# The Net Zero Transition: how hard will it be for workers in coal mines to find new jobs?

Research Note
21 August 2023

MANDALA

# How hard will it be for workers in Australian coal mines to find new jobs as the global energy transition unfolds?

## Why it matters

- The global energy transition will fundamentally change the composition of the Australian economy. This change will be felt sharply in coal mining. Government forecasts predict that Australia's coal exports will fall by 50-80% in volume over the next two decades.[1]
- Workers in some occupations will be able to find new jobs easily within their existing occupation and existing location. But other workers will need to relocate, retrain and reskill to find new work. Understanding these differences will help governments and businesses to better target supports to the individuals and communities that need it most. Critically, it underscores the need for a coordinated and strategic approach.

## What we did

- We studied a coal mine in New England as a case study. We used microdata on job advertisements to estimate how long it will take workers to find new jobs if the mine closes based on their occupation and whether they have to relocate within NSW or nationally. We do this through a two-step methodology:
    1. We measure how many workers are employed in the coal mine and break down those workers by occupation and location for the 12 biggest occupations.
    2. We consider a scenario where the mine hypothetically closed seven years ago. We then use microdata on job advertisements to see how long it takes those workers to find new jobs based on their occupation and whether they are required to relocate within NSW or nationally to find a new job.

## What we found

- Our analysis assumes no additional policy interventions to support the transition and no active management of the workforce disruption.
- If workers do not relocate, 28% of workers in the 12 biggest occupations find a new job within one year, 35% find a new job within two years, 39% find a new job within three years and 43% find a new job within four years. This means that 57% of workers don't find a new job even after 4 years.
- If workers are willing to relocate to somewhere else within NSW, 52% find a job in one year, 67% in two years, 85% in three years and 100% in four years.
- If workers are willing to relocate to anywhere in Australia, 98% find a job in one year and 100% find a job in two years.
- Across all scenarios, motor mechanics and metal fabricators have the easiest time finding new jobs, followed by truck drivers, fitters, electricians, shotfirers (explosives) and mechanical engineers. Those who struggle the most find new jobs are miners, mine deputies, production managers, mining engineers and drillers.

Sources: (1) NSW Department of Treasury (2021) *The sensitivity of the NSW economic and fiscal outlook to global coal demand*.

# Climate risks result in a significant reallocation of capital away from mining and towards services

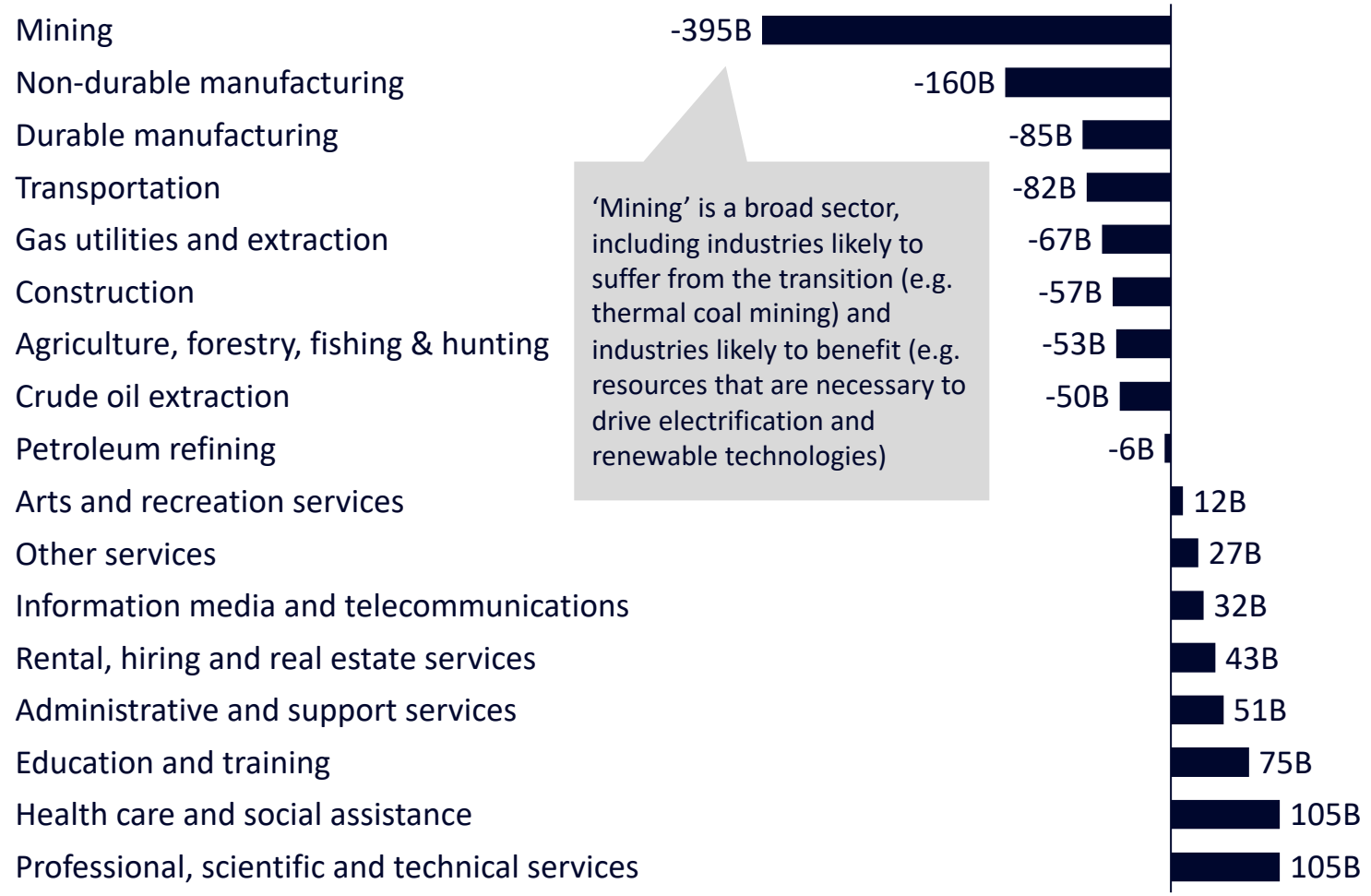
Mandala modelled the implications of APRA's credit rating assessments for the Australian economy using the G-Cubed CGE model.

The results show there is a significant reallocation of capital within the Australian economy under this scenario. The investment reductions were highest in mining and manufacturing between $395B to $245B respectively, reflecting the carbon and capital intensity of the sectors. Crude oil extraction and petroleum found lower reductions despite their carbon intensity. This reflects the relative size of these industries in Australia. The least carbon intensive sector, the services sector, saw a cumulative increase in investment of $450B over 20 years.

This modelling also highlights the harms from delaying Australia's climate transition. If the rate of change was to increase, capital and businesses would be able to adjust to the clean economy in a more orderly way.

**Exhibit 1: Changes in Australia's capital stock over 20 years after climate risks priced-in**

*$AU billions, 2022 dollars*




Source: Mandala analysis using the G-Cubed model

# Coal mines employ workers from a range of occupations and compete with other industries for those workers

As a sector, coal mining employs 44,600 people. But coal mining as an industry is in structural decline as demand for its product falls domestically and internationally. Government forecasts predict that Australia's coal exports will fall by 50-80% in volume over the next two decades.

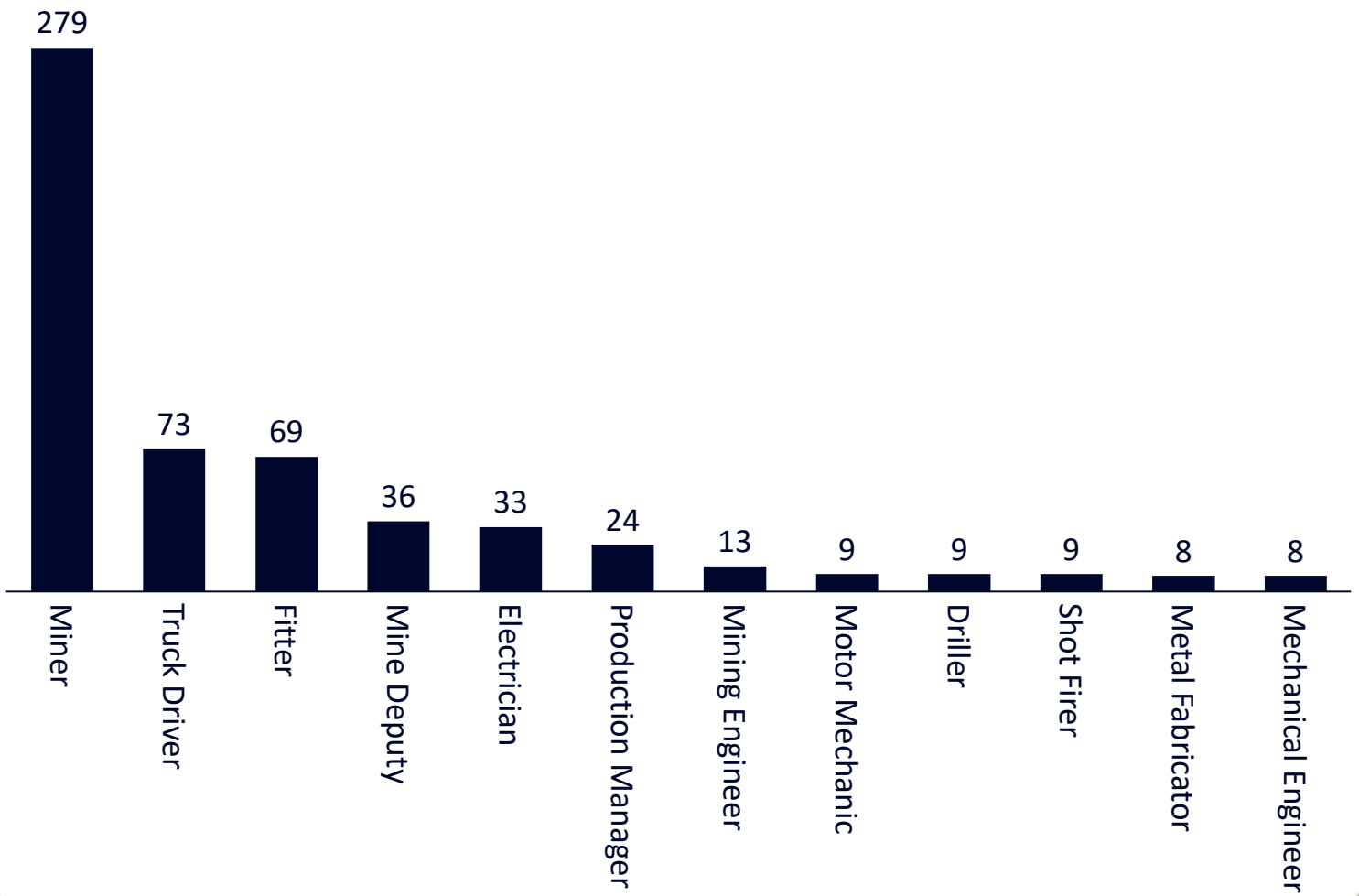
Mandala wanted to understand the impact of this decline on mine workers. To do this, we used microdata on job advertisements to estimate how long it would take workers at a specific coal mine to find new jobs if it closed 5 years ago.

The mine chosen was a coal mine in New England which employs 766 people. The largest professions in the mine were miners, truck drivers and fitters. Most of its workforce lives locally.

Sources NSW Department of Treasury (2021) *The sensitivity of the NSW economic and fiscal outlook to global coal demand.*

**Exhibit 2: Coal mine workers at a mine in New England**

Headcount by top 12 occupations in the mine, 2023

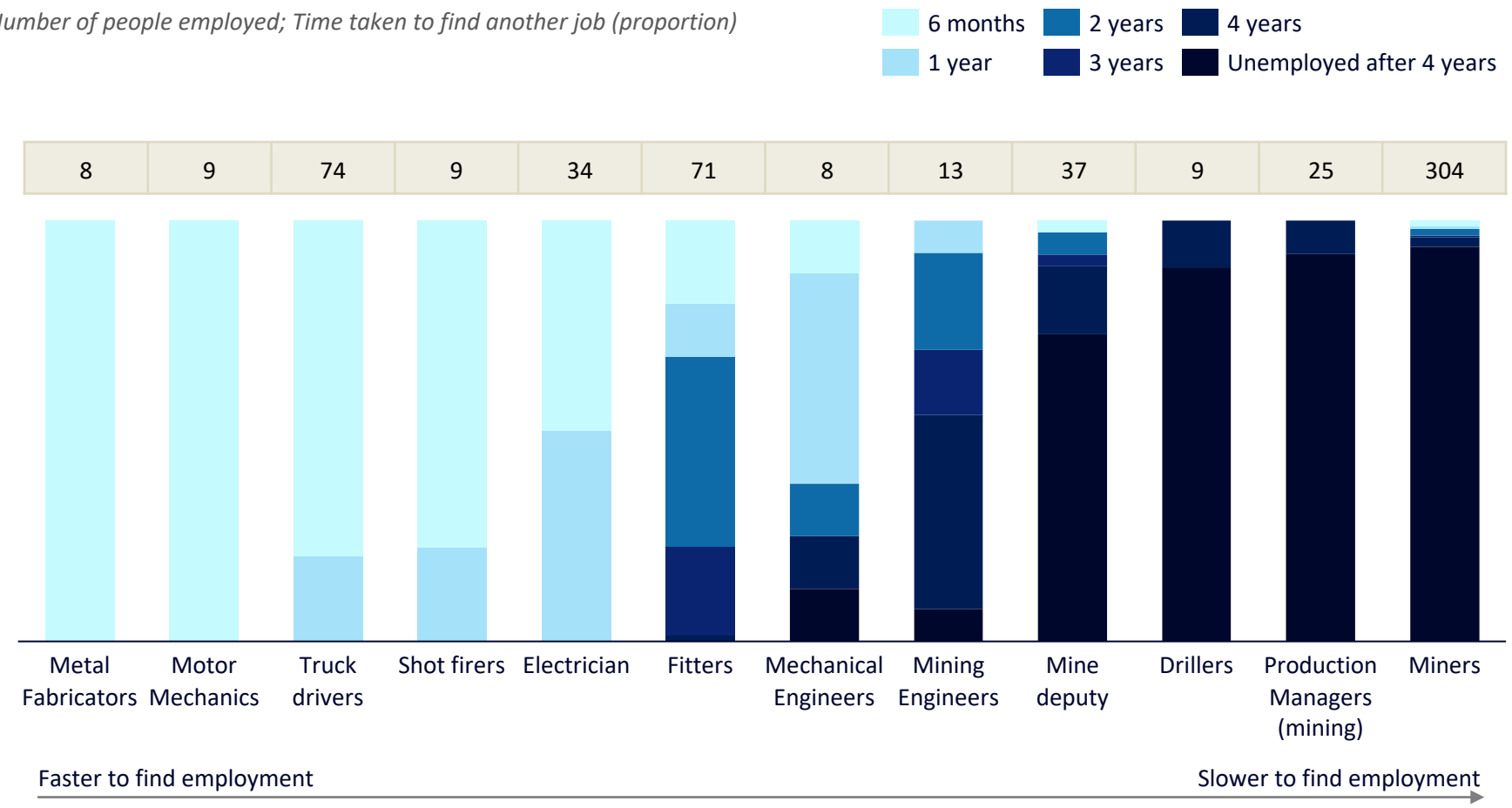



Sources: Mandala analysis

# If this coal mine was to close and workers did not relocate, 28% of people would find another job within their region in the first year

**Exhibit 3: Time required to find another job outside coal mining in the same occupation within New England and the North West**

*Number of people employed; Time taken to find another job (proportion)*




**Occupations that are specific to mining will suffer more in the transition**

- If workers do not relocate, 28% of workers find a new job within one year, 35% find a new job within two years, 39% find a new job within three years and 43% find a new job within four years.
- Mandala found that metal fabricators, mechanics and truck drivers returned to work the fastest.
- Occupations that are specific to mining took longer to find new jobs.
- Strong employment in the agriculture and construction sectors in the region explains the difference in outcomes for occupations with transferable skills.
- Mandala found that if workers don't leave the region, 71% of workers would be considered long-term unemployed (unemployed for more than a year). Workers that are long-term unemployed are less likely to find a jobs and their employment chances are hurt for years after.

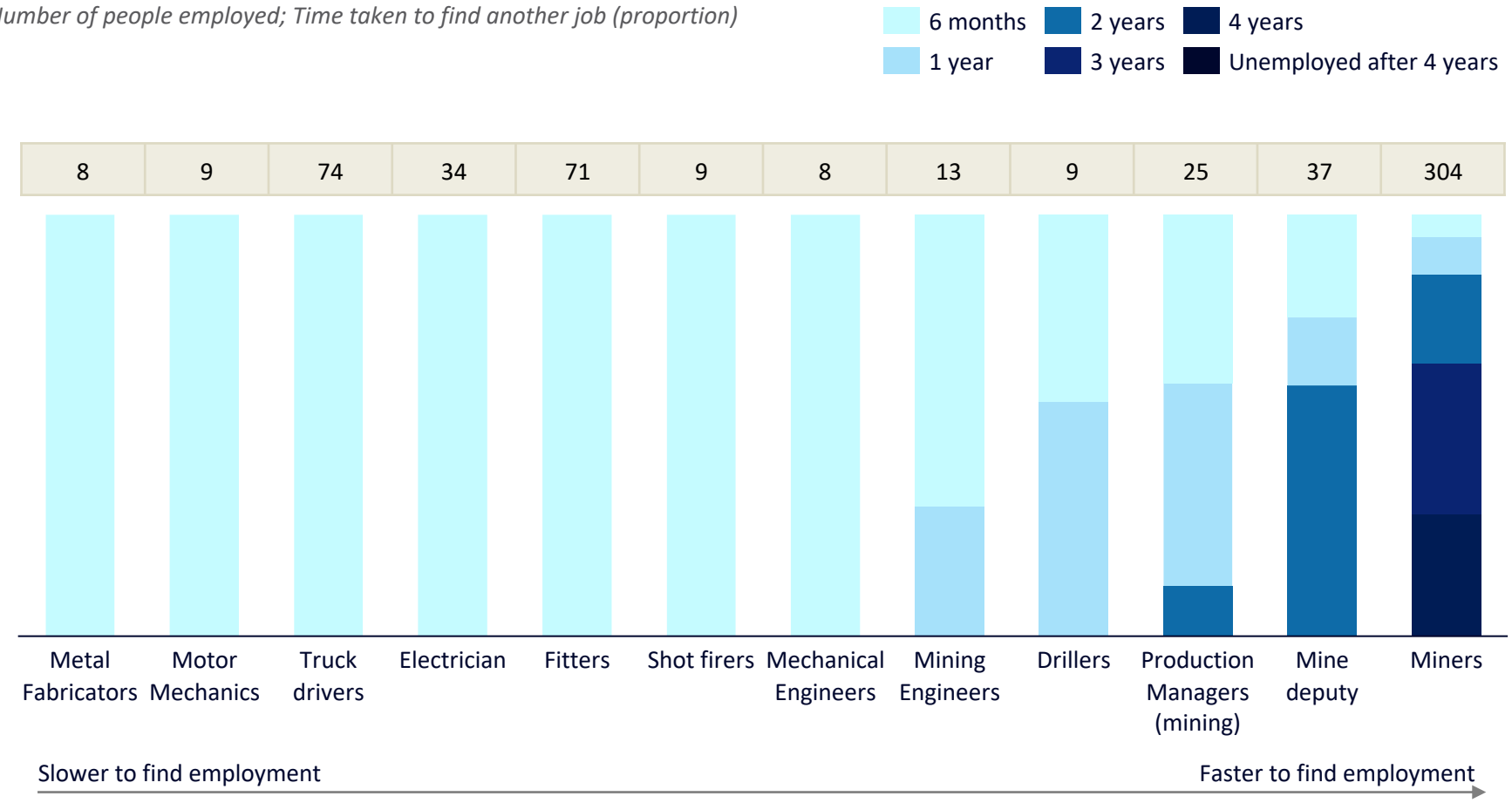


Source: Lightcast; Mandala analysis.

# If this coal mine was to close and workers were willing and able to relocate within NSW, 52% of people would find a job within a year

**Exhibit 4: Time required to find another job outside coal mining in the same occupation within NSW**

*Number of people employed; Time taken to find another job (proportion)*




**Employees with skills in other industries like construction will be forced to move to find work quickly**

- If workers are willing to relocate to somewhere else within NSW, 52% find a job in one year, 67% in two years, 85% in three years and 100% in four years.
- When workers moved within NSW, Mandala found metal fabricators, mechanics, and electricians returned to work the fastest.
- Lower skilled occupations that are specific to mining still took the longest to find new jobs, with miners taking the longest.
- However, skilled occupations like drillers and mining engineers fared better due to the high demand for their skills within the industry.
- Occupations that benefited most from moving were skilled and in demand in relatively small industries in New England, e.g., fitters and mechanical engineers who are required in manufacturing.

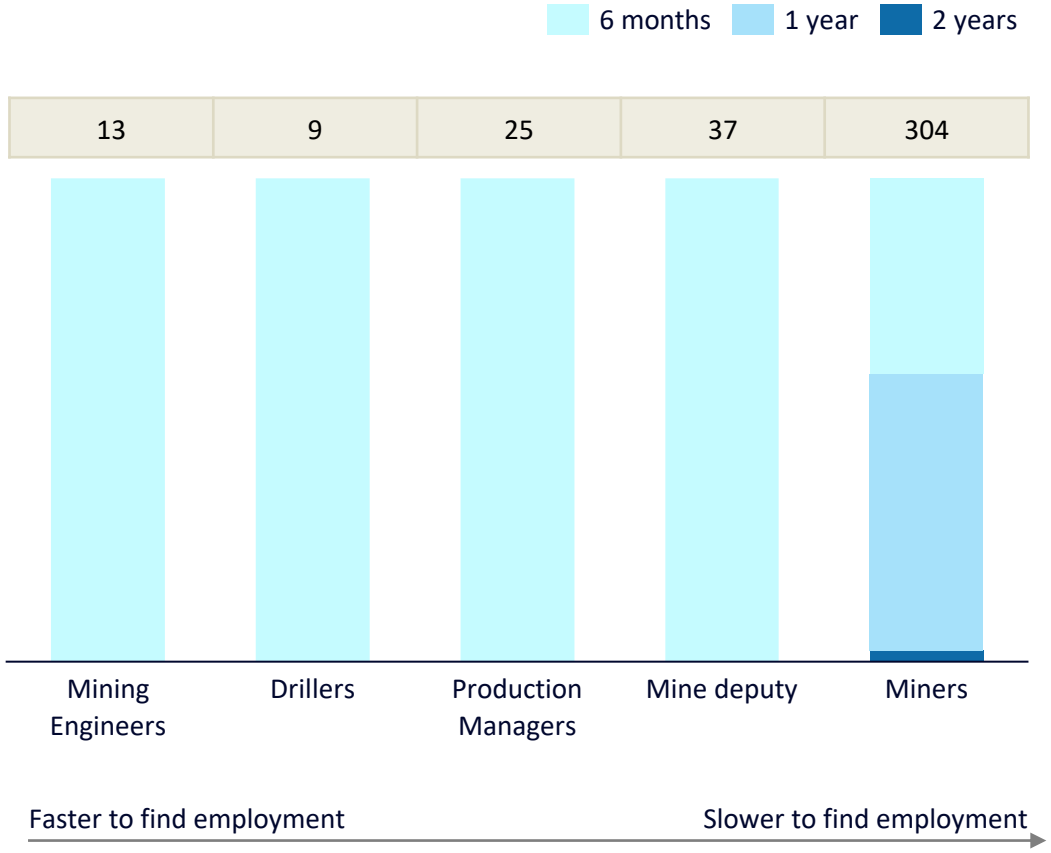


Source: Lightcast; Mandala analysis.

# If this coal mine was to close and workers were willing and able to relocate anywhere in Australia, 98% of people would find a job within a year

**Exhibit 5: Time required to find another job outside coal mining in the same occupation within Australia**

*Number of people employed; Time taken to find another job (proportion)*




**Labour mobility, transferable skills and targeting are critical in easing the transition risk**

- If workers are willing to relocate to anywhere in Australia, 98% find a job in one year and 100% find a job in two years.
- These results mean three things for governments:
    1. For workers in any occupation who would like to and are able to move, supporting labour mobility is a critical part of what government can do to ease the transition into new work. These supports could include incentives to move, changes to stamp duty taxes that disincentivise selling property, etc.
    2. For workers who are unable or would not like to move, transferable skills that are in demand in other industries in the region are key to returning to work. For workers that do not have these skills, these can be provided through localised retraining programs.
    3. The transition will be most acutely felt by workers in occupations that are specialised in those industries most impacted by the transition, i.e. miners in coal mining. This means that governments should target their transition support towards these workers and provide the most support to workers with the lowest ability to find new work. This is opposed to providing broad-based support for all displaced workers.



Source: Lightcast; Mandala analysis.

# Efforts to ease the net zero transition should focus on occupations that will struggle the most to gain employment

Mandala has developed a transition risk framework to help government prioritise support for workers in occupations that will struggle the most to find new jobs. This framework develops three categories for workers based on occupations:

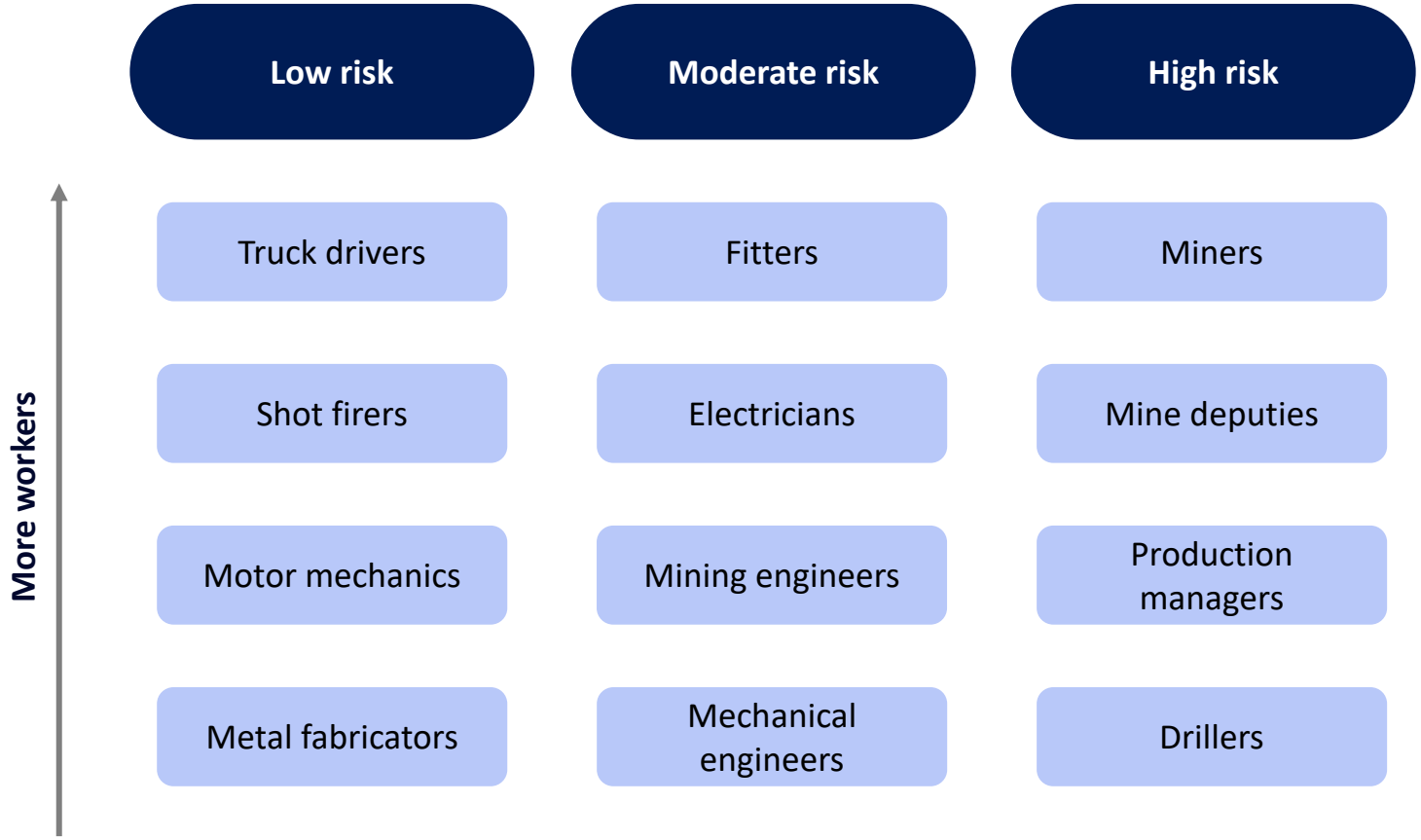
Low risk: These are occupations where the majority of workers gain employment in the **region** they live within six months.

Moderate risk: These are occupations where the majority of workers gain employment in the **state** they are in, within six months.

High risk: These are the occupations where workers must move outside their state to gain employment.

This analysis suggests that efforts to ease the net zero transition should focus on: mining engineers, mine deputies, miners, production managers and drillers.

**Exhibit 6: Framework for the transition risk of occupations**




Sources: Mandala analysis

# Mandala assessed global best practices to identify how transitions are being managed

| | Key Policies | "Best practice" in Australia and internationally |
|---|---|---|
| Co-creation & planning | Strategic support | ▪ **Transition strategies:** Government / business / community alignment on actions and resourcing to capture opportunities[1]<br>▪ **Planning:** Long-term implementation and pre-closure planning of the transition with clear timelines[1] |
| | Empowered community | ▪ **Dialogue and consultation:** Adopt a stakeholder consultation partnership all stakeholder and be responsive to stakeholder expectations<br>▪ **Inclusive decision making:** Participatory decision making across business and community to empower and share ownership |
| Community & economic development | Education investment | ▪ **Regional skills plan:** Co-ordinated government plan for individuals, educators and companies to build relevant skills in high growth sectors / geographies[2]<br>▪ **Education / retraining fund:** Support for individuals, companies, or education institutions to develop relevant skills for current and future generations |
| | Investments in future industries | ▪ **Future industry development:** Building business specialities in future industries, such as AgTech and new energy technologies[3]<br>▪ **Entrepreneurship ecosystem:** Coordinated funding for sponsored programs, joint industry projects to stimulate investments and scaling of start-ups<br>▪ **Cluster development:** Government support for industry-led clusters that develop specialisation / comparative advantage[4,5]<br>▪ **Social services and infrastructure investment:** Building and maintaining services and infrastructure, such as schools, clinics, roads and rail[6] |
| Tailored supports for vulnerable cohorts | Tailored, integrated worker supports | ▪ **Redeployment:** For workers with transferable skills, internal redeployment or individualised job search in short-term[2,5,7,8]<br>▪ **Labour market program:** Designed to help meet the needs of job seekers while looking for and starting employment[4,5]<br>▪ **Training and linked work experience:** Tailored skills or job readiness training and placements for workers that do not immediately find work[7]<br>▪ **Provide workforce as much choice as possible:** Provide workers with autonomy to decide what support they want and require<br>▪ **Income supports and incentives:** Generous and initially income support that encourages workers to participate in job search and / or training[3]<br>▪ **Health and mental health support:** Health and wellbeing services for workers and families through providers and community-based facilities[9] |
| | Support for local businesses | ▪ **Local businesses:** Support and enhance local businesses by sharing information, resources and experience[10]<br>▪ **Supply chain and contractors:** Mitigate the impacts with long lead times which allow for diversification of businesses[9] |



SOURCE: (1) Brookings (2017), 'Capturing the next economy: Pittsburgh's rise as a global innovation city'; (2) Trebilcock & Wong (2008) "Trade, Technology, and Transitions: Trampolines or Safety Nets for Displaced Workers?"; (3) Botta (2018), A review of "Transition Management" strategies: Lessons for advancing the green low-carbon transition; (4) AlphaBeta, NERA, METS Ignited (2019), "Staying ahead of the game"; (5) Wiseman, Campbell & Green (2017), 'Prospects for a "just transition" away from coal-fired power generation in Australia: Learning from the closure of the Hazelwood Power Station'; (6) Owen, J. and D. Kemp (2018) Mine closure and social performance: an industry discussion paper. (7) Tilleard (2016), "Growth and resilience of Australian cities 1971-2011"; (8) Borland (2014), "Dealing with unemployment: what should be the role of labour market programs; (9) Acil Allen (2019), The transition of the Australian car manufacturing sector; (10) Everingham (2017) inquiry into how the mining sector can support businesses in regional economies

# Unlocking Tasmania's Youth Potential: A Focus on Engagement, Skills, and Economic Growth

September 2023

MANDALA

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Mandala specialises in combining cutting-edge data and advanced analytical techniques to generate new insights and fresh perspectives on the challenges facing governments, business and for-purpose organisations.

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Note: All dollar figures are Australian dollars ($AU) unless indicated otherwise.

Tasmanian Government

Jobs Tasmania works with and across governments, community and business to increase employment outcomes, workforce participation and re-engagement with work, education or training for all Tasmanians.

Jobs Tasmania supports the Regional Jobs Hub Network across the state that connects people with jobs where they live.

The Premier has tasked Jobs Tasmania to lead the development of a *Youth Jobs Strategy* for Tasmania, in partnership with the Department of Education, Children and Young People, to address systemic failings that are producing poor employment, training and further education outcomes for young Tasmanians.

Jobs Tasmania engaged Mandala for to produce materials from research and analysis into youth education, employment, and investment in economic terms to support Jobs Tasmania’s consultation process.

# Executive summary

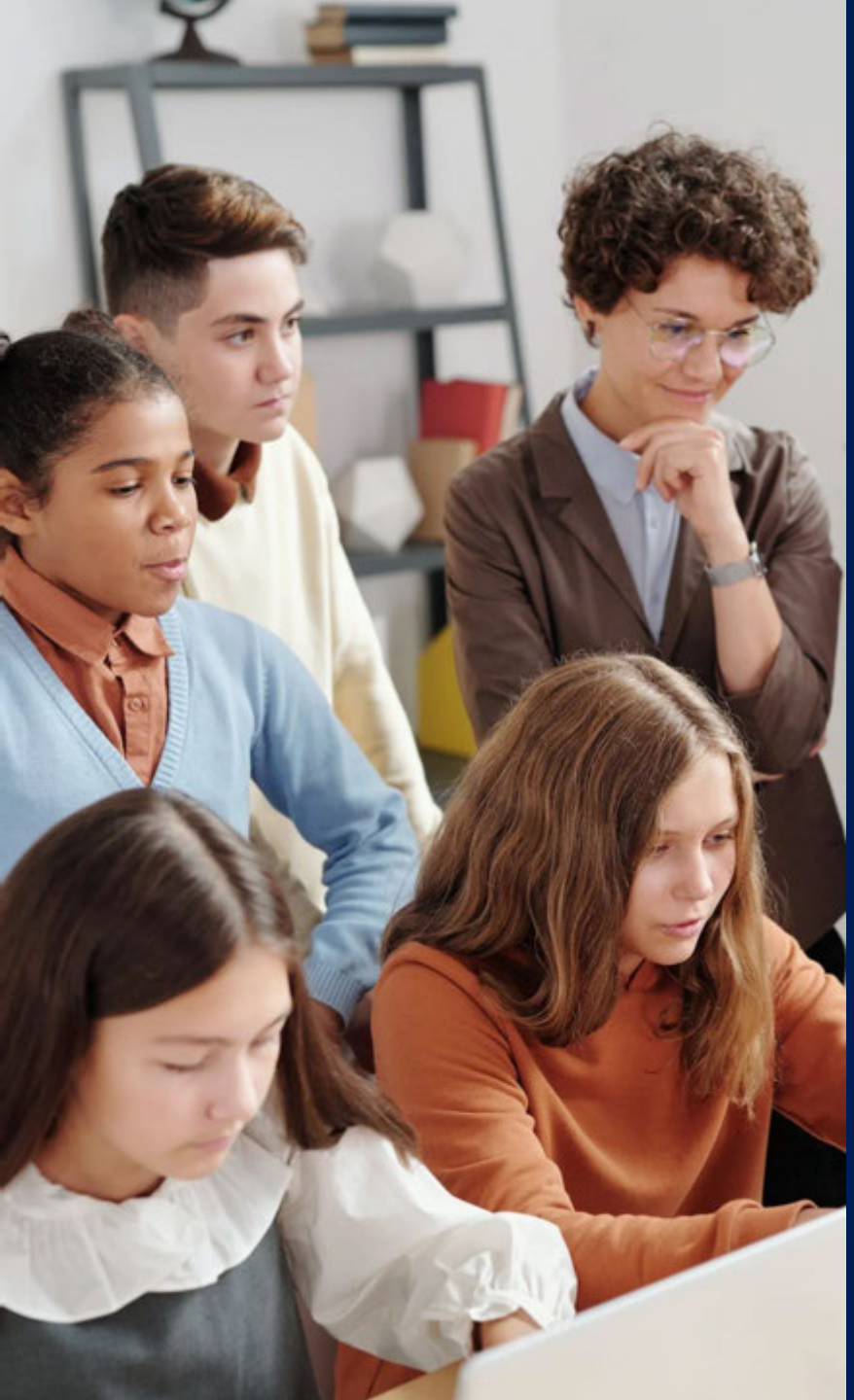
I More than ever, young Tasmanians are reaching higher levels of educational attainment, especially through VET pathways

II However, many face a complex and changing labour market, socioeconomic and demographic challenges

III Estimating the fiscal and social costs of disengagement, through the profiles of early school leavers and those not fully engaged, can help assess the impact of disengagement in Tasmanian youth

IV Looking to the future, young Tasmanians will increasingly require support from the VET sector to train in high-demand industries

V Appendix



**More than ever, young Tasmanians are reaching higher levels of educational attainment, especially through VET pathways**

# Although high school completions still lag other jurisdictions, young Tasmanians are more likely to complete Year 12[1] now compared to a decade ago

**The Tasmanian trend since 2018 has been strongly positive, noting statistical anomalies.**

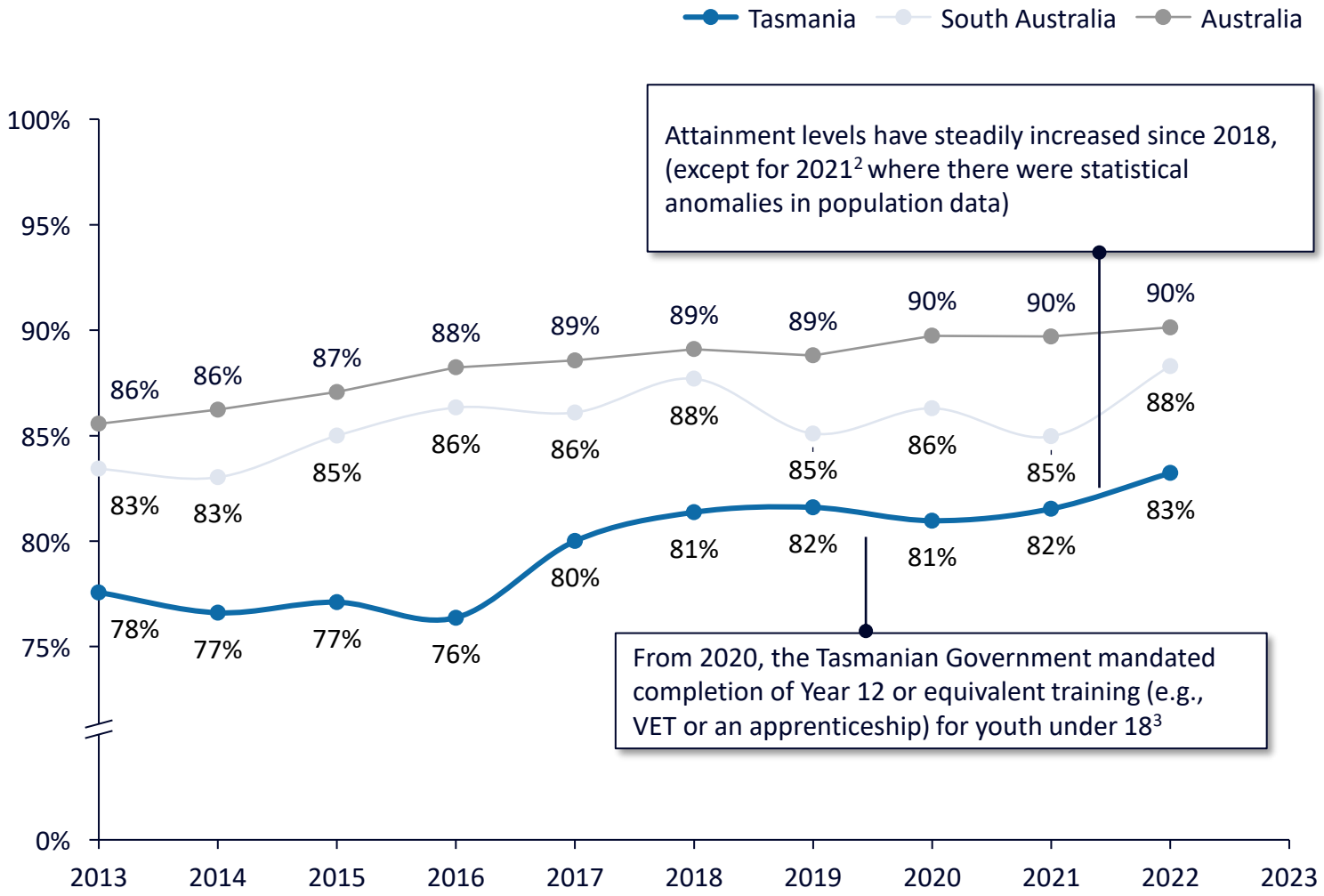
Educational attainment is linked to skills development, which is associated with higher rates of employment, productivity and lifetime earnings.[1] In particular, those who complete Year 12 or equivalent are more likely to continue with further education or training and have a more successful transition into the workforce.[2]

Since 2013, the proportion of 20–24-year-olds with at least a Year 12 or equivalent education has increased by 4% nationally, and 5% in Tasmania – with the gap between national and Tasmania narrowing by 1%. This is a similar performance compared to South Australia, who over that time also increased the proportion of young people with a Year 12 or equivalent qualification by 5%.

With skilled jobs increasing at a faster rate than ever, improving high school completion or equivalent should continue to be a core priority for policy and service design.

Notes: 1 Includes AQF certificate II or above. 2 Australian Government – Department of Education (2020) *Benefits of educational attainment*. 3 Australian Government – Australian Institute for Health and Welfare (2021) *Secondary education: school retention and completion.*

**Proportion of the 20–24-year-old population having attained at least Year 12 or equivalent[1]**




Source: ACARA (2022) *Key Performance Measures for Schooling in Australia*.
Notes: 1. For smoothing purposes, data is measured in rolling three-year averages. Includes AQF Certificate II or above. 2 See Tasmanian Treasury (June 2023) *National, State and Territory Population.* 3 Tasmanian Government, Department of Education, Children and Young People, *Starting/Leaving Ages.*

# Young people enrolled in VET in Tasmania are increasingly engaged in apprenticeships and traineeships with 11% growth since 2017

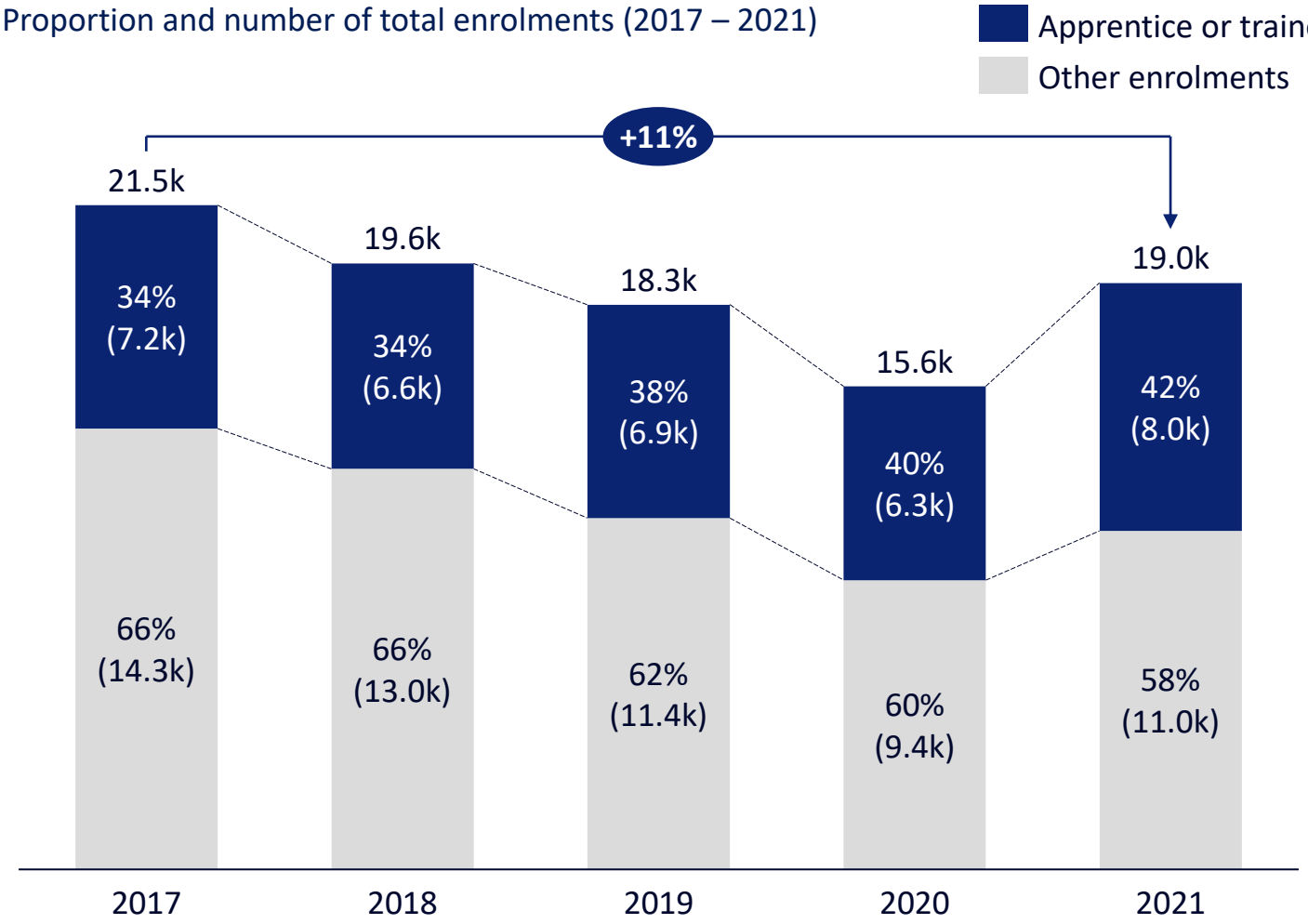
**More young Tasmanians are taking up apprenticeships and traineeships. Total enrolments in these types of qualifications show an increase from 7.2k to 8.0k enrolments (+11% change) between 2017 and 2021.**

Apprenticeships are a growing proportion of VET enrolments. The proportion of total enrolments has increased, from 34% of enrolments in 2017 to 42% in 2021 (+8pp change).

Increasing enrolments in apprenticeships are likely a result of the COVID-19 subsidy programs established in Tasmania for the VET sector.

**VET enrolments for Tasmanian youth, by student apprentice / trainee status**

Proportion and number of total enrolments (2017 – 2021)




Source: NCVER (2017-2021) *Total VET students and courses 2021: program enrolments. Age cohort 15-24.*

# The top 3 industries for youth VET enrolments in Tasmania are in the top 5 projected growth industries for employment

**Enrolments in Construction, Healthcare and Social Assistance, and Accommodation and Food Services-related courses represent 45% of all Tasmanian youth VET enrolments.**

These industries are projected to be in the top 5 growth industries for absolute employment in Tasmania over the five years to 2025, demonstrating good alignment between education and skills demand.

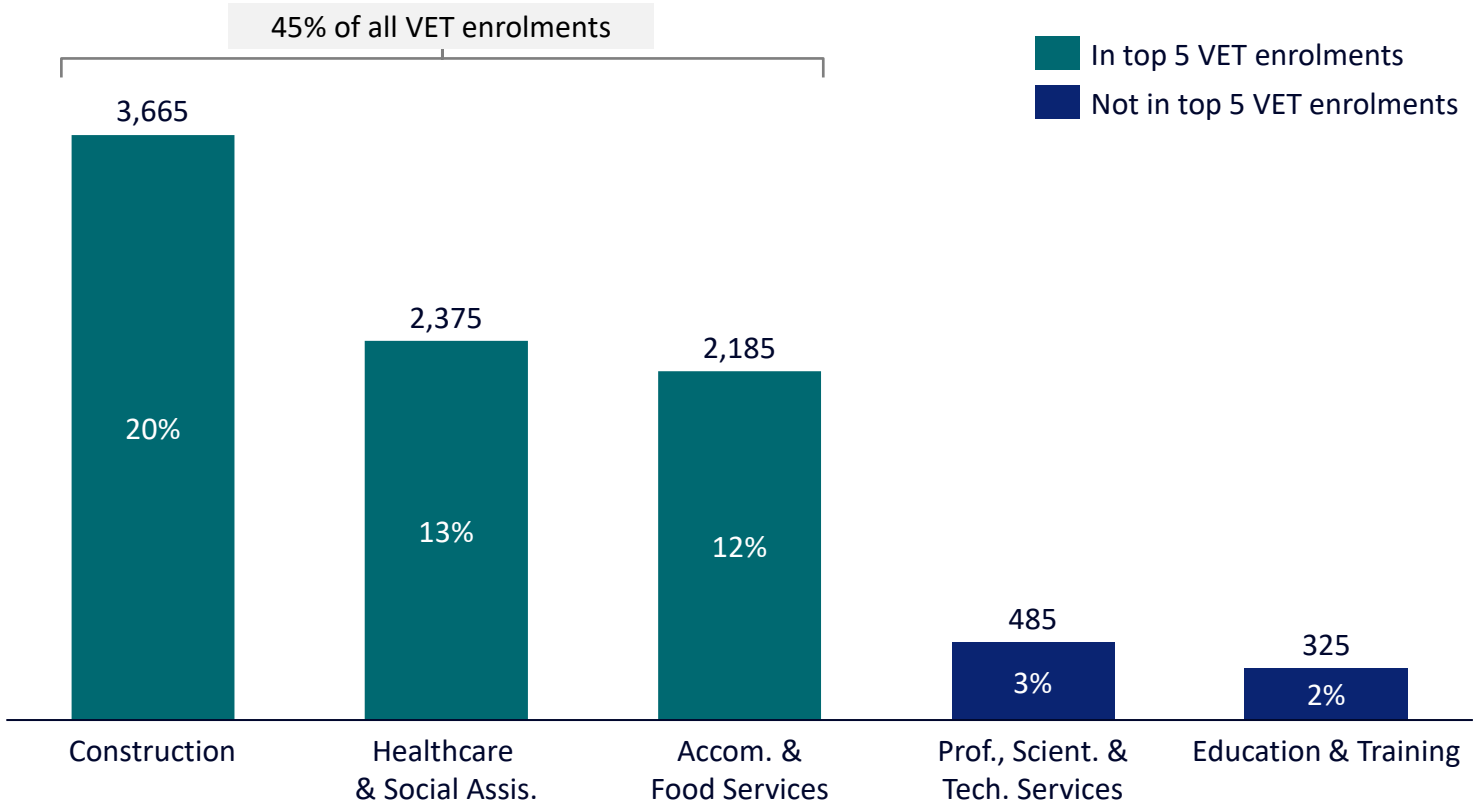
The other growth industries in the top 5, Professional, Scientific & Technical Services, and Education & Training, are industries that are more commonly serviced by tertiary education rather than vocational education and training.

Continued engagement between VET system planners, industry, students and families and local communities is needed to ensure that this alignment remains in coming years.

This is an increase in enrolments by 47% for Construction courses and 12% for Healthcare and Social Assistance since 2017. For Accommodation and Food Services however enrolments have declined by 15% across the same time period.

**VET enrolments for Tasmanian youth in top five projected high growth industries**

*2021 total (per cent of all enrolments)*



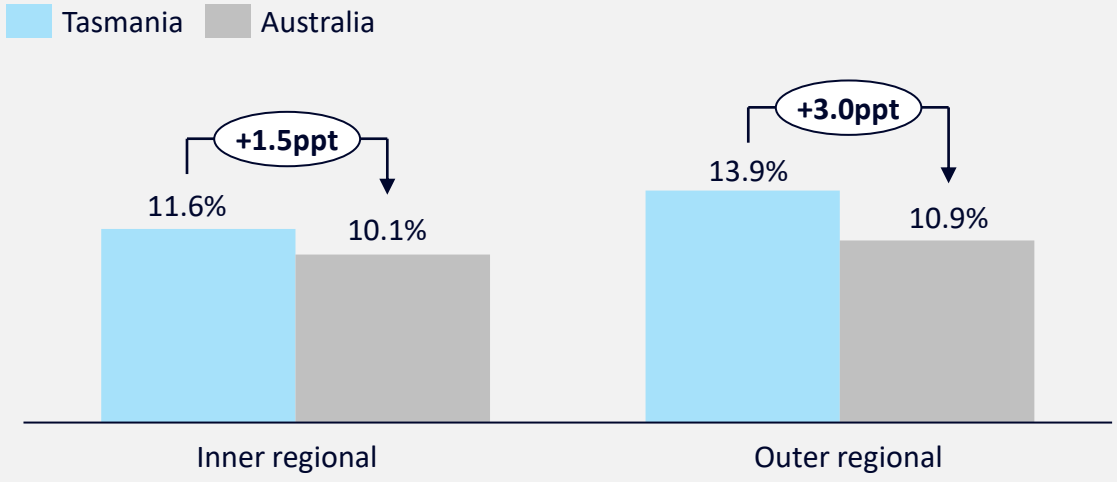

Notes: 1. Growth industries refer to industries with the highest projected employment growth over the period 2020-2025, from Jobs and Skills Australia. Administrative and Support Services and Other Services rank 11TH and 10th respectively.
Source: NCVER (2017-2021) *Total VET students and courses 2021: program enrolments. Age cohort 15-24.* Jobs and Skills Australia (2020), *2020 Employment Projections,* five years to November 2025. Note projections at the state level for the five-year period from 2023 not available, meaning some of this growth will have already occurred.

II **However, many face a complex and changing labour market, socioeconomic and demographic challenges**

# Tasmanian youth are overrepresented in the disengaged population

**Rates of disengagement from work and study in Tasmania, compared to Australia**

*% young people (15-24) not engaged in work or study on a full nor partial basis, by type of region*



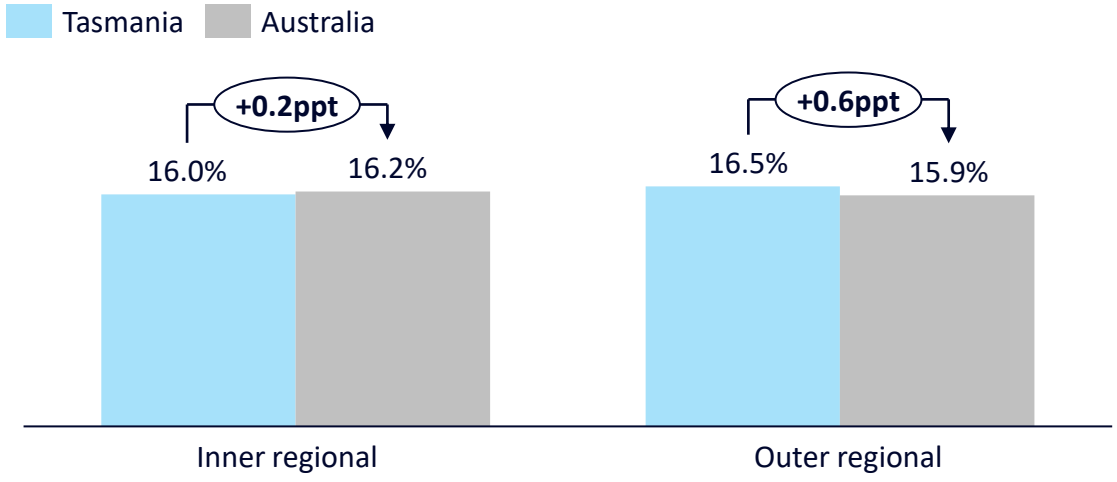

Young Tasmanians in inner regional areas (which include cities such as Hobart, Launceston and Devenport) and outer regional areas see higher disengagement in work and study compared to their Australian counterparts.[1] This cohort can be referred to as 'NEET'; not engaged in education or training.

Notes: 1 The exception to this is remote and very remote young Tasmanians between 15 and 24 years old, who are more engaged than their Australian counterparts with rates of disengagement of 14.5% and 27.8% respectively. However, these comprise a very small number of people; 101 from a cohort of 708 in Tasmania, and 12,939 from a cohort of 46,431 in Australia.
Sources: ABS (2021) Census.

# However, Tasmanians and Australians have similar rates of partial engagement

**Rates of partial engagement from work and study in Tasmania, compared to Australia**

*% young people (15-24) partially engaged in work or study, by type of region*




Young Tasmanians in inner regional areas have similar rates of partial engagement,[1] compared to their Australian counterparts.[2] In outer regional areas, however, rates of partial engagement are slightly higher than their Australian counterparts.

Notes: 1 This includes people doing part-time study or work, or those engaged in those activities but unable to be determined as engaged on a full or part-time basis. 2 Similar to the NEET cohort, the remote and very remote cohort see a much higher rate of partial engagement in Tasmania of 21.3% compared to Australia's 13.5%, but this comprises a small cohort of 151 of 708 and 6,248 of 46,431 respectively.
Sources: ABS (2021) Census.

# Tasmanian youth who are disengaged or partially engaged likely face complex social challenges

**Compared to engaged Tasmanian youth, Tasmanian NEETs and partially engaged youth tend to:**

- have higher levels of **caring responsibilities**,
- require more **assistance with core activities**,
- are more likely to be of **Indigenous background**,
- have **lower levels of education**; and,
- have more **difficulty with the English language**.

Policies and interventions to increase engagement will need to consider the "whole of person" context of Tasmania's NEET cohort, including intersections with family, cultural and regional contexts.

**Representation of various groups within the disengaged, partially engaged, and engaged cohort in Tasmanians aged 15-24**

| | Of disengaged youth | Of partially engaged youth | Of engaged youth | |
|---|---|---|---|---|
|  | 20% | 12% | 8% | have caring responsibilities |
|  | 14% | 4% | 3% | have a need for assistance with core activities |
|  | 15% | 10% | 8% | are Aboriginal or Torres Strait Islanders or both |
|  | 79% | 60% | 56% | Has Year 10 education as their highest educational attainment[1] |
|  | 14% | 4% | 3% | speak English as a second language at a low proficiency level[2] |

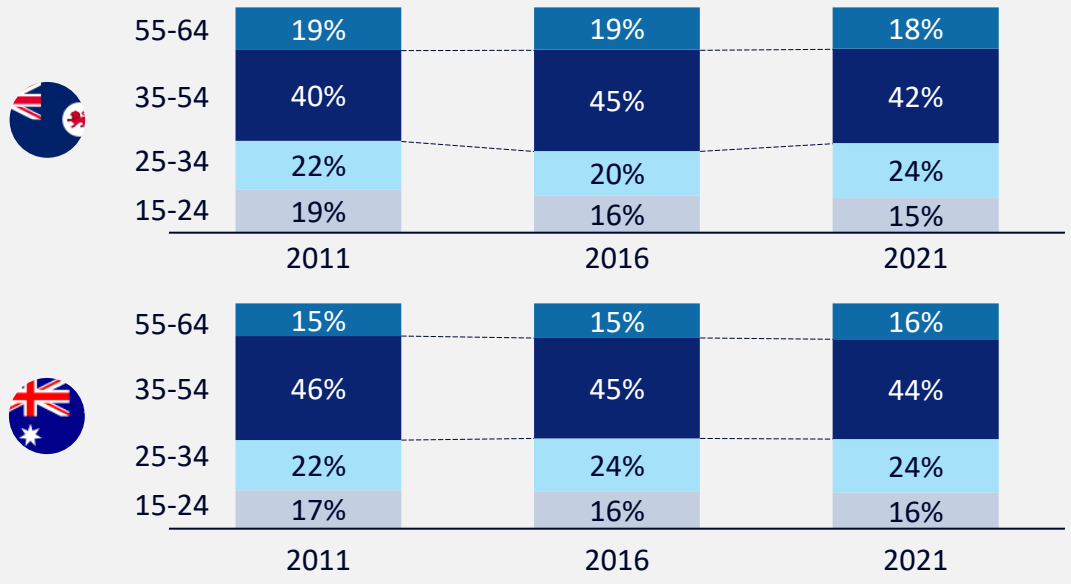
Notes: 1 Only includes ages 20-24 years old. 2 Of those who speak another language, % who speaks English not well or not at all.
Sources: ABS (2021) *Census*.

# Tasmania has a relatively older workforce, and this trend will likely increase in coming decades

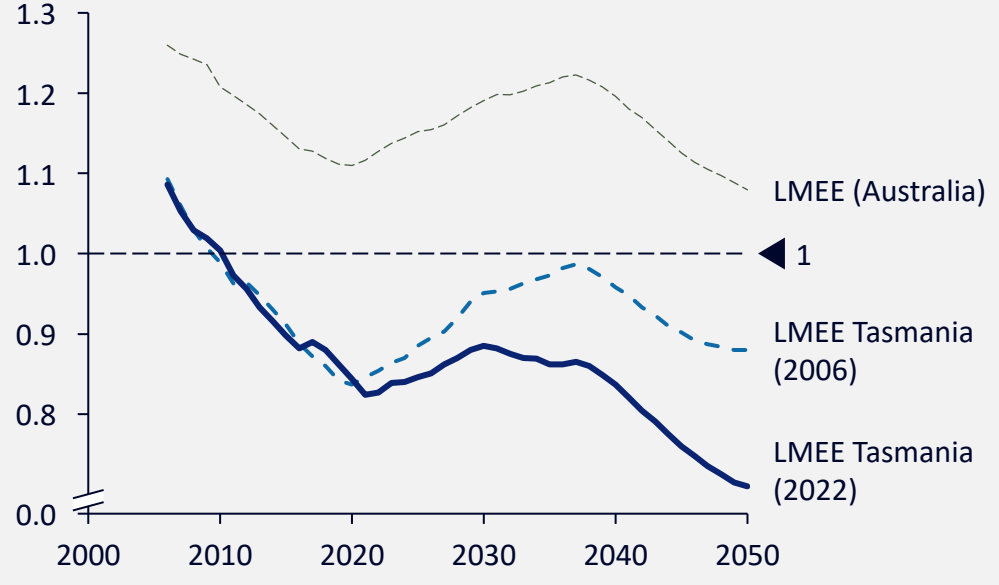
Tasmania has consistently had an older workforce in the last decade compared to the rest of Australia, with at least 2% more of the workforce comprising those within the 55-64 age group. This age group is likely to exit the workforce to retire, and Tasmania having a larger share of this group means a shrinking workforce unless offset by a larger number of young people joining the workforce, which has not been the case.

Labour market entry to exit (LMEE) projections, a ratio of the number of potential workforce entrants aged 15 to 24 against the 55 to 64 age group – show Tasmania has consistently seen and will continue to expect a shrinking workforce. Latest modelling in 2022 increased estimates of this deficit compared to the previous version in 2006. Policy actions such as migration or youth engagement can help support Tasmania's labour force through this workforce shrinkage.

**Labour force by age**
2011-2021




**Labour market entry to exit (LMEE) ratio**
2005-2055, projections 2022 onwards




Source: ABS (2021) Census, ABS (2018) Population projections, Australia, ABS (2016) Census, ABS (2011) Census, Denny (2023) Explainer: why Tasmania has a workforce supply issue, not a workforce demand issue.

## III Estimating the fiscal and social costs of disengagement can help assess the impact of disengagement in Tasmanian youth

# We can estimate fiscal, economic costs and social costs of disengagement of youth in Tasmania for two profiles: early school leavers and disengaged young adults

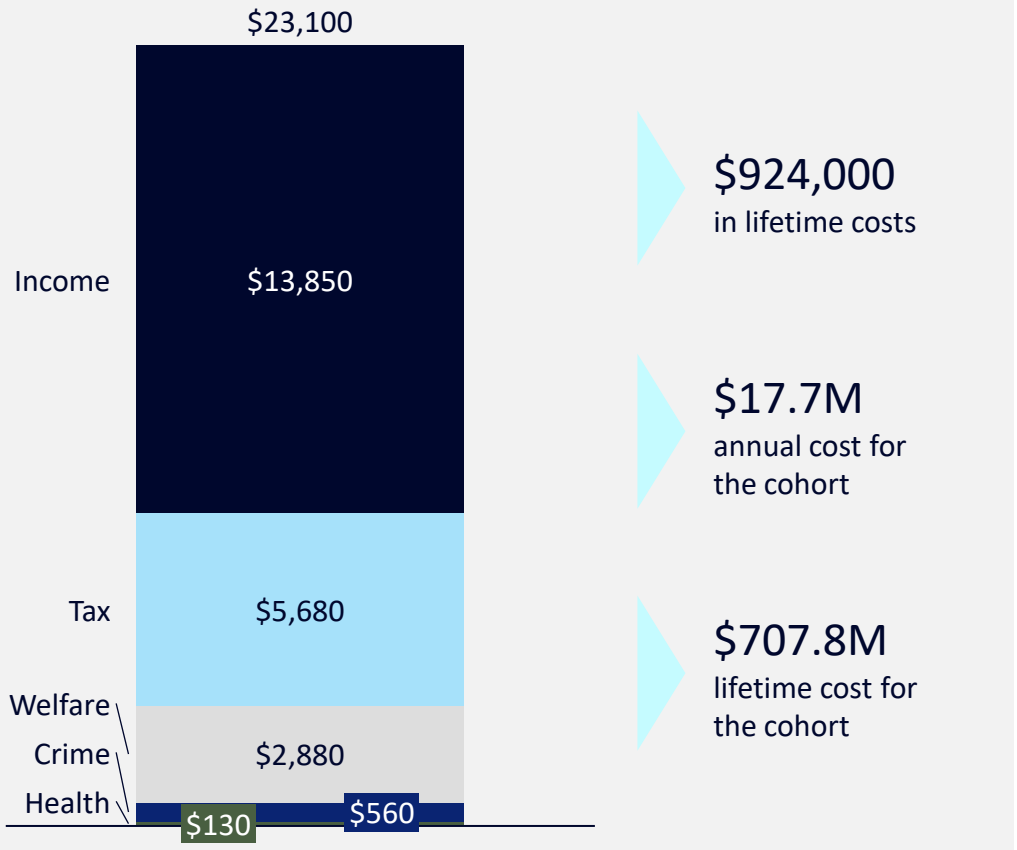
**Categories to assess cost of disengagement in Tasmania**

| Definitions | Method and data | | | |
|---|---|---|---|---|
| **Type of cost** | **Cost per person** | **Lifetime and annual costs** | | **Cost related to Tasmania** |
| **Fiscal and economic (i.e., costs to government and public funds)** Includes tax payments, reliance on government health programs, criminal justice costs, reliance on welfare | • **Tax revenue from personal income** of engaged v disengaged cohort in Tasmania (ABS)<br>• **Reliance and costs to welfare** of engaged v disengaged cohort (ABS, Services Australia, HILDA)<br>• **Costs to the justice system**, engaged v disengaged cohort in Tasmania (HILDA, SCRGSP[1])<br>• **Costs to the health system**, engaged v disengaged cohort in Tasmania (HILDA, SCRGSP[1]) | **Lifetime costs** will calculate and include age-based fluctuations<br><br>**Annual costs** will be calculated by dividing lifetime costs by average Tasmanian working lifetime | ✖ | **Number of early school leavers** People who fail to complete Year 12 or equivalent by age 19, and do not return to complete<br><br>**Number of people experiencing disengagement** People not in full time work or study at age 24, and remain disengaged |
| **Social (i.e., personal costs and costs to the community)** Includes individual losses, social costs of poorer health, losses from increased crime, excess burden on taxation, reduced productivity spill overs | • **Personal income** of engaged v disengaged in Tasmania (ABS)<br>• **Non quantified**: social costs of poorer health, losses from increased crime, excess burden on taxation, and reduced productivity spill overs | | | |

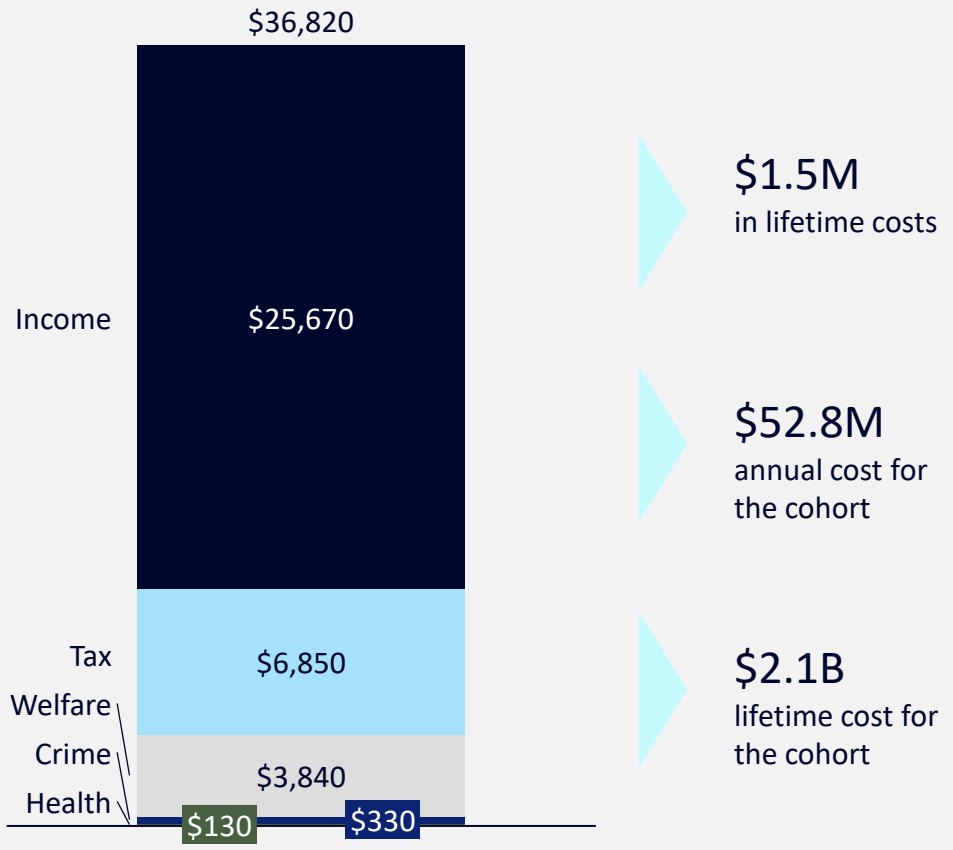
Notes: 1 Or from equivalent or similar data sources.
Source: Mitchell Institute (2017), *Counting the costs of lost opportunity in Australian education*

# Engaging early school leavers and disengaged youth could save $23,100 and $36,820 annually in costs for the community and individuals

## Costs of early school leavers in Tasmania




## Costs of disengaged youth in Tasmania




Notes: Differences in income between early school leavers and disengaged cohort come from disparities in projected employment outcomes. Early school leavers are projected to earn less throughout their lifetime, but a smaller portion of disengaged youth tend to find jobs, and when they do it tends to be low-wage and temporary – leading to a greater loss of income. For differences in costs for crime; early school leaving has a close relationship with crime; offending and imprisonment, at a greater magnitude than the disengaged cohort, some of whom will have completed schooling.
Source: Mitchell Institute (2017), *Counting the costs of lost opportunity in Australian education,* Mandala analysis.

# Young engagement programs, such as Fit For Work ('FFW') cost only $6,800 annually – a fraction of the losses from disengagement

**Bruce, 20**

**Bruce was referred to FFW to upskill his work readiness skills, investigate employment options, having found it difficult to find work and been homeless for two years**

The FFW Program assisted Bruce to:

- develop a case management plan for Bruce, who is diagnosed with autism and Asperger's Syndrome, towards achieving his goals
- develop a resume, cover letter, interview skills, and access funded driving lessons
- be referred to accommodation support services.

With FFW's assistance, Bruce obtained NDIS supports, secured a place in social housing, joined a local volunteering program to obtain work experience and enrolled in a TAFE course for hospitality.

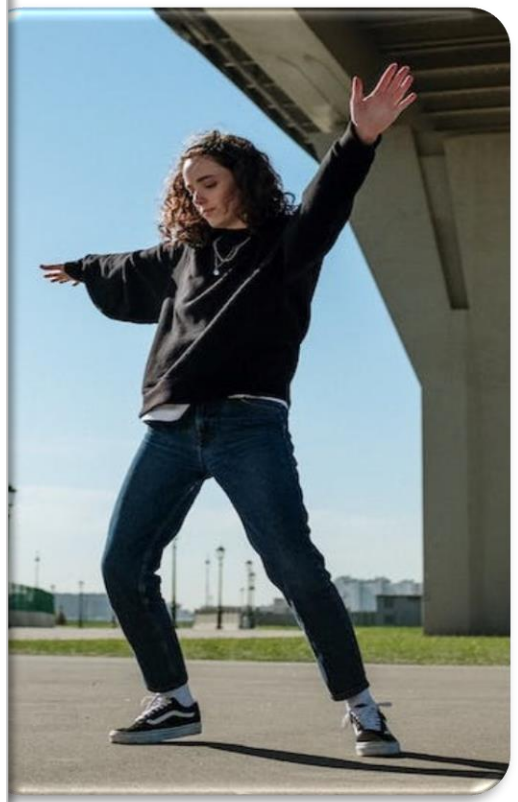
**Hannah, 20**

**Hannah was connected to FFW through Wise Employment, experiencing severe social anxiety and depression, and was finding her employment at Kmart stressful and triggering**

The FFW Program assisted Hannah to:

- access GP appointments and receive medical assistance for anxiety and depression
- make role adjustments at her workplace to provide Hannah with a less stressful experience, whilst developing a resume, cover letter and completing applications to seek other work
- discuss her work aspirations, including being a dance teacher.

Hannah now runs dance workshops from time to time, has enrolled in a Dance Teaching and Management qualification and plans to run her own dance school soon. In the meantime, she continues to work at Kmart for additional income as she transitions between careers.



Source: Jobs Tasmania.


**IV** **Looking to the future, young Tasmanians will increasingly require support from the VET sector to train in high-demand industries**

# There is currently a mismatch between the level of skills sought by employers and those held by the population in Tasmania

**While 57% of advertised roles in Tasmania state a requirement for a Bachelors degree, only 18% of Tasmanians hold such a qualification.**

However, the trends in skills required for advertised jobs in Tasmania appear to mirror that observed nationwide.

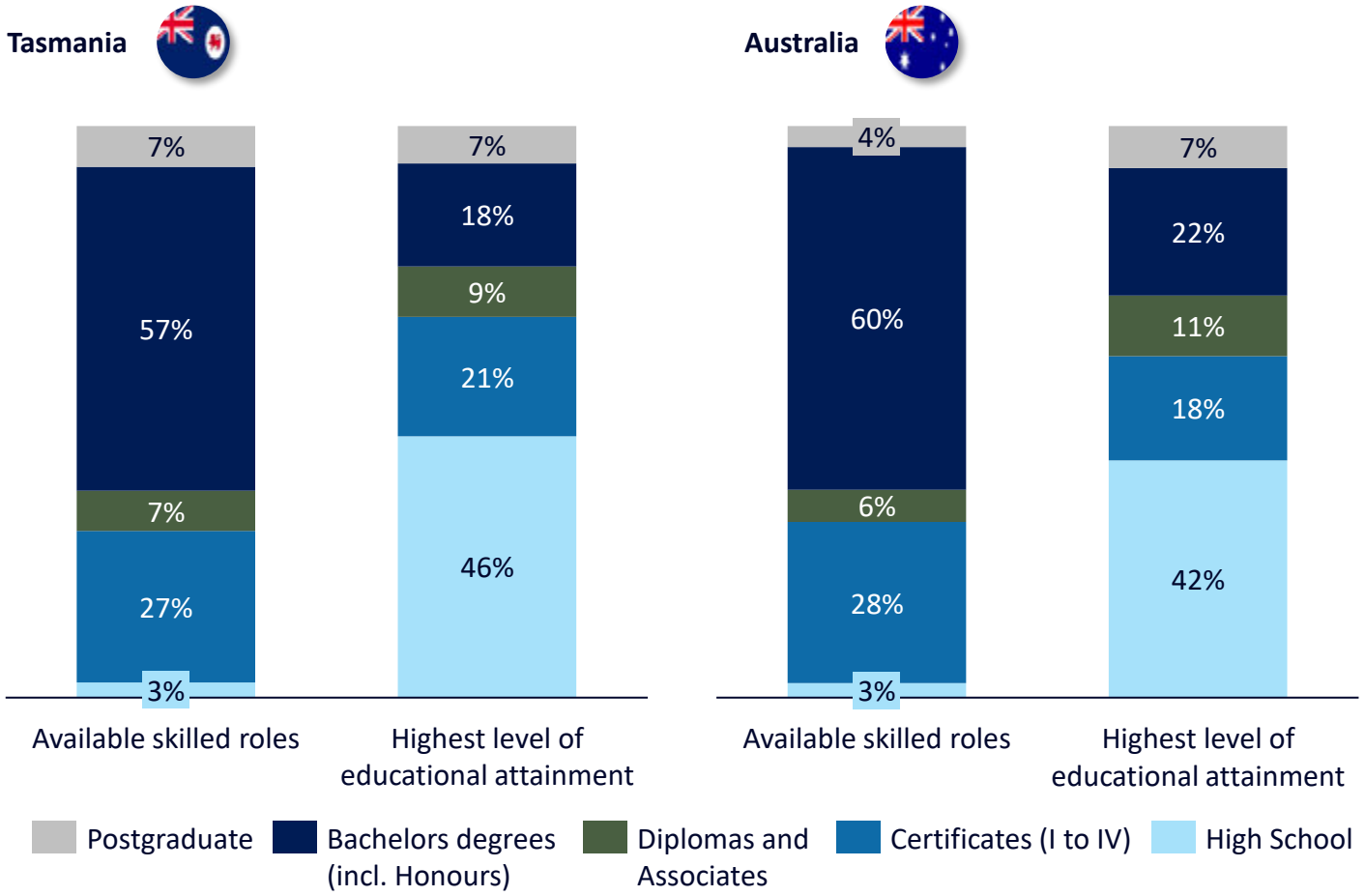
The majority of Tasmanians (67%) hold a certificate or below level of educational attainment, compared to only 30% of advertised roles requiring such a skill level.

This is similar to the trends nationally, where the majority of skilled jobs available require at least a bachelor degree (60%), greater than the proportion of the population holding such a degree (22%).

Tasmania shows a slightly higher percentage of the population with highest attainment being High School than the mainland (46% vs 42%).

**Job demand and current education by skill level (year to June 2023)**

Per cent of total roles advertised and per cent of population




Source: Lightcast (2023), ABS (2021) Census

# Jobs requiring Certificate-level skills comprise more of the jobs available in 2022 than in 2016

**In Tasmania the proportion of available jobs requiring Certificate-level skills has increased by 7ppt, from 20% of advertised roles in 2016 to 27% of advertised roles in 2022.**

In contrast, the proportion of roles requiring Bachelors or Diploma level skills have declined by 6ppt and 1ppt respectively.

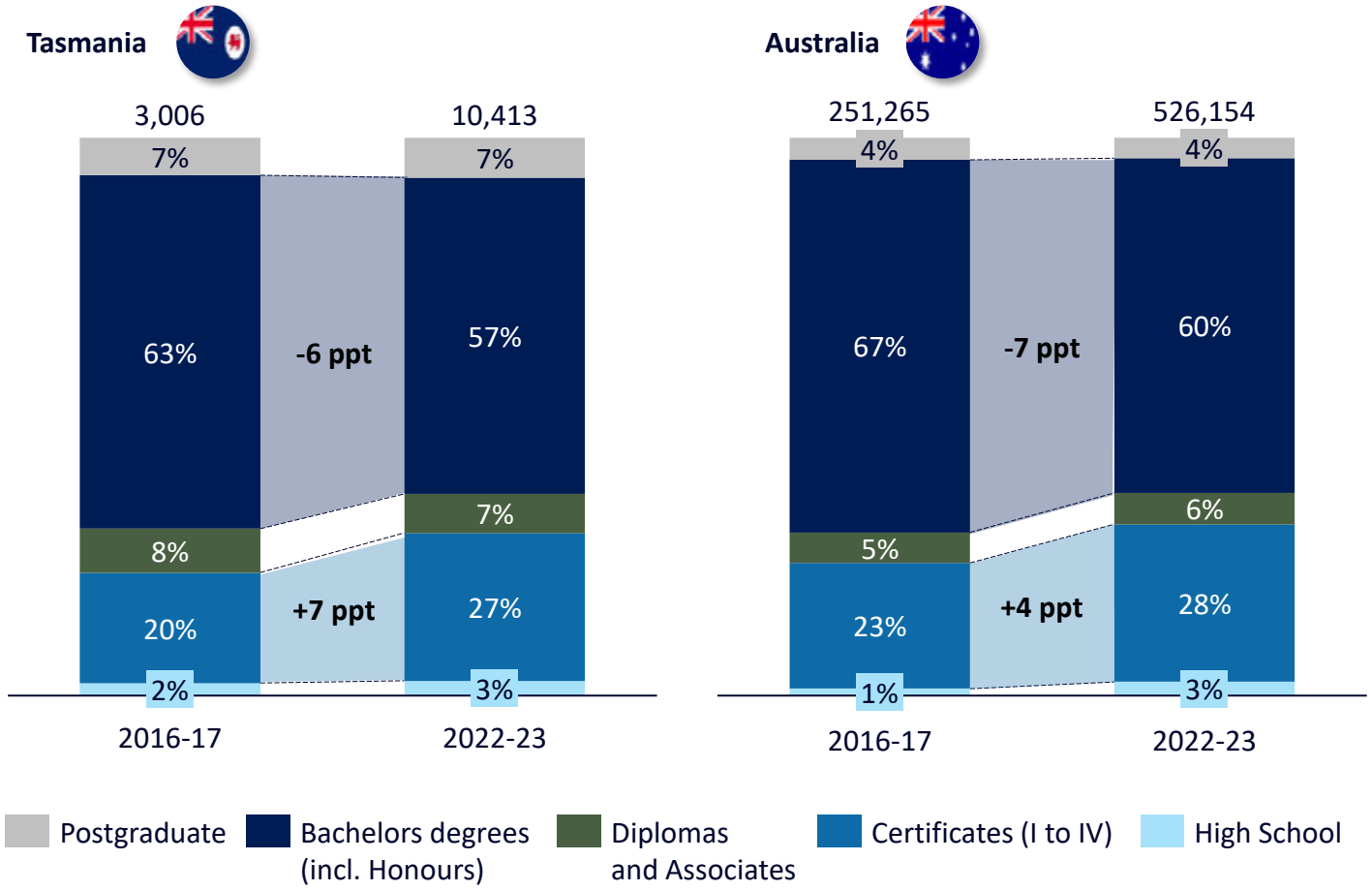
This is a similar trend to that observed Australia-wide, however the growth in roles requiring certificate-level skills has increased more in Tasmania (+7ppt) than Australia-wide (+4ppt).

These figures do not separate Certificate skills requirements into individual levels (I to IV), which Jobs Tasmania understands will mask the significant level of difference between skills.

With increasing advertisements in the certificate-level skilled jobs, Tasmania will need to ensure the supply of VET education is in the appropriate areas and at the appropriate level to meet employment market demand. School leavers should be encouraged to make informed choices about post-school study options informed by market demand.

**Job demand by skill level (2016 and 2023)**

Per cent of total roles advertised




Source: Lightcast (2016-2023)

# Since 2019-20 there has been a 113% increase in the number of online advertised skilled roles in Tasmania

**Since COVID (2019-20), the volume of online job advertisements in Tasmania has risen sharply, particularly for Certificate-level roles, from a total of 4.9k in 2019-20 to 10.4k in 2022-23. This represents an increase of 113%.**

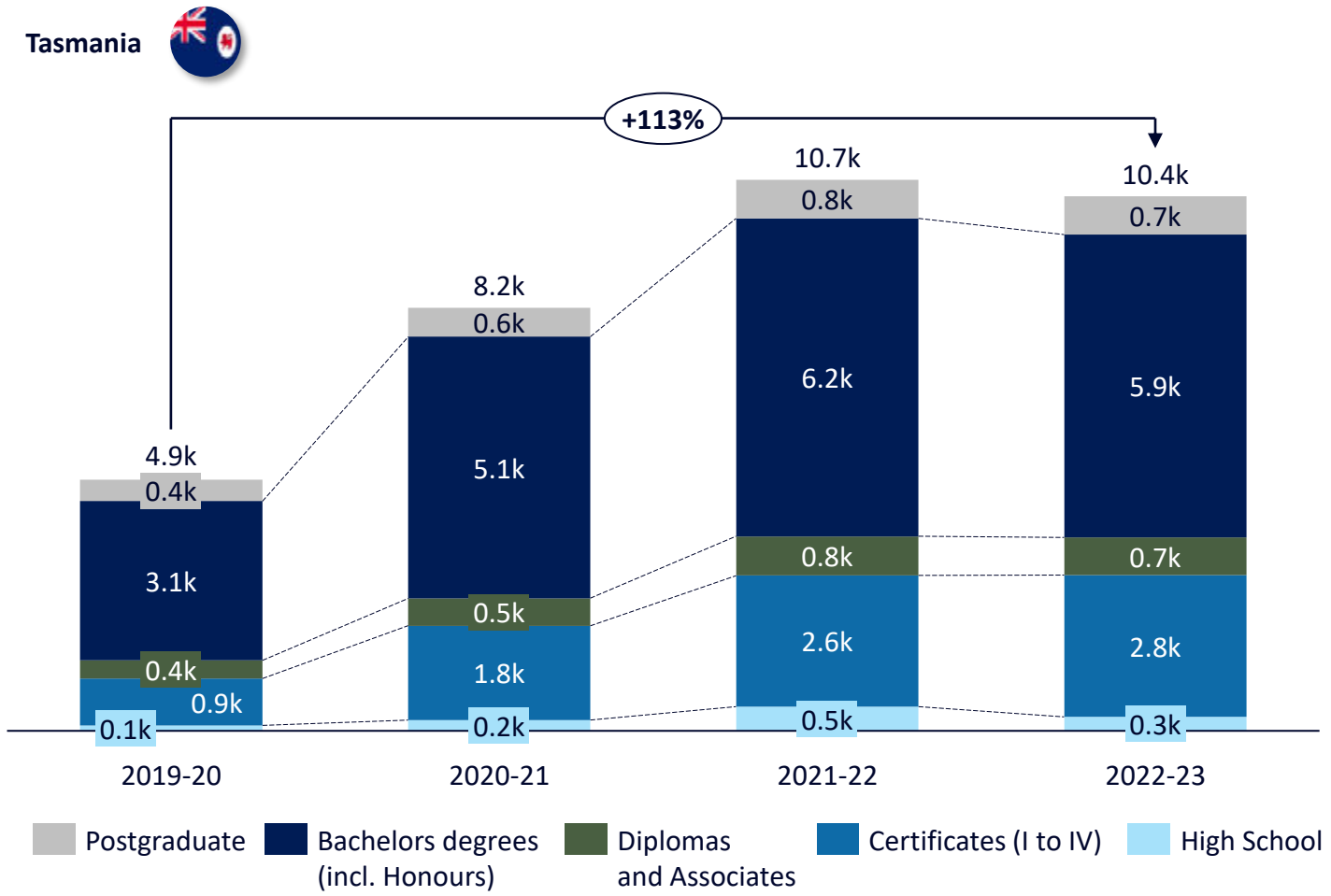
Jobs Tasmania's research shows these roles have been traditionally been advertised or filled through offline methods, such as word-of-mouth recruitment through networks.

In particular, the number of Certificate-level roles advertised online has increased sharply, from only 900 in 2019-20 to 2.8k in 2022-23.

This suggests that labour markets have been broadening and access to roles has changed in nature. Regional Hubs and approaches to youth education and employment will need to address all aspects to identify appropriate roles and opportunities for young Tasmanians.

**Job demand by skill level (2019-2023)**

Per cent of total roles advertised

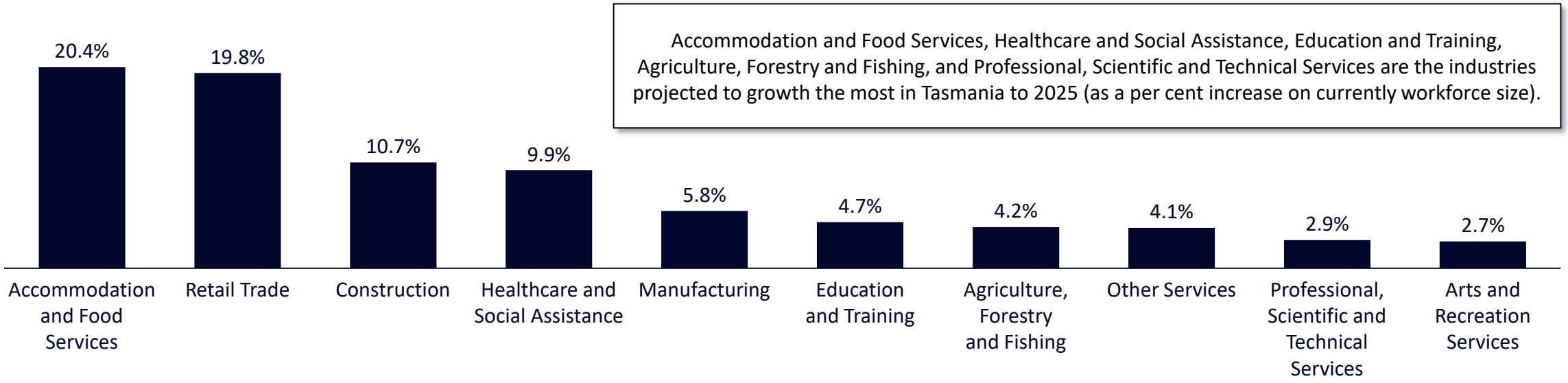



Source: Lightcast (2019-2023)

# Young Tasmanians can be supported to enter projected high-growth industries, such as healthcare, education, professional services, and arts and recreation services

**Youth employment by Tasmanian industry, top 10 industries[1]**

Per cent of all youth employees, 2021




Accommodation and Food Services, Healthcare and Social Assistance, Education and Training, Agriculture, Forestry and Fishing, and Professional, Scientific and Technical Services are the industries projected to growth the most in Tasmania to 2025 (as a per cent increase on currently workforce size).

**Projected employment growth industry, Tasmania**

Per cent increase in employment, to 2025

**Lower growth** **Higher growth**


Note: 1. Top 10 employing industries in 2021 shown and bottom 7 industries not shown. Note per cent values will not sum 100% due to bottom industries not shown. Youth refers to individuals aged 15-24 years. Note projections at the state level for the five-year period from 2023 not available, meaning some of this growth will have already occurred.
Source: ABS (2021) Census; Jobs and Skills Australia (2020), *2020 Employment Projections,* five years to November 2025.

# Appendix

# Our method calculates the cost per individual, then at cohort level for Tasmania

**1 Cost per individual in Tasmania** ✖ **2 Cost for the Tasmanian cohort**

i Adjust numbers to Tasmanian context → ii Adjust to 2023 → iii Adjust numbers to Tasmanian cohort

| Item | Change | Ratio | Difference | Source | Adjusted to 2023 by |
|---|---|---|---|---|---|
| **Income** | ↓ | 0.84 | **Lower** median incomes | ABS Personal Income in Australia (2022) | WPI |
| **Tax** | ↓ | 0.74 | **Lower** income tax revenue | ATO Taxation Statistics (2023) | WPI |
| **Welfare** | → | 1 | **Hold constant** between states | Services Australia (2023) | CPI |
| **Crime** | ↓ | 0.93 | **Lower costs for crime and law enforcement** | Productivity Commission (2023) | CPI |
| **Health** | ↑ | 1.05 | **Higher** costs of public health | Productivity Commission (2023) | Health inflation (AIHW) |

| Cohort | Total | Long term cohort | Source |
|---|---|---|---|
| Number of **early school leavers in Tasmania** | 1,660 | 766 (0.46%) | ABS Census (2021), Tasmania Treasury (2023) |
| Number of **disengaged in Tasmania** | 2,925 | 1,435 (0.49%) | |

Sources: ABS *Personal Income in Australia* (2022); ATO *Taxation Statistics* (2022); Productivity Commission (2023) *Report on Government Services E Health*, Table 12A.54, Average cost per service event, 2020-21 dollars; Productivity Commission (2018 and 2023), *Report on Government Services C Justice*, Table CA.2 Real recurrent expenditure per person on justice services; AIHW (2021) *Health expenditure Australia 2019-20*

# Early school leavers in Tasmania have annual costs per person of $23k, primarily driven by a $13.8k loss to personal income compared to school completers

**Costs of early school leavers in Tasmania**

| Type of disengagement | Type of cost | | Cost per person Annual *(lifetime)* | Cost for population Annual *(lifetime)* |
|---|---|---|---|---|
| **Early school leaving** People who fail to complete Year 12 or equivalent by age 19 | **Total** | | **$23,100 *($924,000)*** | **$17.7 million *($707.8 million)*** |
| | **Fiscal and economic** | **Tax** | $4,930 *($197,300)* | $3.8 million *($151.2 million)* |
| | | **Welfare** | $2,880 *($115,200)* | $2.2 million *($88.3 million)* |
| | | **Crime** | $110 *($4,460)* | $85,500 *($3.4 million)* |
| | | **Health** | $130 *($5,050)* | $92,500 *($3.7 million)* |
| | **Social** | **Gross income** | $13,850 *($554,070)* | $10.6 million *($424.7 million)* |
| | | **Crime** | $450 *($17,860)* | $342,000 *($13.7 million)* |
| | | **Marginal excess tax burden** | $750 *($29,930)* | *$572,500 ($22.9 million)* |

Source: Mitchell Institute (2017), *Counting the costs of lost opportunity in Australian education*

# Disengaged youth in Tasmania have annual costs per person of $36.8k, primarily driven by a $25.7k loss to personal income compared to those fully engaged

**Costs of disengaged youth in Tasmania**

| Type of disengagement | Type of cost | | Cost per person Annual *(lifetime)* | Cost for population Annual *(lifetime)* |
|---|---|---|---|---|
| **Disengaged youth** People not in full time work or study at age 24 | **Total** | | **$36,820 *($1.5 million)*** | **$52.8 million *($2.1 billion)*** |
| | **Fiscal and economic** | **Tax** | $5,870 *($234,720)* | $8.4 million *($336.8 million)* |
| | | **Welfare** | $3,840 *($153,600)* | $5.5 million *($220.4 million)* |
| | | **Crime** | $110 *($4,460)* | $160,150 *($6.4 million)* |
| | | **Health** | $130 *($5,050)* | $181,340 *($7.3 million)* |
| | **Social** | **Gross income** | $25,670 *($1.0 million)* | $36.8 million *($1.5 billion)* |
| | | **Crime** | $220 *($8,930)* | $320,300 *($12.8 million)* |
| | | **Marginal excess tax burden** | $980 *($39,150)* | $1.4 million *($56.2 million)* |

Source: Mitchell Institute (2017), *Counting the costs of lost opportunity in Australian education*

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