators were using cable ties to override mechanisms in heavy machinery that stop the machine from operating when the door is opened.

This safety issue was very difficult to monitor because of the nature of the small teams operating in relatively remote locations.

The Committee considered that this was part of the reason why inculcating a safety culture and safety leadership into health and safety training was so important.”

[Tasmanian Work Health and Safety Committee]

This training needs to be highly specific and relevant to people who are working in very remote areas, in small groups but often operating in machines on their own for long periods of time, conducting extremely hazardous work activities, travelling significant distances to and from site, and being always vigilant and responsive to their surrounding environment. Generic health and safety units of competence just don’t deliver the type of specialised content that industry is seeking. The Forest Management and Harvesting Industry Reference Committee have proposed a Training Package project to develop units in this area but the proposal was been rejected on the basis there are sufficient units of competency in the VET system that will cater to this need. However, the IRC continues to assert that there is a point of difference between these requirements and existing units and has re-submitted a project proposal at Section C, that includes an outline of this point of difference.

If the nationally accredited training catered to the industry need it would be utilised, but instead, forest managers and contractors are using non-accredited training to deliver these skills. Unlike current WH&S units, this non-accredited training is not required to operate in forests, leaving a gap in workplace safety.



## Industry training

There are a number of highly regarded, well-utilised short courses delivered in the Forest and Wood Products industry.

### *Gottstein Trust – Forest Science Course and Wood Science Course*

These courses, run in alternating years are of five days duration. The Forest Science course provides the science and policy framework for forest management in Australia and is delivered by highly regarded industry experts as guest speakers. The Wood Science Course is focused on wood and the properties which affect processing and end-use, potential development of new products, and contemporary issues in the forest products industries. Both courses are aimed at potential managers, executives, non-executive directors, service providers and consultants to the forest industry, particularly those who have recently joined the industry with little formal training in the science of Forest Management. The Wood Science Course is also suitable for operational team members. Attendees are capped at 35.

### *EWPAAs Plywood and LVL Manufacturing Course*

This course, running since the 1960s, is intended to give manufacturing staff a broader insight into the process of manufacturing plywood and LVL products, as well as contemporary industry issues. It is conducted annually.

### *Forest and Wood Products Australia – WoodSolutions CAMPUS*

The WoodSolutions CAMPUS online education program provides available-on-demand timber education and skills development opportunities to those who work in Australia's timber and wood products supply chain.

## Enrolment Levels

### **From Forest Growing to Sawmilling and Processing**

Enrolments in Forest Growing and Management, Harvesting and Haulage and Sawmilling and Processing at the Certificate II- and III-level remain strong, relative to employment in the industry (see Table 6, Table 7 and Table 8). The peak in 2015 and 2016 was in response to the almost doubling in employment in the 'forestry and logging' and 'forest services' sectors between 2015 and 2016 (from 6,923 to 12,323), before returning to more normal enrolment levels.

These qualifications are proposed to be updated as part of the *New Timber Harvesting Technologies* project to reflect sophisticated new industry technologies, including geospatial data management for forest assessment, tree assessment and tree inventory. These changes mean job roles require higher levels of technical and digital skills.

The exceptions to the general proposition are the Certificate I in Forest and Forest Products (last reviewed in May 2016) and the Advanced Diploma (Forest Industry Sustainability) which has had its first recent enrolments in 2018. The proposed project *Review of lower level qualifications for entry into the Forestry Industry* (proposal attached to this update) will consider the deletion of the Certificate I in Forest and Forest Products. The IRC is also proposing to consider the Advanced Diploma in Forest Industry Sustainability in a project reviewing higher level qualifications (proposal attached to this update). Given the current use of this qualification, it may be that there is no need for the qualification if the Certificate IV and Diploma are redeveloped.



**Table 6: Forest Growing and Management Enrolments**

Forest Growing and Management	Enrolments				Release	RTOs approved to deliver (Jan '20)
	2015	2016	2017	2018		
Certificate I in Forest and Forest Products	0	0	0	0	1 - 13/5/16	1
Certificate II	958	1006	551	685	2 - 21/2/18	12
Certificate III	637	475	317	260	2 - 21/2/18	14
Certificate IV (Forest Operations)	72	40	47	36	1 - 13/5/16	5
Diploma of Forest and Forest Products	12	36	19	35	3 - 18/12/18	5
Advanced Diploma (Forest Industry Sustainability)	0	0	0	2	2 - 18/12/18	1

Source: NCVER VOCSTATS, TVA program enrolments 2015-2018

**Table 7: Harvesting and Haulage Enrolments**

Harvesting and Haulage	Enrolments				Release	RTOs approved to deliver (Jan '20)
	2015	2016	2017	2018		
Certificate II	388	244	104	63	2 - 21/2/18	11
Certificate III	1039	1038	478	561	2 - 21/2/18	16

Source: NCVER VOCSTATS, TVA program enrolments 2015-2018

**Table 8: Sawmilling and Processing Enrolments**

Sawmilling and Processing	Enrolments				Release	RTOs approved to deliver (Jan '20)
	2015	2016	2017	2018		
Certificate II	168	164	49	79	3 - 31/1/20	4
Certificate III	161	114	89	89	3 - 31/1/20	6
Certificate IV (Timber Processing)	8	22	10	4	3 - 31/1/20	3

Source: NCVER VOCSTATS, TVA program enrolments 2015-2018

### Trade Qualifications

There are two trades qualifications in the FWP Training Package: the Certificate III in Saw Doctoring and the Certificate III in Wood Machining. The enrolments in these courses are consistent over time. The levels of enrolments reflect the nature and use of Saw Technicians (formerly Saw Doctors) and Wood Machinists in the industry.

ForestWorks and Skills Impact estimate that there are less than 200 people performing those work functions in Australia. Despite their relatively small number, without saw technicians, a sawmill cannot operate. Wood machinists are also vital to the operation of a saw mill – setting up planers, saws, moulders and more. These two trades are the most highly skilled in a saw mill. Without these key technical personnel, Australia would not be able to produce the (approximate) 4.0 million cubic metres of sawn timber it uses each year.

These trade qualifications were updated in 2019 as part of the project *Advances in Wood Machining and Saw Doctoring*. There was significant engagement from industry in this project.

**Table 9: Trade Qualifications Enrolments**

Certificate III	Enrolments				Release	RTOs approved to deliver (Jan '20)
	2015	2016	2017	2018		
Saw Technology (formerly Saw Doctor)	33	42	40	28	1 - 31/1/20	0 (2 for the previous Qual)
Wood Machining	47	45	55	41	1 - 31/1/20	0 (2 for the previous Qual)

Source: NCVER VOCSTATS, TVA program enrolments 2015-2018

### Timber Truss and Frame

In the Timber Truss and Frame area, significant changes are being recommended to the qualifications as a result of a project currently due for completion in 2020. These changes are designed to reflect the distinct job roles that are designers (estimators) and fabricators.

The changes include deletion of the two Certificate II Qualifications and the two Diploma Qualifications. The current Certificate III is proposed to be replaced with a Certificate III in Timber Systems Design and a Certificate III in Timber Frame or Truss Manufacturing. Five new skill sets are also proposed to support fabricators who wish to develop technical skills related to a job function. Each skill set is a subset of, and will provide credits toward, the proposed Certificate III in Timber Frame or Truss Manufacturing.

**Table 10: Timber Truss and Frame Enrolments**

Timber Truss and Frame	Enrolments				Release	RTOs approved to deliver (Jan '20)
	2015	2016	2017	2018		
Certificate II (Design and Manufacture)	0	0	0	0	1 - 13/5/16	2
Certificate III (Design and Manufacture)	49	72	78	78	2 - 18/12/18	2
Certificate IV (Design) Certificate IV (Manufacture)	21	15	10	16	2 - 18/12/18	2
Diploma (Design) Diploma (Manufacture)	3	0	0	0	2 - 18/12/18	1

Source: NCVER VOCSTATS, TVA program enrolments 2015-2018

## Timber Merchandising

The Timber Building Solutions Industry Reference Committee has reviewed the current Timber Merchandising Qualifications and is proposing that the Certificate II in Timber Merchandising be deleted and the Certificate III changed to a Certificate III in Timber Building Products Supply. This reflects evolving skills requirements, particularly in relation to the growing sales of timber to building construction businesses and trade customers.

**Table 11: Timber Merchandising**

Timber Merchandising	Enrolments				Release	RTOs approved to deliver (Jan '20)
	2015	2016	2017	2018		
Certificate II	155	196	153	118	1 - 13/5/16	1
Certificate III	69	106	72	74	1 - 13/5/16	2

Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

## Timber Manufactured Products and Wood Panel Products

In addition, there have been no enrolments in the Certificate II or Certificate III in Wood Panel Products. These qualifications have not been substantively reviewed since 2015 when the Training Package was transitioned to new Training Package Standards. These qualifications are still on scope with one RTO. The RTO has not received any training enquiries from MDF/Particleboard companies for many years. It is likely that the RTO will remove the wood panel qualifications from scope as they lose current expertise.

The RTO in question has however received interest from timber businesses in knowledge training – of particular technologies or particular tasks – being delivered to groups of employees with related jobs, indicating a shift in emphasis.

Although there is no current project proposed by the IRCs, it may be that there is some utility in consolidating the Timber Manufactured Products and Wood Panel Products qualification streams, with specialisations for each sector.

**Table 12: Timber Manufactured Products**

Timber Manufactured Products	Enrolments				Release	RTOs approved to deliver (Jan '20)
	2015	2016	2017	2018		
Certificate II	33	18	68	77	2 - 31/1/20	3
Certificate III	31	18	12	1	3 - 31/1/20	2

Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

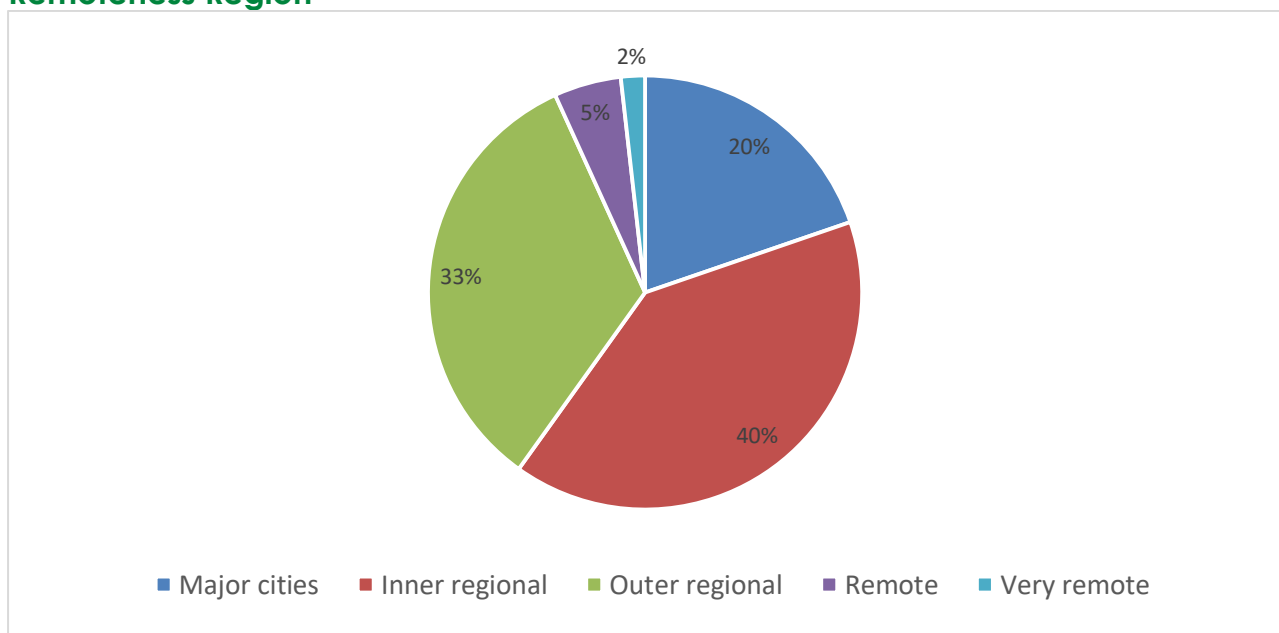
## The challenge of thin markets

Thin markets are markets with few participants – in the case of the VET system, markets with few potential learners and few registered training organisations. In relation to the FWP Forest and Wood Products Training Package, the thin market is partly a product of remoteness and its relationship to insufficient demand to encourage registered training organisations to invest. This is compounded by the fact the industry is characterised by attrition rates. This is a view communicated to us in our consultations, but it is also reflected in the attrition rates for the agriculture, forestry and fisheries industry – which at 6.1% in 2016 was the second lowest after mining, and was similarly low in the two preceding years.<sup>121</sup>

Wespine is one of the larger softwood sawmills in Australia, currently producing between 450,000m<sup>3</sup> and 500,000m<sup>3</sup> each year. It is located in Dardanup, Western Australia, 180km south of Perth. On a site visit recently, Wespine indicated that in order to train their apprentice saw technician they had to send him to Tumut, NSW - more than 3,500km away. Because of his age, they also sent his mum with him.

Unlike many training packages, the vast majority of enrolments in the FWP Forest and Wood Products Training Package do not occur in major cities (Figure 8).

**Figure 8: TVA Enrolments in the FWP Training Package (2015-2018) by Student Remoteness Region**



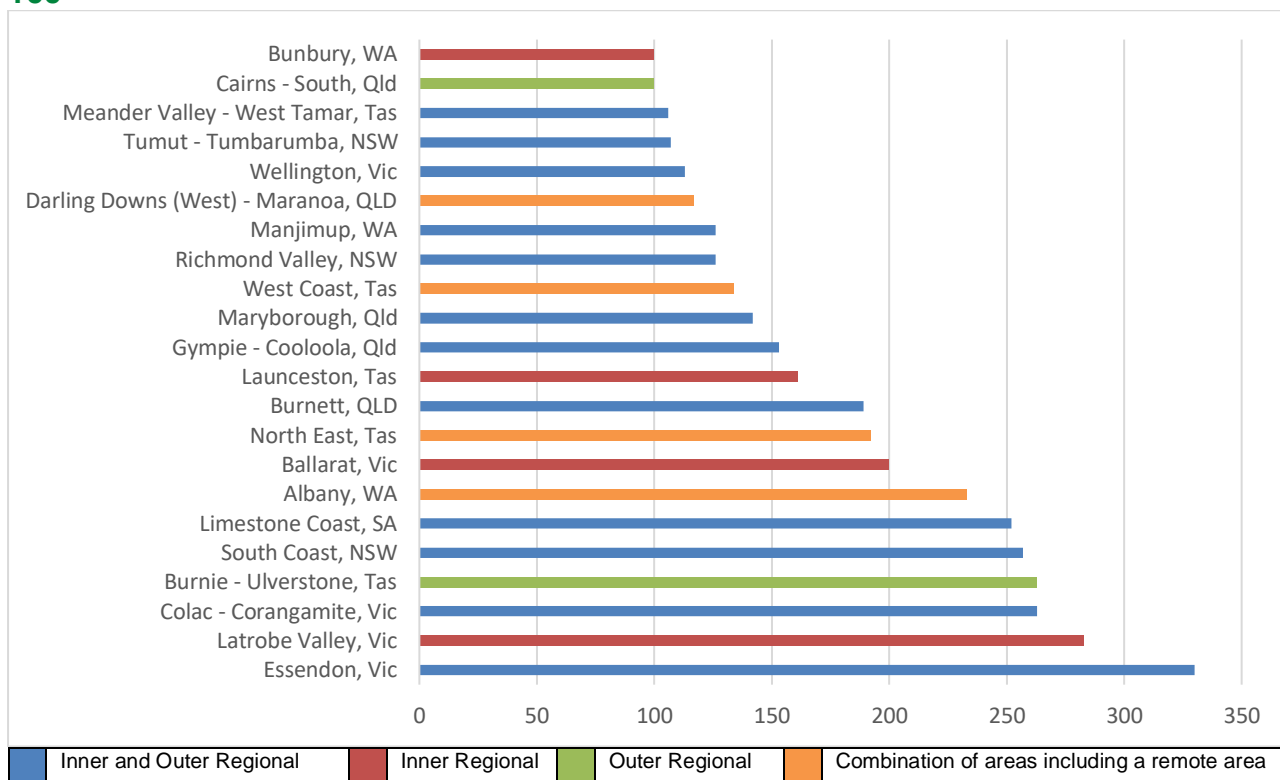
Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

Of the 22, SA3 Regions with more than 100 enrolments between 2015 and 2018, only one was categorised as being a major city. All enrolments in that major city (Essendon) were for the Certificate II in Timber Merchandising.

The remaining enrolments were in SA3 regions that were inner or outer regional or a combination of both (17), or a combination of areas including remote areas (4) a combination of outer regional and remote (2), a combination of inner and outer regional and very remote (1) and a combination of outer regional, remote and very remote (1).

<sup>121</sup> AIM, 2016, *Staff Retention Report*, <<https://www.aim.com.au/news/staff-retention-focus-nss-october-update>>

**Figure 9: SA3 Regions with TVA Enrolments in the FWP Training Package (2015-2018) > 100**



Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

Recommendation one of the Rural, Regional and Remote Education Strategy includes “improving access to high quality VET programs in RRR areas”<sup>122</sup>; however, focusing on “low enrolments” is not the best way to improve access to quality VET programs. There are RTOs working hard to service the industry but, because they are so under-resourced and thinly spread, the service they are able to provide can easily be constrained. They are required to deliver the same outcomes but with less resources.

As recognised by the Government in its establishment of Forestry Hubs in key forestry regions, the Forest Industry supply chain is highly integrated. This is best illustrated by a comparison of the qualification enrolments in a number of the highest use areas. RTOs servicing the industry in these regional and remote locations are required to deliver a full suite of FWP qualifications to serve all the elements of the industry operating in a region.

<sup>122</sup> Commonwealth of Australia, 2019, p. 6, National Regional, Rural and Remote Tertiary Education Strategy, viewed April 2020 <[https://docs.education.gov.au/system/files/doc/other/national\\_regional\\_rural\\_and\\_remote\\_tertiary\\_education\\_strategy.pdf](https://docs.education.gov.au/system/files/doc/other/national_regional_rural_and_remote_tertiary_education_strategy.pdf)>

**Figure 10: SA3 Regions with the highest number of enrolments in the FWP Training Package (2015-2018) by Qualification**



Source: NCVET VOCSTATS, TVA program enrolments 2015-2018

Even in these forestry regions, the number of people requiring training in any given year remains small.

Relatively low formal use of the FWP Training Package is an ongoing issue. Industry maintains that low numbers of enrolments do not indicate an absence of training needs, but rather that the VET sector fails to recognise, understand and deal with costs, issues and problems associated with thin markets, regional delivery and specialised industries. Forestry is a prime example of this.

The IRCs representing the sector maintain that smaller industries are just as worthy of a set of national qualifications based on relevant and specific units of competency that reflect the tasks being undertaken by its workforce.



Skills Impact and ForestWorks are undertaking a project to further examine the challenges posed by delivering training in thin markets and how to overcome those challenges.

“The problem now is that we have extremely limited access to RTOs that are willing and capable of delivering in the areas of need - e.g. Green Triangle, which is one of the largest producers and employers of timber products in Australia, does not have a resident RTO for either of these packages (Wood Machining and Saw Technology).

We have between 50-70 employees who may benefit from this training. We send two apprentices to Creswick, Victoria, as there is no other option. In addition, as the qualifications and training facilities have waned over time, we are now in a ludicrous situation where school leavers are not looking to the timber industry as a career option and gender diversity is a struggle. It would be great to have trainees, employees and apprentices who can see a future in timber and who are being equipped with relevant qualifications. Until then, we will continue to see a drift of youth and careers hopefuls away from Green Triangle.”

[Stuart Husband, General Manager – Operations, McDonnell & Sons, Mt Gambier]

## Reasons for Non-Completion

According to NCVET data on VET graduate outcomes, FWP Training Package learners were marginally more satisfied than average with the overall quality of their training (88.5%, compared to 88.1%). FWP Training Package learners were also much more likely to think they had achieved the main reason for their training (93.0%, compared to 83.9%). A higher proportion of FWP training participants were also more likely to recommend their training (93.8%, compared to 90.6% for all industries) and their training provider (91.8%, compared to 88.9%).

### Increased demand for both Qualifications and Units of Competency

There is a continued demand for training based on small groups of units, including skill sets.

In 2018, there were 2,343 enrolments in FWP Training Package qualifications (up from 2,125 in 2017) and 43,750 enrolments in FWP Units (up from 37,862 in 2017). The ratio of enrolments in qualifications to enrolments in subjects is 18.7 subject enrolments to every one qualification (up marginally from 17.8 the previous year).

### Impact of funding

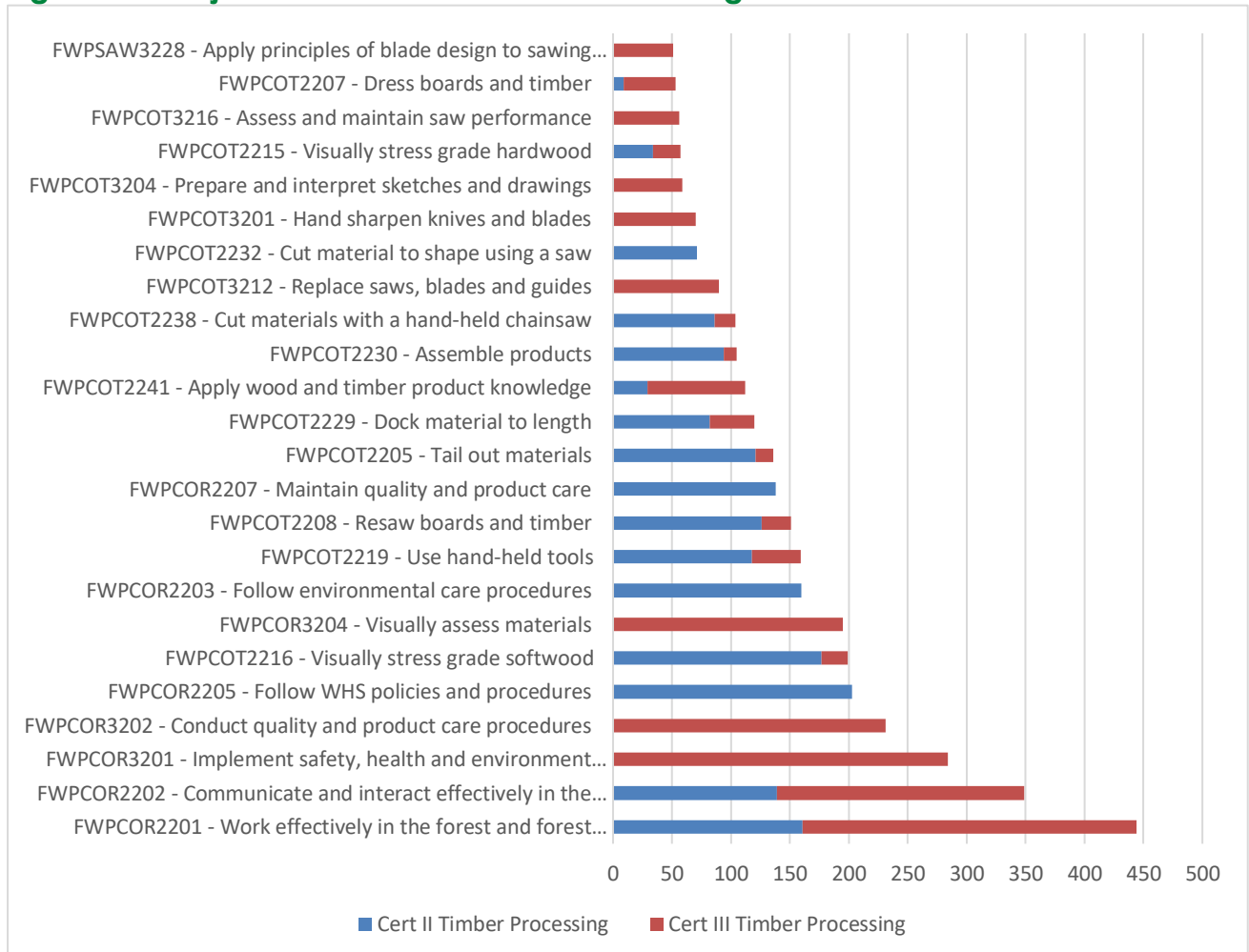
It is not clear what impact funding has on preferences. In the FWP Training Package both qualification and unit enrolments are predominantly funded on a fee-for-service basis.

In Tasmania, the Training and Skills Development Service program provides funding for any training that is of benefit to industry, not just full qualifications. That program, which has completion rates currently at 98%, has had 3,792 training places approved. The ratio of units of competency to full qualifications in that program is 15.0 units of competency to each qualification enrolment. This may support the proposition that all things being equal there is a slightly higher preference for qualifications. It is worth noting that that program has a 98% completion rate for training.

## Timber Processing stream

Figure 11 shows subject enrolments in the Timber Processing Stream<sup>123</sup>. The highest numbers of enrolments are in subjects which are core units in multiple qualifications. Lower enrolments are in areas of specialisation. This data could equally support the proposition that people are enrolling in core units and dropping out, or enrolling in specialist skills but outside of qualifications, and therefore not proceeding to complete the core units required for a qualification. Further analysis of this data is required.

**Figure 11: Subject Enrolments in Timber Processing**



Source: NCVER, TVA Subject Enrolments by Qualification, 2015-2018

<sup>123</sup> Sawmilling and Processing, Timber Merchandising, Timber Manufactured Products, Saw doctoring, Wood machining, Timber Truss and Frame

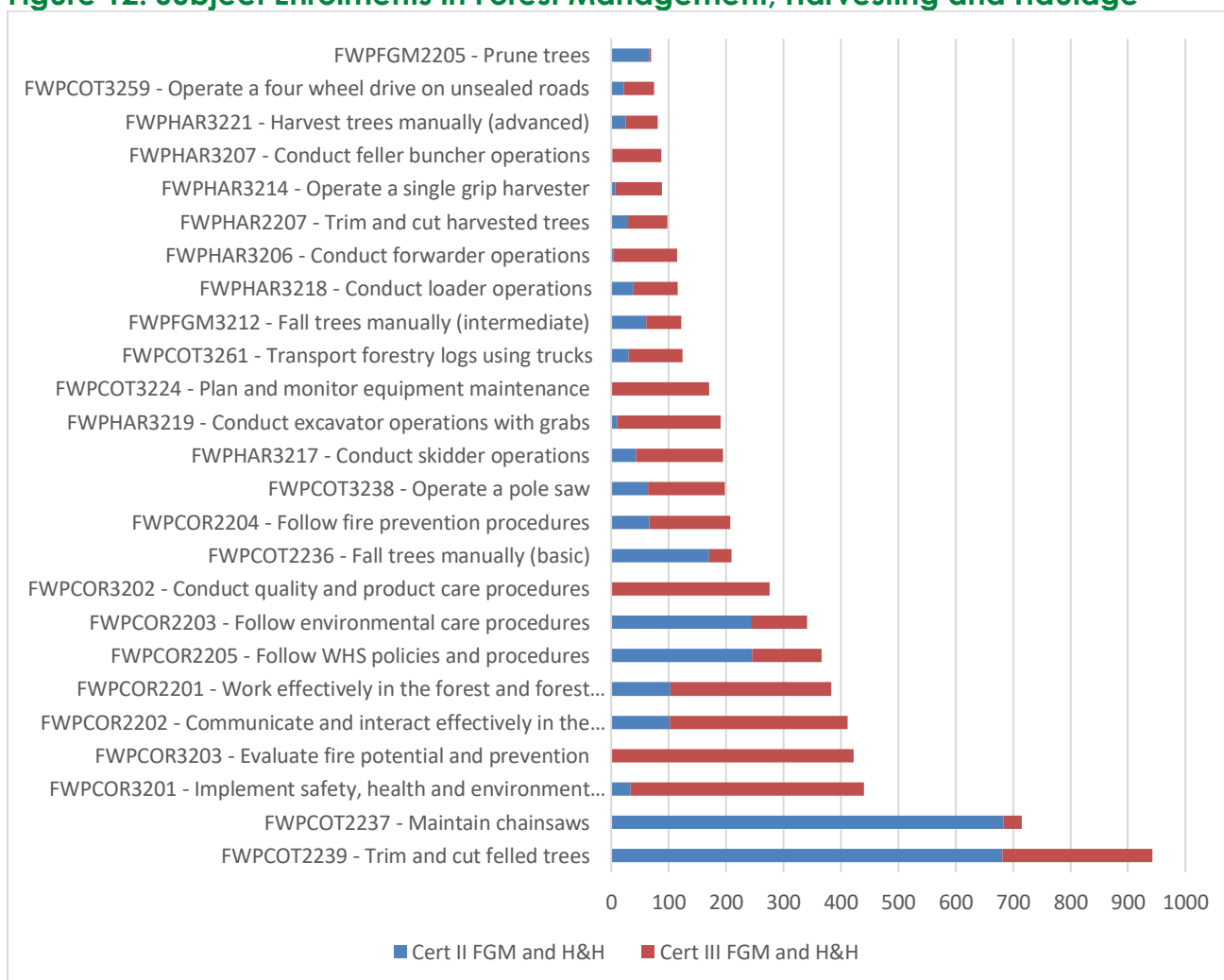
## Forest Management and Harvesting stream

Figure 12 shows the subject enrolments for the Forest Management and Harvesting Stream. In this stream, the drivers of subject enrolments are different.

As described above, many forest managers now require contractors to prove that they have skilled employees, and this evidence is mostly now in the form of a Statement of Attainment. The subjects with the highest enrolments tend to be offered as a short course together and is popular outside the industry as well as necessary within it. Additional enrolments in trim and cut felled trees are likely to be driven by the transition in Tasmania from requiring workers to have nationally accredited falling qualifications, replacing Tasmanian qualifications issued other than by Registered Training Organisations.

Other unit enrolments are driven by Forestry Manager requirements discussed in a number of places in this update. There are some common units (Follow WHS policies and Follow Environmental Care Procedures) but otherwise industry requirements are generally based on the job role; for example, conduct feller buncher operations or conduct forwarder operations but not both. This is also reflected in Safe and Skilled (see above).

**Figure 12: Subject Enrolments in Forest Management, Harvesting and Haulage**



Source: NCVER, TVA Subject Enrolments by Qualification, 2015-2018

## Cross-Sector Units

While cross-sector units may be appropriate for foundation and employability skills, in relation to other skills, they are perceived as too generic and requiring too much contextualisation. This can also compromise industry recognition.

There is concern within the industry that cross sector units, or the requirement to import existing units from other Training Packages will diminish the ideal of “nationally recognised”. A person holding a unit relating to following environmental care procedures from the mining or manufacturing industry, would not have the same knowledge base as a person who has undertaken an environmental care unit relating to forest operations. The main feature of nationally recognised is that employers can see the person is job ready by the Statement of Attainment.

In the last 12 months, the IRCs provided feedback on the development of supply chain cross sector units.

Of the cross sector units developed over the last two years, the units relating to Environmental Sustainability, Teamwork and Communication would be those most likely to align with and be incorporated into the FWP Training Package. This will be undertaken through any current and future projects.

There are a number of skill areas in which the Forest and Wood Products Training Package has cross-over with other industries, and which may be suitable for future revision and development work to transfer to cross-sector units, in collaboration with other industries. These are:

- Fire prevention and management
- Chainsaw operations and tree felling
- Carbon accounting
- Four wheel drive operations

As with many other training packages, there are also units of competency for foundation and employability skills which may be able to be transferred to cross sector skills.

The IRCs with coverage of the Forest and Wood Products Training Package see that there may be opportunity to develop new cross sector units in the following areas:

- Bio-energy, co-generation and bio-char
- Cladding and fire safety product development

## Changes to Skill Requirements

### Forestry operations and fire

Since the last skills forecast it has become apparent that workers in the Forest and Forest Products Industry have additional responsibilities during periods of bushfire that are not part of their day-to-day role. As described earlier, forestry and harvesting operational and support staff are required to assist in fire mitigation, firefighting, and clean-up activities, and they are well placed and equipped to do this work.

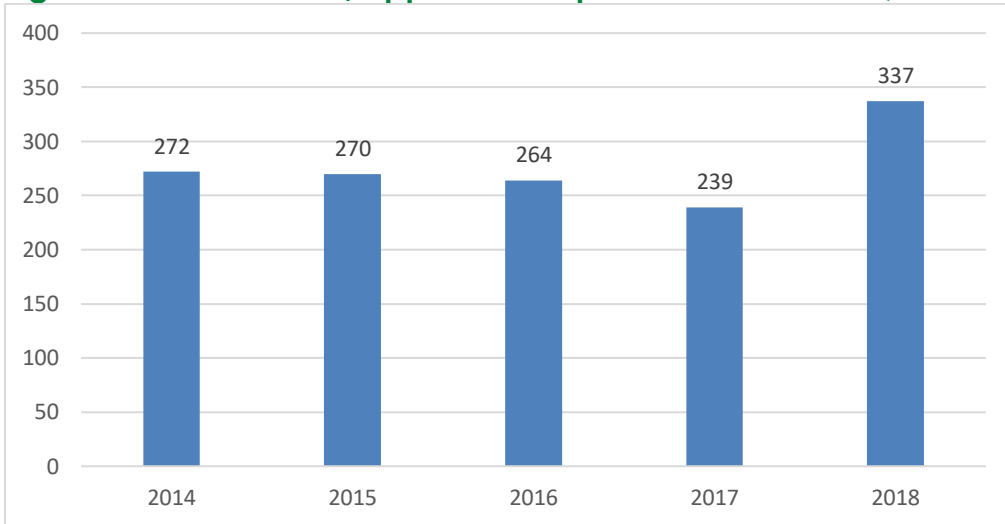
It remains unclear however, if those operators are appropriately trained to undertake this extremely hazardous work. This is covered in more detail in the Project Proposal below and in the section on Bushfires above.

# Apprenticeship & Traineeship Barriers

Most traineeship are at the Certificate III level (93%), in Harvesting and Haulage (33%), Timber Merchandising (16%) and Timber Truss and Frame (16%).

The number of employers taking on trainees in our industry increased in 2018. The growth has largely been driven by a more than doubling in the number of Harvesting and Haulage Trainees.

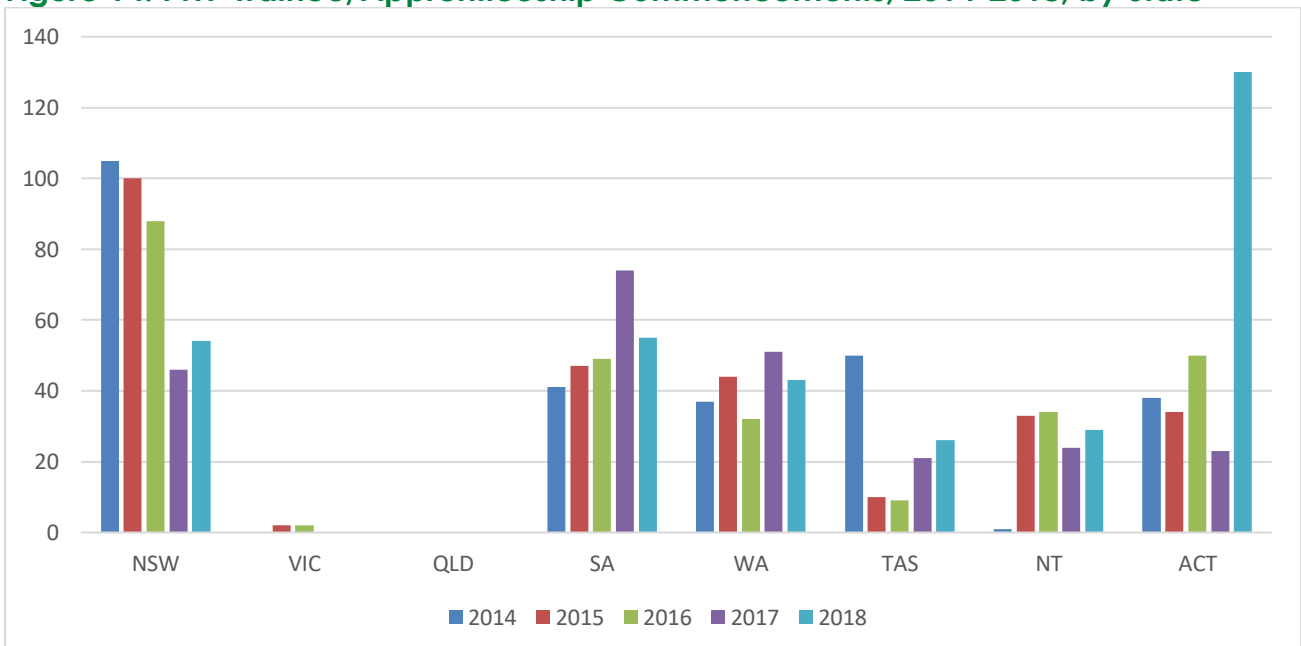
**Figure 13: FWP Trainee/Apprenticeship Commencements, 2014-2018**



Source: NCVER VOCSTATS: Apprentices and trainees

Most apprentices and trainees over the five year period have been in NSW, but in the last year the number of trainees in the ACT has increased fourfold in the last year (and almost triple the five year average). These enrolments are also the source of the growth in Harvesting and Haulage Trainees.

**Figure 14: FWP Trainee/Apprenticeship Commencements, 2014-2018, by State**



Source: NCVER VOCSTATS: Apprentices and trainees

For analysis of school based apprenticeships and vet in schools, see proposed Project 2 on page 47.

## Barriers

There is variation depending on the industry sector, as there are different experiences depending on whether a business is regionally or metropolitan based.

Forest growing and harvesting enterprises are mostly regionally and remotely based. Employment usually occurs locally, without being supported by service providers offering traineeship programs.

Industry have sought to address this barrier by establishing various groups and programs to promote the industry, attract entrants, provide career pathways, and employ young people in their regional areas. As described earlier in this report, examples of these are Arbre in Tasmania and the forestry hubs programs in the Green Triangle and Gippsland.

The ARBRE forestry hub in Tasmania is assisting forest managers and contractors to promote careers and forestry, match businesses and job seekers, provide a training facility with in-field capability, and facilitate traineeships and cadet programs using national qualifications.

Other locally based forest groups are developing partnership models between enterprises, RTOs and schools to deliver school based VET qualifications. For example, in Mt Gambier there has been a school based program established through a partnership between industry, the state department and a Training Provider to deliver Certificate III qualifications from the FWP Training Package.

The project at Section C – Review of lower level qualifications for entry into the industry” will ensure that the FWP Training Package qualifications are the most effective they can be for use by these programs.

Sawmilling, Timber Manufacturing and Merchandising tends to be somewhat less geographically dispersed so is able to utilise traineeship programs and projects more readily. The 2 most active industry owned RTOs, Timber Training Creswick and TABMA Training, service this sector well, however are still significantly impacted by the issues related to thin markets.

## Apprenticeships in FWP

Each of the two FWP qualifications with apprenticeships – the Certificate III Saw Technician and the Certificate III in Woodmachining – only have two RTOs on scope to deliver the qualifications. In 2018, despite the fact that apprenticeships accounted for 54% of enrolments in the Certificate III in Wood Machining and 61% of enrolments in the Certificate III in Sawdoctoring (now Saw Technician), there are still relatively low numbers of learners for these qualifications.

Training providers are working hard to service the industry with these highly specialised qualifications; however, the logistical challenges for the RTOs and employers requires that training must be delivered flexibly to accommodate different times and venues. This sometimes requires that the RTO delivers training on-site and, at other times, delivers to cohorts who have been block released. This is burdensome for the RTO but also the employer.



## Other Relevant Activities

### **Improving Enrolments Project**

This project, jointly funded by ForestWorks and Skills Impact, will identify the reasons for market failures in delivery of nationally accredited qualifications in thin markets.

The project will examine the Pulp and Paper Manufacturing Industry Training Package and Forest and Wood Products Training Package across four dimensions: employers, individual learners or potential learners, RTOs, trainers and assessors.

The project will identify the barriers to enrolments in qualifications and units of competency, considering regional and industry variations, including business size and geographic concentration.

The project will look at underlining causes to the barriers and consider what mechanisms need to be in place to overcome or reduce these barriers.

The project will identify and test the implementation of solutions to reduce barriers to enrolments in qualifications; and generate advice to Government about the best means to address market failures in the examined industries, as well as extrapolating the findings to other thin markets.

## Section B: Ongoing Consultation

Details of industry consultation undertaken by IRC members and Skills Impact, including with rural, regional and remote stakeholders will be included in the final document that is submitted to the Australian Industry and Skills Committee (AISC). Once submitted, the final document will also be published on the Skills Impact website.

# Section C: Proposed New Work

## 2020–2021 Project Details

### Project 1: Review Qualifications to Attract New Entrants

#### Description

In forestry regions around the country, school students should be able to access school-based VET or apprenticeships that provide a career path into a range of forestry roles. This project will work with industry and across State and Territory Governments so that the Certificate II or Certificate III is able to be delivered in a school environment, whilst ensuring there are sufficient and relevant units of competency that provide an overview of the industry, basic technical skills to start working in the industry and basic employability skills.

This project will review two Certificate II qualifications and two Certificate III qualifications in the FWP Training Package to improve pathways into the industry for new entrants, through school-based VET and apprenticeships (school based and otherwise).

It is possible that the project will determine that a number of Certificate II qualifications could be amalgamated into a single general Certificate II qualification with skill sets providing opportunities for specialisation, however this would require closer examination to ensure there are no unintended consequences. The project will also consider the need to retain the Certificate I in Forest and Forest Products, which presently has no uptake in industry.

#### Rationale

##### To attract new entrants

Employment in forestry and logging is projected to remain steady over the five years to 2025<sup>124</sup>. Drivers of employment include the Federal Government's commitment to an additional billion trees as part of their "Growing a better Australia" plan. While it is unclear exactly what impact recent fires will have on employment in the industry in the medium term, we know that there will be intensive replanting of lost plantation stock in the short term as well as salvage harvesting and wood processing.

Despite the consistent demand, a large number of workers will be likely to leave the industry over this period, with the highest represented age cohort in the industry is operators between the ages of 53 and 68.<sup>125</sup>

Research conducted by the Forest and Wood Products Association shows that "Forest and wood products is the most desirable employment industry and outperforms other major primary industries"<sup>126</sup>. However, employers are consistently telling us that a high priority for the industry is attracting young people to careers in forest growing, management and harvesting. This project will look at the lower level qualifications to ensure they support this industry goal.

Between 2014 and 2018 school-based apprenticeships in FWP qualifications have occurred in New South Wales, Queensland and Tasmania. Over this five year period, school-based apprenticeships have increased, but are still low relative to all apprenticeships in the industry.

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<sup>124</sup> IBISWorld, 2019, *Industry Report A0300: Forestry and Logging in Australia Industry Report*

<sup>125</sup> FOLS Database data, extracted 24 February 2020. The FOLS database is a record of operators working in Forests, primarily in Victoria and Tasmania.

<sup>126</sup> FWPA/Pollinate survey data

VET in Schools for FWP qualifications is primarily delivered in Western Australia (121 across Certificate II in Forest Growing and Management and Certificate II in Timber Manufactured Products delivered to people living with a disability), with relatively small numbers of Vet in Schools participants in Tasmania (19 – mainly Certificate III in Harvesting and Haulage), NSW (18 – mainly Certificate II in Sawmilling and Processing) and Queensland (10 – Certificate III in Sawmilling and Processing and Certificate II in Timber Manufactured Products).

Qualification	School Based Apprenticeships	Other Apprenticeships	VET in schools
Certificate I in Timber Manufactured Products	2 (QLD)	-	-
Certificate I in Timber Merchandising	1 (QLD)	-	-
Certificate II in Forest Growing and Management	2 (Tas)	-	55
Certificate II in Harvesting and Haulage	1 (NSW)	-	2
Certificate II in Sawmilling and Processing	6 (NSW)	39	13
Certificate II in Timber Manufactured Products	-	23	100
Certificate II in Timber Merchandising	-	3	-
Certificate II in Timber Truss and Frame Design and Manufacture	-	3	-
Certificate III in Forest Growing and Management	-	33	1
Certificate III in Harvesting and Haulage	4 (Tas)	453	14
Certificate III in Sawmilling and Processing	4 (Qld)	126	7
Certificate III in Sawdoctoring	3 (Qld)	65	-
Certificate III in Timber Manufactured Products	-	40	-
Certificate III in Timber Merchandising	-	227	-
Certificate III in Woodmachining	-	80	-
Certificate III in Timber Truss and Frame Design and Manufacture	-	217	-

Industry is committed to responding to this challenge, and different forestry regions are taking different approaches.

In Tasmania, the Arbre Forest Industries Training and Careers Hub offers a Forestry Cadetship program in partnership with industry, including Forico and Sustainable Timber Tasmania. They recruit from Tasmanian schools and colleges through an Australian Schools based Apprenticeship. Students undertake the Certificate II in Forest Growing and Management, with the opportunity to come into the business full-time at the end of year 12. The industry is looking to expand the program into harvesting and haulage sectors. They have had particular success in placing participants in ongoing employment

In South Australia, OneFortyOne is working with the Department of Industry, the Logging Industry Training Association (LITA) and the Forest Industries Training Network (FitNet) to provide opportunities to undertake competencies from the Certificate III courses in Forest Growing and Management, Harvesting and Haulage and Sawmilling and Processing training packages to provide access to pathways into the industry.

In Queensland, discussions are ongoing between SunChip, Timber Queensland and the State Government to establish a training hub in Maryborough.

In New South Wales the South-West Slopes Regional Forestry Hub is commencing a number of projects, one of which is to attract new entrants to the industry.

In Victoria, industry representatives have repeatedly noted that better links between local and regional employers need to be established with secondary schools and the subjects offered in the VCAL stream at secondary school needs to reflect the local employment market. There are currently no Forestry qualifications offered in secondary school in Victoria despite significant regional employment opportunities in this industry.

Given the interest from Industry and the local employment markets there is a very real opportunity to effect change to insert Forestry qualifications into VCAL system. Challenges to date have been identified as including: remoteness of regions; lack of resources in both local employers and local schools; lack of understanding of the benefits of employment in this industry amongst careers advisors, parents and students and lack of local qualified providers.

The IRC notes that there are particular challenges with delivering some FWP qualifications in a school environment. This includes in what circumstances hand-held equipment like chainsaws and nail guns can be used. There is also a question about how to provide relevant experience and use of multi-million dollar pieces of equipment like a single-grip harvester, and the extent to which units requiring experience with a simulator would be an acceptable or desirable alternative. Some employers have also raised concerns about whether the breadth of the current qualifications prevents regional RTOs putting these qualifications on scope.

## Ministers' Priorities Addressed

### ***Obsolete and duplicate qualifications removed from the system***

This project will examine whether there remains a need for the Certificate I in Forest and Forest Products and look at whether amalgamating some Certificate II courses will provide better access to career pathways for young people.

### ***More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices***

This project will ensure that there are consistent and industry agreed qualifications suitable for school based and entry pathways into the forestry sector.

### ***The training system better supports individuals to move more easily between related occupations***

This project will support individuals to gain a good understanding of career pathways within and between different sectors of the industry as well as related industries like horticulture, agriculture and civil construction.

### ***Improved efficiency of the training system through units that can be owned and used by multiple industry sectors***

This project will review the makeup of entry level qualifications for the forestry sector and ensure units of competency meet industry need and provide opportunities for young people to pursue related occupations including public safety, horticulture and agriculture.

## Consultation Plan

Under the guidance of the Forest Management and Harvesting IRC, this project will consult with:

- Forest Managers and harvesting contractors (including but not limited to)
  - OneFortyOne Plantations (Qld)
  - Timberlands (Tas)
  - HVP (Vic)
  - Sustainable Timber Tasmania (Tas)
  - Sunchip Group (Qld)
  - GMT Logging and other harvesting contractors (Qld)
- Organisations who are running programs to attract young people to the industry – including ARBRE Forestry (Tas) and Forest Industries Training Network (FITNet)
- Schools in forest growing areas of Australia
- Peak industry associations and employee associations
- Government forest agencies – Vic Forests, State Forest NSW, Forest Practices Corp WA, Sustainable Timbers Tasmania, Queensland Department of Agriculture and Fisheries
- Regional Forestry Hubs
- Relevant RTOs providing services to industry in this area

## Scope of Project Overview

12 Months

### Summary of Components

The project will review 5 qualifications that relate to pathways into the forest growing and management; and harvesting and haulage sectors of the industry.

- FWP10116 Certificate I in Forest and Forest Products – proposed for deletion
- FWP20116 Certificate II in Forest Growing and Management
- FWP20216 Certificate II Harvesting and Haulage
- FWP30116 Certificate III in Forest Growing and Management
- FWP30216 Certificate III in Harvesting and Haulage

The project will review 40 units of competency that relate to these pathways. A new unit of competency relating to operating a harvesting simulator will be developed and incorporated.

- FWPCOR2201- Work effectively in the forest and forest products industry
- FWPCOR2203- Follow environmental care procedures
- FWPCOR2204- Follow fire prevention procedures
- FWPCOR2205- Follow WHS policies and procedures
- FWPCOR3201- Implement safety, health and environment policies and procedures
- FWPCOR3203- Evaluate fire potential and prevention
- FWPCOT2220- Select trees for tending operations
- FWPCOT2233- Navigate in forest areas
- FWPCOT3202- Navigate in remote or trackless areas
- FWPCOT3222- Present forestry information and interpretations programs
- FWPCOT3255- Apply silvicultural principles
- FWPCOT3257- Follow cultural heritage requirements
- FWPCOT3259- Operate a four wheel drive on unsealed roads
- FWPCOT3260- Recover four wheel drive vehicles
- FWPCOT3263- Maintain and contribute to energy efficiency
- FWPFGM2201- Collect seed
- FWPFGM2202- Prepare seedbed
- FWPFGM2203- Plant trees by hand
- FWPFGM2204- Plant trees mechanically
- FWPFGM2205- Prune trees
- FWPFGM2206- Collect data or samples for assessment
- FWPFGM2207- Undertake brushcutting operations
- FWPFGM2209- Cut, sort and set cuttings
- FWPFGM2211- Detect fires
- FWPFGM2212- Graft cuttings
- FWPFGM2213- Process seed
- FWPFGM2214- Maintain visitor sites
- FWPFGM2215- Measure trees
- FWPFGM3201- Manage seed collection
- FWPFGM3202- Extract seed
- FWPFGM3203- Conduct an instrument survey



- FWPFGM3206- Plan and implement non-commercial thinning operations
- FWPFGM3207- Coordinate stem improvement
- FWPFGM3210- Patrol forest
- FWPFGM3211- Manage coppice stems
- FWPFGM3214- Operate a four wheel drive in a towing situation
- FWPFGM3215- Perform complex 4x4 operations
- FWPHAR2205- Conduct mobile splitting operations
- FWPHAR3210- Conduct mechanical processor operations
- FWPHAR3213- Conduct mechanically assisted tree falling operations

# Project 2: Review of High-Level Jobs in Forestry

## Description

This project will examine the job roles of foresters and related occupations, and review and rationalise existing qualifications in the Forest and Wood Products Training Package.

## Rationale

This project proposes a comprehensive analysis of skills and knowledge required by foresters and related job roles to manage public and private forests, from large to small, for economic and sustainability purposes.

The project will involve the review of three high level FWP qualifications for forest management and operations and 52 units of competency as shown in section below. It is expected the number of qualifications will be reduced.

The project will also finalise the work and development of six new units of competency that cover skills required to use digital and spatial technology for forest and resource management and it will identify if and what skills sets are appropriate for these job roles.

This review is driven by:

- a greater focus on timber resources derived from private forests due to the reduction of yield from the public forest estates and the need to develop skills that support the private forest owners to use and add sustainable value to this forest resource
- outdated higher-level qualifications for forest management operations, including the Certificate IV, Diploma and Advanced Diploma. They have not been reviewed since 2011 when they were developed
- a continuous shortage of foresters nationwide and lack of tertiary education programs for these job roles in Australia.

The above are supported by the following evidence.

An industry project led by AFCA recognises the need for a range of forest management skills in the industry and is working towards developing non accredited industry-based training programs to support this skill need across small private forest and harvesting businesses. The identified skill needs include specific aspects of environmental forest management, safety leadership, business management, people practices and leadership and application of and preparation for Forest Certification.

The 2019-2020 FWP Training Package Project, New Harvesting Technologies, has also identified that our foresters are required to use a range of digital and spatial technologies involving tasks such as planning, programming and interpreting data and the current qualifications does not support these skill needs. As a result, industry stakeholders provided information and supported the development on six new units of competency which were deferred until this proposal is approved to cover development of digital forest operational maps, development of cutting instructions files for forestry harvesters, management and analysis of harvesting optimisation data, collection of forestry data using unmanned aerial vehicle (UAV) and interpretation and use of image data in forestry planning and management.

There are three TAFE organisations who deliver these qualifications in NSW, Tasmania and WA and two industry-owned RTOs. Tertiary education has struggled to play a role in supporting future foresters. Only one university delivers a course of Master of Forest Science and Management in South Australia. Many specialist forestry and agriculture courses were integrated into general science undergraduate degrees, leading to a decline of adequately trained foresters.

Foresters continue to be an occupation in demand and often the gaps are filled by agricultural specialists and foresters imported from South Africa and New Zealand who need to be trained in the Australian forests' context.

The number of enrolments in the Certificate IV and Diploma shows a relatively low uptake of these qualifications over the last five years, on average 49 and respectively 26 enrolments each year. The uptake may seem consistent with the total number of foresters employed in Australia (approximately 500 people) but the skill gaps and shortage identified above indicate the need for improving these qualifications so that they better reflect industry job roles and occupations.

The Advanced Diploma has been underutilised, which may suggest no need for this qualification once the Certificate IV and Diploma will be redeveloped and fit for purpose.

## Ministers' Priorities Addressed

### ***Obsolete and duplicate qualifications removed from the system***

This project will determine if there remains a need for the Advanced Diploma in Forest Industry Sustainability and consider job roles and employment pathways for higher level jobs within the industry.

### ***More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices***

This project will ensure that there are consistent and industry agreed qualifications suitable for entry and career pathways in forestry operations.

### ***The training system better supports individuals to move more easily between related occupations***

This project will support individuals career pathways within the industry and entry points from related industries like horticulture and agriculture.

### ***Improved efficiency of the training system through units that can be owned and used by multiple industry sectors***

This project will review the makeup of higher level qualifications for the forestry sector and ensure units of competency meet industry need. It is expected that a number of imported and cross sector units will be incorporated into the qualifications.

### ***Foster greater recognition of skill sets***

This project will consider the development of a suite of skills sets which may replace under utilised qualifications.

## Consultation Plan

Under the guidance of the Forest Management and Harvesting IRC, this project will consult with:

- Forest Managers and Contractors
  - Forico
  - AKS Forestry Solutions
  - HVP
  - PF Olsen
  - Timberlands
  - HQ Plantations
- State Government departments responsible for forestry operations
  - Vic Forests
  - Queensland Department of Agriculture and Fisheries
  - NSW Forestry Corp
  - Sustainable Timbers Tasmania
  - WA Forest Products Commission
- Industry stakeholder groups with a focus on safety
  - Tasmanian Forest Industry WHS Committee
  - NSW Forest Industry Council

## Scope of Project Overview

12 months

## Summary of Components

This project will develop the following FWP Training Package components:

### Qualifications to be revised (3)

- FWP40116- Certificate IV in Forest Operations
- FWP50116- Diploma of Forest and Forest Products
- FWP60116- Advanced Diploma of Forest Industry Sustainability

### New units of competency to be developed

- FWPCOT4XXX Process and interpret harvester and forwarder optimisation data
- FWPFGM4XXX Create cutting instruction files for forestry harvesters
- FWPFGM4XXX Create digital forest operational map
- FWPFGM4XXX Interpret and use image data in forestry planning and management
- FWPFGM4XXX Plan unmanned aerial vehicle (UAV) collection of forestry data
- FWPFGM4XXX Quality assure forestry data acquisition by unmanned aerial vehicle (UAV)

### Units of competency to be revised (52)

- FWPCOR4202- Monitor and review forestry operations
- FWPCOR6201- Manage sustainability in the workplace
- FWPCOR6202- Implement practices to maximise value from wood residues
- FWPCOT4208- Implement workplace sustainability practices
- FWPCOT5201- Implement sustainable forestry practices
- FWPCOT5202- Manage forestry information and interpretations programs
- FWPCOT5203- Manage installation and commissioning of equipment
- FWPCOT5204- Organise enterprise maintenance programs
- FWPCOT5205- Develop biohazard contingency plans
- FWPCOT5206- Implement forestry chain of custody certification system
- FWPCOT5207- Implement sustainability in the workplace
- FWPCOT5208- Build and maintain community relationships
- FWPCOT5209- Manage tree harvesting to minimise environmental impact
- FWPCOT6201- Manage community engagement
- FWPCOT6202- Develop and manage a forestry chain of custody certification process
- FWPCOT6204- Use carbon accounting to estimate emissions
- FWPCOT6205- Prepare an enterprise carbon management report
- FWPCOT6207- Develop forest management systems and processes
- FWPCOT6208- Manage innovative thinking and practice in the forest and wood products industry
- FWPCOT6209- Manage forest and wood products industry research
- FWPCOT8101- Lead forest and wood products industry innovative thinking and practice
- FWPCOT8102- Initiate and lead a forest and wood products industry innovation
- FWPFGM4201- Implement a forest establishment plan
- FWPFGM4202- Manage stand health
- FWPFGM4203- Design plantations
- FWPFGM4204- Conduct a pests and diseases assessment

- FWPFGM4205- Monitor regeneration rates
- FWPFGM4206- Conduct a wood volume and yield assessment
- FWPFGM4207- Conduct a forest site assessment
- FWPFGM4208- Plan a quarry
- FWPFGM4209- Interpret and use aerial photographs for forest management
- FWPFGM4210- Prepare a tender
- FWPFGM5201- Plan and manage an inventory program
- FWPFGM5208- Manage road construction and maintenance
- FWPFGM5210- Manage tending operations in a native forest
- FWPFGM5211- Coordinate stand nutrition
- FWPFGM5212- Manage genetic resources
- FWPFGM5213- Coordinate plantation tending operations
- FWPFGM5214- Develop a native forest regeneration plan
- FWPFGM5215- Breed Trees
- FWPFGM5216- Manage coupe planning
- FWPFGM5217- Promote plantations as a sustainable form of land use
- FWPFGM5219- Undertake carbon stock sampling of forests and plantations
- FWPFGM6201- Plan a biochar storage system for carbon capture and storage
- FWPFGM6203- Manage sustainable tree inventory
- FWPHAR4201- Apply tree jacking techniques
- FWPHAR4202- Coordinate log recovery (hook tender)
- FWPHAR4203- Design log landings and snig tracks
- FWPHAR4204- Plan and coordinate fire salvage operations
- FWPHAR4205- Implement harvesting plans
- FWPHAR5201- Design harvesting plans
- FWPTMM5202- Develop, trial and evaluate prototypes

# Project 3: Safety Mindsets in Remote Operations

## Description

This project will develop a skill set and up to 2 new units of competency relating to shaping and sustaining safety culture and practices whilst working in remote high-risk operations.

The skill set and new units will be targeted at operators, rather than supervisors or managers, and will focus on how an individual can influence the safety culture of a small peer-group team. The units will be nominally aligned to AQF level 3.

## Rationale

As indicated previously, Safe work Australia statistics indicate that there were 18 fatalities in the Australian forestry and logging industry between 2012 and 2016. Given the comparatively small size of the industry, this means that forestry and logging workers are almost two and a half times more likely to have a fatal injury at work than road freight transport drivers and 17 times more likely than construction workers. Between 2012 and 2016:

- a fatality was sustained by 1 in every 2000 forestry and logging workers;
- a serious injury was sustained by 45 in every 2000 forestry and logging workers (1 in every 44).<sup>127</sup>

Forest Harvesting and Haulage Contractors work in small teams, sometimes only with two-way radio contact and on sites that are often difficult to access for emergency personnel. Working in remote areas requires a different set of safety skills than operating in a manufacturing site, on a construction site or in another location where medical assistance is only a phone call away. This is recognised, for example, by the Queensland Department of Agriculture and Fisheries which will soon require harvesting contractors to show evidence that they have effective safety management systems that address (amongst other things) – lone and remote working. The proposed units of competency would be developed so that it met this need.

In response to the industry's unique safety challenges, the Forest Management and Harvesting IRC believes that programs like "Be a Safety Legend" should be incorporated into the FWP Training Package. To understand and practice safety mindsets and leadership in remote operations, workers need units of competency that include the following aspects:

- Remote high risk operations
- Shaping and sustaining safety culture in remote high risk operations
- Maintaining safe mindsets and practices in remote operations
- Establishing and maintaining safety monitoring systems in remote operations
- Adapting operations as a result of weather conditions
- Being responsive to and aware of surrounds (fire, landslides, topography)
- Unauthorised people entering forestry operations area
- Making considered safety decisions in remote areas
- Working alone or in small teams
- Having your own Safety Mindset in the context of remote high risk operations
- Recognising and influencing other people's safety mindsets in the context of remote high risk operations
- Noticing own and others well-being – mental health first aid
- Managing fatigue in remote high risk operations
- Adapting emergency procedures for remote high risk operations
- Communication whilst working in remote high risk operations
- Maintaining concentration over long periods of time in remote high risk operations

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<sup>127</sup> Safe Work Australia, 2020, *Forestry work*, viewed April 2020 <[https://www.safeworkaustralia.gov.au/industry\\_business/forestry-work](https://www.safeworkaustralia.gov.au/industry_business/forestry-work)>



In response to concerns the AISC has raised previously about existing units, the IRC has reviewed 47 units that relate to safety, leadership, well-being and first aid for job roles operating in remote areas. None of these units address all the aspects of safety and leadership described above. The existing WH&S units in the FWP Training Package do not adequately deal with these matters either. There is an unmet industry need for specialised units which will develop and maintain a safety mindset in remote high risk operations.

Forest Workers are required to be working alone for long periods of time. As has been powerfully described to us, being alone in the cabin of a harvester for extended periods can have a severe impact on someone, particularly if they are not in good mental health to begin with. WH&S committees have identified the critical need for all members of these small teams to be competent in mental health first aid. The Tasmanian Forest Industry Work Health and Safety Committee, comprising representatives of AKS Forestry Solutions, Technical Forests Services, Forico, and Sustainable Timbers Tasmania has discussed the ongoing urgent need for mental health awareness training as a result of a recent spike in the number of operator suicides. Similar concerns have been raised at industry meetings in Victoria.

This project will also ensure elements providing mental health first aid competencies are reflected in the units under development, addressing identified gaps in current competencies.

This project will also consider the development of a skill set relating to safety mindsets in remote operations which would include any new units developed, and other relevant units from the FWP and other training packages.

The IRC believes that the context in which an individual is developing skill is of significance. The International Leadership Association publishes a framework about leadership education – the first part of the framework is context. The framework notes that it is important to be explicit about context as there can be considerable differences in the knowledge that underpins skills depending on the context in which the learning occurs.

## Ministers' Priorities Addressed

### ***More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices***

This project is seeking to develop units that meet industry's specific needs for training to be in the context of remote operations. Whilst recognising that these skills will be relevant to some other industries, there is a strong need for the training to be safety leadership training that operators can relate to.

### ***The training system better supports individuals to move more easily between related occupations***

The IRC believes that these units will develop important skills that are readily transferable to other occupations operating in remote regions including conservation and land management, mining, agriculture and telecommunications.

### ***Improved efficiency of the training system through units that can be owned and used by multiple industry sectors***

The IRC believes that these units will be appropriate for incorporation into other Training Packages such as Public Safety (PUA), Resources and Infrastructure (RII), Information and Communications Technology (ICT), Agriculture, Horticulture and Conservation and Land Management (AHC).

### ***Foster greater recognition of skill sets***

This project will develop a skill set related to safety mindsets in remote operations.

## Consultation Plan

Under the guidance of the Forest Management and Harvesting IRC, this project will consult with:

- Forest Managers and Contractors
  - Forico
  - AKS Forestry Solutions
  - HVP
  - PF Olsen
  - Timberlands
- State Government departments responsible for forestry operations
  - Vic Forests
  - Queensland Department of Agriculture and Fisheries
  - NSW Forestry Corp
  - Sustainable Timbers Tasmania
  - WA Forest Products Commission
- Industry stakeholder groups with a focus on safety
  - Tasmanian Forest Industry WHS Committee
  - NSW Forest Industry Council

## Other Relevant Information

This project provides skills development that are included in the “Generic Skills” categories of Managerial/Leadership skills

## Scope of Project Overview

This project will develop units of competency and skill set for Forestry Safety Leaders.

# Project 4: Assessment Materials

## Description

This project will develop assessment materials to support safer work practices in the forest harvesting sector. Assessment materials for 40 units of competency have been identified on the basis that these units are used by industry in their compliance programs.

These assessment instruments will be developed with industry and all registered training organisations (RTOs) with the relevant units on scope. They will incorporate, moderate and validate content relating to a broad range of forest types and jurisdictional codes of practice. The outcomes of this project will include a validation plan according to NVR standard requirements to ensure the assessment instruments can be regularly reviewed. Responsibility for compliance with the standards will remain with the RTOs using the instruments.

This project is proposed by the Forest Management and Harvesting Industry Reference Committee. It is supported by the Timber and Wood Processing, and Timber Building Solutions IRCs. The IRCs reiterated the need for these materials at meetings held in early April 2020.

## Rationale

### Improving safety

Consistent skills standards are particularly important for job roles which are inherently dangerous.

Safe Work Australia statistics indicate that there were 18 fatalities in the Australian forestry and logging industry between 2012 and 2016. Given the comparatively small size of the industry, this means that forestry and logging workers are almost two and a half times more likely to have a fatal injury at work than road freight transport drivers and 17 times more likely than construction workers. Between 2012 and 2016:

- a fatality was sustained by 1 in every 2000 forestry and logging workers
- a serious injury was sustained by 45 in every 2000 forestry and logging workers (1 in every 44).<sup>128</sup>

Workers performing job roles in the harvesting and haulage sector supported by the FWP20216 Certificate II in Harvesting and Haulage and FWP30216 Certificate III in Harvesting and Haulage, will work for different contractors and different forest managers at different times. Forest Managers are increasingly using evidence of attainment of nationally recognised units of competency to ensure that their contractors and employees are qualified to perform these dangerous roles. These are used throughout the industry as the basis for safety management systems.

However, workplace based training and assessment remains the most common form of skills development in the Forest Management and Harvesting sector. Training is mostly on the job, with an RTO auspiced assessor conducting workplace assessment.

Given the 'assessment only' model, standardised assessment instruments would ensure there is consistent formal recognition of industry skills development. This in turn would improve industry confidence in the training and assessment process.

This project:

- Supports safer workplaces through consistent training and assessment standards.
- Supports existing employees, new employees, and employees returning to the industry
- Will drive enrolments in the related units of competency
- Builds industry support for nationally recognised training that demonstrably meets business objectives

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<sup>128</sup> Safe Work Australia, 2020, *Forestry work*, viewed April 2020 <[https://www.safeworkaustralia.gov.au/industry\\_business/forestry-work](https://www.safeworkaustralia.gov.au/industry_business/forestry-work)>

## Ministers' Priorities Addressed

### ***More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices***

By engaging employers, as well as RTOs, in the development of assessment instruments, assessment instruments will better reflect employers' expectations of the standards met by their workforce. This in turn could expect to build industry confidence in the delivery of training and assessment.

### ***The training system better supports individuals to move more easily between related occupations***

Units in this project are imported into other training packages for use by the arboriculture, horticulture, public safety and agriculture industries.

### ***Foster greater recognition of skill sets***

This project will foster recognition of the following skills sets, which are related to industry compliance programs and safety management systems:

- FWPSS00032 - Skill set for a crawler tractor operator
- FWPSS00033 - Skill set for a feller buncher operator
- FWPSS00026 - Skill set for a forestry log truck driver
- FWPSS00027 - Skill set for a forestry produce truck driver
- FWPSS00034 - Skill set for a forwarder operator
- FWPSS00014 - Skill set for a heavy production mobile chipper operator
- FWPSS00035 - Skill set for a loader operator
- FWPSS00016 - Skill set for a mechanical processor operator
- FWPSS00017 - Skill set for a native forest operator
- FWPSS00018 - Skill set for a plantation forest operator
- FWPSS00036 - Skill set for a single grip harvester operator
- FWPSS00037 - Skill set for a skidder operator
- FWPSS00038 - Skill set for an excavator with log grapple operator
- FWPSS00024 - Skill set for soil and water protection (roading)

## Consultation Plan

Under the guidance of the Forest Management and Harvesting IRC, this project will consult with:

- Forest Managers and Contractors
- Vic Forests
- TAS Forest Practices Authority
- AKS Forestry Solutions
- Forestry Corp of NSW
- HVP
- Harvesting Contractors including those identified by the Australian Forest Contractors Association
- PF Olsen

The project would also work closely with the 12 industry RTOs with Certificate II and III in Harvesting and Haulage on scope and the Australian Timber Trainers Association (ATTA) which is a national network of trainers and assessors working in the industry. Engagement with the training providers will facilitate adoption by the training sector of the assessment standards that industry expects.

## Other Relevant Information

In December, the AISC indicated that the COAG Skills Council had asked for how industry could contribute to the implementation of 10 agreed actions. This project will enhance the implementation of the FWP training package by reviewing and improving the range of instruments that support the delivery of industry standards.

Industry has a draft set of assessment instruments that were developed through RTO networks between 2000 and 2015. This project will update those materials to align to the most recent versions of the units of competency. A number of the units have been modified significantly as a result of optimisation processes in machinery operations.

## Scope of Project Overview

The project is anticipated to be carried out between June 2020 and June 2021.

## Summary of Components

Assessment instruments will be developed for the following 40 units of competency:

- FWPHAR3227 Operate forwarder
- FWPHAR3226 Operate feller buncher
- FWPHAR3224 Operate crawler tractor
- FWPHAR3229 Operate single grip harvester
- FWPHAR3230 Operate skidder
- FWPHAR3210 Conduct mechanical processor operations
- FWPHAR3231 Operate Yarder
- FWPCOT2224 Segregate and sort logs
- FWPCOT3270 Grade and mark logs
- FWPHAR3222 Use on-board computer systems for forwarder
- FWPHAR3223 Use on-board computer systems for single grip harvester
- FWPCOT2226 Debark logs mechanically
- FWPHAR3225 Operate excavator with log grapple
- FWPHAR3228 Operate loader
- FWPCOR2204 Follow Fire Prevention Procedures
- FWPHAR3220 Harvest Trees Manually (Intermediate)
- FWPHAR3221 Harvest Trees Manually (Advanced)
- FWPCOT2237 Maintain Chainsaws
- FWPHAR2207 Trim and Cut harvested trees
- FWPCOT3259 Operate a four-wheeled drive on unsealed roads
- FWPCOT3260 Recover four wheel drive vehicles
- FWPFGM3215 Perform Complex 4x4 Operations
- FWPCOR2203 Follow environmental care procedures
- FWPCOR2205 Follow OHS Policies and Procedures
- FWPCOR3202 Conduct Quality and Product Care Procedures
- FWPCOR4203 Monitor Product Quality and Care Procedures
- FWPCOT3261 Transport forestry logs using trucks
- FWPCOT3262 Transport forestry produce using trucks
- FWPFGM3212 Fall trees manually intermediate
- FWPFGM3213 Fall trees manually (advanced)

- FWPCOT2236 Fall trees manually (basic)
- FWPCOT2238 Cut Materials with a hand held Chainsaw
- FWPCOT3238 Operate a pole saw
- FWPCOR2201 Work effectively in the forest and forest products industry
- FWPCOR2202 Communicate and Interact Effectively In The Workplace
- FWPCOR3201 Implement safety health and environment policies and procedures
- FWPCOR4201 Monitor safety health and environment policies and procedures
- Unit to be determined
- Unit to be determined
- Unit to be determined



# Project 5: Responding and Assisting in Bushfires

## Description

This project will undertake a job function analysis to determine any changes required to the FWP Training Package as a result of changes to the roles performed by forest operators resulting from their work in fire prevention, firefighting and fire recovery, in both native and plantation forestry.

The project will examine the roles played by forestry operators in bushfires in relation to machinery operations, tree felling, salvage operations and hazard reduction activities.

## Rationale

### Change in job roles

The frequency and intensity of bushfires in Australia is expected to increase. As has been apparent during previous fire seasons, including the most recent one, fires often burn in areas of significant forestry resource – both plantation and hardwood.

Harvesting and haulage contractors provide assistance in fire mitigation, firefighting, clean up and clearing operations. This is primarily because of their expertise in the heavy machinery used in both harvesting operations and fire-fighting.

The precise changes required to job functions require the analysis to be conducted as part of this project, however areas that are likely to be relevant are:

- Establishing fire breaks using machinery
- Carry out road clearing and conduct clean up using machinery and chainsaws
- Removal of dangerous trees
- Fire prevention procedures during forestry activities
- Planning and re-establishing plantation forests
- Undertaking salvage operations
- Conduct mechanical thinning operations for hazard reduction

## Consultation Question – are there other types of operations that forestry operators are undertaking in firefighting that use skills additional to those used in ordinary forestry operations?

The Forest Management and Harvesting IRC are committed to ensuring the safety of harvesting contractors undertaking these operations. Given the anticipated increase in fire related events, operators need to be effectively trained and ready to respond and assist. It is important that units of competency and qualifications in this sector reflect the need to undertake operations not just in harvesting operations, but also in firefighting assistance.

Advice from industry is that effective firefighting through the creation of fire breaks well ahead of the fire front will increase each fire season.

Reduced capability to conduct hazard reduction burning has contributed to the severity of the fires in the 2019-2020 season. With a declining window for conducting hazard reduction burning, it is likely that there will be increased demand for mechanical hazard reduction. This will be a consideration in the Federal Government's Royal Commission. Further, the Tasmanian Government has recently announced that they will make it easier to use mechanical fuel reduction to complement prescribed burns as a bushfire mitigation tool. There is a need to review the existing unit related to mechanical thinning and test if it is fit for purpose for these hazard reduction activities.

The project will also consider the area of fire salvage operations. There is a current unit FWPCOT3252 Use environmental care procedures to undertake fire salvage operations however there are no current national units for planning or undertaking fire salvage operations safely. There are non-current state-based units that could be reviewed and developed.

The functional analysis will consider seek advice from industry specialists regarding potential improvements to existing units including dangerous tree assessment in the tree-felling units.

Fire salvage operations are time sensitive – there is only a small window of time to carry out the operations before the timber from burnt trees is not salvageable. This creates a unique difficulty where by the time salvage skills are required, there is no time to develop them. This project will consider how the industry workforce maintains its skills in this area on an ongoing basis.

In addition to consideration of skills impacts in forestry operations, the project will also consider the training required by sawmilling, timber processing and manufactured products sites in the preparation of assets in defence of bushfire. Many of these sites are located in regional areas, often in very close proximity to forests.

It is anticipated that there will be a range of reviews carried out in the coming months including at enterprise, industry, state and national levels, including a Royal Commission. The Forest Management and Harvesting IRC will closely monitor these reviews to gain insights into the additional skills needs for forest operators undertaking vital work to assist in bushfire prevention response and recovery.

## Ministers' Priorities Addressed

### ***Obsolete and duplicate qualifications removed from the system***

Nil identified

### ***More information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed choices***

This project will ensure that Training Package components reflect industry requirements in this area.

### ***The training system better supports individuals to move more easily between related occupations***

This project may assist in this area as it will potentially provide skills outside of current job role activities being undertaken by forestry and harvesting operators.

### ***Improved efficiency of the training system through units that can be owned and used by multiple industry sectors***

This project will ensure there is no duplication of units from other Training Packages (such as PUA Public Safety)

### ***Foster greater recognition of skill sets***

This project will possibly determine a need for skill sets in the areas outlined above.

## Consultation Plan

The Forest Management and Harvesting IRC will guide a consultation process with all relevant stakeholders.

Consultation will be with:

- Forest Managers in both native and plantation forestry
- Government forest agencies – Vic Forests, State Forest NSW, Forest Practices Corp WA, Sustainable Timbers Tasmania, Queensland Department of Agriculture and Fisheries
- Private Forest Managers – including but not limited to HVP, OneFortyOne, Timberlands, PF Olsen
- Forest Contractors through the Australian Forest Contractors Association
- Australian Forest Products Association
- Other relevant government departments, agencies and bodies
- DELWP, NSW State Forests, CFA, NSW RFS and other state based fire organisations
- Other relevant IRCs including Public Safety, Conservation and Land Management

- Relevant RTOs providing services to the industry in this area
- Regional Forestry Hubs

### **Scope of Project Overview**

This functional analysis would be carried out in the second half of 2020 due to the current industry focus on recovery operations.

### **Summary of Components**

This project will undertake a functional analysis to determine the need for any changes to the FWP Training Package components.