



Counting Down to Net Zero 2050: Australian Labour Market Impacts and Regional Training Responses

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About us

The Mitchell Institute for Education and Health Policy at Victoria University is one of the country's leading education and health policy think tanks and trusted thought leaders. Our focus is on improving our education and health systems so more Australians can engage with and benefit from these services, supporting a healthier, fairer and more productive society.

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This document outlines research that examines the labour market impacts of zero emissions policies on specific Australian regions using data from modelling conducted by Professor Philip Adams from the Centre of Policy Studies and qualitative data collected from interviews with key stakeholders in the Latrobe Valley and the Hunter Valley.

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Executive summary

The transition to a net zero economy is one of the most important challenges facing Australia. It is a transition that Australia must make. The climate crisis represents the biggest economic test of our time requiring urgent global action.

The Australian government has settled on its policy to achieve net zero carbon emissions by 2050. There have long been calls for the government to create a national net zero authority to help regions, communities and workers manage the momentous change to a low emissions economy.

On May 5, 2023, Prime Minister Albanese announced legislation that will enshrine in law a National Net Zero Authority responsible for promoting the orderly and positive economic transformation associated with achieving net zero emissions. (Press Release).

The authority is long overdue. Without such a body, Australia risked making the net-zero transition too slowly, or not at all. (Skarbek and Turner, 2023).

This paper is concerned with the how this new authority should engage with the localised impact on the regions most affected and the support needed to support these areas during the transition phase. Understanding how Australia can support areas impacted by the change is based on research undertaken by Victoria University's Centre of Policy Studies (CoPS) which shows the impact of the transition to net zero on industries, jobs and regions.

This research modelled two labour market scenarios. The first, a 'business as usual' scenario where Australia continues to rely on fossil fuels and does not reduce its emissions. The second models a scenario where Australia commits to net zero emissions by 2050.

The novel labour market research shows that despite prophecies by some of an economic catastrophe, the transition to net zero is not Armageddon for any region. The modelling illustrates that all regions in Australia will continue to grow in a post fossil fuel era. Indeed, even industries that would be expected to suffer – such as coal mining - will continue to be sizable employers.

What does vary with the move to net zero are growth patterns. There are certain industries and regions that are most affected by this shift, and it is regions which have high concentration of impacted industries where we recommend a special focus to mitigate the impacts of change.

However, there are also some industries and regions that will benefit greatly from a transition to net zero. These include forestry, which would profit from decarbonisation of the economy by boosting opportunities for bio-sequestration – the process of removing carbon from the atmosphere by storing it in the natural environment (vegetation, soils, woody products, watery environments). States such as Tasmania and South Australia are set to benefit from the transition to net zero because of their industry profile.

Net zero also presents opportunities. New jobs and new industries will be created. In fact there is the possibility that the transition to a greener economy will result in labour shortages (Hill, 2022).

This report takes as a basis the CoPs labour market modelling that identifies the nine regions and ten industries most affected by a transition to net zero. It examines features of these regions and industries to show who will be impacted and how.

We also examine some of the current transition initiatives in these regions. We undertook several interviews with people from organisations engaged heavily in work on local programs designed to help regions affected by a transition to net zero. Their experiences at the literal coal face serve to highlight the human cost and significant need for urgent and targeted responses.

Our analysis shows that the regions identified in the research will experience the transition to net zero differently. The unique features of each region and industry makes it hard to create a 'one size fits all' approach.

According to the federal government, the National Net Zero Authority will:

- **Support workers** in emissions-intensive sectors to transition to new jobs and learn new skills
- **Coordinate programs and policies** across government to help regions and communities attract and take advantage of new clean energy industries
- **Help investors and companies** take up opportunities in the net-zero transformation.

This is a welcome approach based on our understanding of the complex profile of the industries, regional communities and workforce demographics that will bear the brunt of a Australia's net zero transformation. To ensure that the work of the authority in practice is best equipped to steer Australia to an informed, timely and efficient net zero 2050 landing, we suggest that it should also perform the following functions:

1. **Coordinate resources** across different levels of government and organisation so that the support is provided where and when it is needed.
2. **Identify best practice** and fund support to affected regions/employees so that regions can learn from each other.
3. **Conduct further research** so that policy makers are informed about the changing impacts of the transition to net zero economy at an industry and regional level.

Transitions are a normal part of a changing economy and society. Technological advances have been constantly changing how we undertake our work and produce energy. The transition to net zero is no different. Implementing the recommendations we outline below will help Australia make that transition in a way that ensures all regions will continue to prosper.

Recommendations

Recommendation 1. Coordinate targeted responses

- Local stakeholders must be meaningfully involved in the Net Zero National Authority in order to recognise the regions' advantages and disadvantages when it comes to adapting, evolving, and implementing local approaches. Regional participation and insight will allow for more locally tailored solutions and greater tolerance for change.
- Suitable structures must be established to facilitate a joint post-carbon strategic plan for entire mining areas, independent of managerial central or national boundaries. Political systems associated with social, labour, spatial, and energy planning should collaborate to form an inclusive and effective transition response.

Recommendation 2. Conduct additional research into regional industry and workforce needs/plans

- Further research is required by the National Net Zero Authority to assess current skills in key regions which can be mapped against the skills needed to meet the labour needs of new industries.
- Identify best practice particularly in regions where complex workforce transitions have taken place.

Recommendation 3. Outline a suite of fit-for-purpose labour market support programs to support industries and workers

- The establishment of an extensive worker and community support service or function that helps people navigate labour markets, including programs like:
 - High quality career development services including labour market matching.
 - Accessible financial and budget advice.
 - Wellbeing support and training.

Recommendation 4. Recognise the positive impact of incorporating a career development approach in the transition to a net zero emissions future.

- The provision of timely, at-the-point-of-need, accurate career development services
- Include career education in programs for industry and region transformation important to think beyond moving people on to their next job and meaningfully reframe their career.
- High quality career development must incorporate local and community knowledge and needs and place based culturally safe approach.

What does the research say about supporting regions in a transition to net zero?

In this section, we explore the ways in which governments have managed major industrial change through policies and programs that respond to immediate employment needs and the potential attraction of new industries and investments. The success of the international and domestic examples outlined below is assessed by how far the needs of people and places are balanced against economic concerns at an industry and regional level.

Beyond the debate around setting energy reduction targets there is a body of research on best practice policies and programs to help major industries transition to a different state in the face of rapid change. There are important lessons here for current governments dealing with the complex challenges presented by a transition to net zero.

The purpose of most industrial transition policies can be characterised by one or more of the following features (from Furnaro, et. al. 2021):

- economic diversification and reorientation;
- workforce support;
- social well-being and quality of life,
- environmental remediation and protection.

Moreover, these policies have commonly employed three mechanisms:

1. financial support for public organizations, businesses, and workers;
2. service and assistance for public organizations, businesses, and workers; and
3. direct investments.

In Germany for instance, hard coal production ended in the country's two largest hard coal mining areas (Ruhr and Saarland) in 2018 following the termination of government subsidies. This industry employed more than 600,000 people and required a response that combined not only policies addressing unemployment and the attraction of new energy corporations and investments, but also measures improving infrastructure, education, research facilities and soft location factors (Oej, et. al, 2020).

The importance of setting up a cooperative, integrated approach to change that includes city, regional, and national governments and institutions is highlighted in the research as central to its success.

The German Coal Industry: A Lesson in Community Building

In Germany, "bottom-up" approaches led by communities have been more successful than "top-down" ones led by the federal government. This includes providing local governments with a degree of autonomy and financial assistance to implement transition measures. (Furnaro et. al., 2021).

Domestically, the closure of the Ford, Holden and Toyota car manufacturing plants and the flow on to the supply chain companies, in Australia in 2016 and 2017 was one of the most significant structural adjustments seen in the nation's manufacturing sector. In response to the closures there was a coordinated response by governments, the manufacturers, and the

supply chain companies, to manage the transition and support workers into other jobs, further study or other pursuits. Governments and the manufacturers committed to implement best practice in terms of a successful industry transition and support for workers (DEWR, 2019).

The Australian Car Manufacturing Industry: Partnerships in Retraining

The most successful retraining programs offered previously were those that had resulted from a strong partnership between government, industry, unions and training providers, and were flexible in their design. They generally offered a broad range of support and services to address the diverse training and other needs of retrenched workers. Innovation and flexibility in programs were important in responding to specific needs (DESE, 2020).

Initially, it was estimated that the closures would result in 27,600 direct job losses nationally; the actual number was closer to 14,000. The success of the response lay in the government's diversification strategy. The original manufacturing plants retained functions in Australia such as research and development, design, sales and marketing, and corporate functions that resulted in more jobs being retained in Australia than first estimated. Workers had the opportunity to retrain and transfer into new functions within the company (DEWR, 2019).

Government policies dealing with the cyclical or structural effects of economic change usually include a range of programs to support those employers and workers directly impacted in the transition.

These are often referred to as Active Labour Market Programs (ALMPs) and their purpose includes:

- securing employment for displaced workers or business owners,
- supporting an industry as it goes through a time of change,
- generating new economic opportunities in communities affected by change.

The following tables outline the two main classifications of these support programs, by sector and purpose:

Table 1. Different types of ALMPs based on sectors (adapted from Kluge (2010))

Categories	Descriptions
Labour market Training	This category includes programs such as workshop based training, on-the-job training, and work experience. In particular, the measures can either provide a more general education (e.g. language courses, basic computer courses, or other basic courses) or specific vocational skills (e.g. advanced computer courses or courses providing e.g. technical and manufactural skills). Their main objective is to enhance the productivity and employability of the participants and to enhance human capital by increasing skills.
Private sector incentive programs	This category consists of all measures aimed at creating incentives that alter employer and/or worker behavior regarding private sector employment. The most prominent program in this category is a wage subsidy, either direct wage subsidies to employers or financial incentives to workers for a limited time. These subsidies aim to encourage employers to hire new workers or to maintain jobs that would otherwise be broken up. The target of these subsidies includes long-term unemployed and more disadvantaged individuals. Another type of subsidized private sector employment is self-employment grants where

	unemployed individuals starting their own businesses will receive these grants and sometimes also advisory support for a fixed time.
Direct employment programs in the public sector	This category concentrates on the direct creation and provision of public works or other activities that produce public goods or services. These programs are normally targeted at the most impacted individuals to keep them in contact with the labor market. It is also to preclude loss of human capital during a period of unemployment.
Services and Sanctions	This last category involves all programs aimed at enhancing career development, including transitions and job search efficiency – hence this category is also called the “Job Search Assistance” category, mainly by including sanctions (mutual obligation requirements). Measures under this category encompass job search courses, job clubs, career development, counseling and monitoring, and sanctions in the case of non-compliance with job search requirements – share. All are geared towards increasing the efficiency of the worker transition process.

Table 2. Different types of ALMPs based on aims (adapted from Brown & Koettl (2012, 2015))

Category	Instruments
Incentives to retain employment	work sharing and short work and wage subsidies
Incentives to create employment	wage and hiring subsidies, startup support
Incentives to seek and keep a job	in-work benefits, subsidies, tax credits, public works, activation, and workfare, sanctions
Incentives for human capital enhancement	on-the-job and classroom training
Improved labor market matching	job search assistance, employee-employer intermediation services, counseling, and monitoring

An example from the research of when and how a number of ALMPs were successfully deployed to support industries and workers through a large-scale economic transition comes from the steel manufacturing industry in Illawarra, New South Wales. In 2011, the major steelmaker in the region (BlueScope) ceased exports and halved its production capacity, resulting in the redundancy of 800 steelworkers. The Federal Government immediately announced a \$40 million package consisting of the Illawarra Region Innovation and Investment Fund (IRIIF) to attract capital investment to the region to create sustainable and diversified employment. The government also introduced a Labour Market Program (LMP) focusing on Job Service Providers (JSPs) aiding redundant steelworkers regain employment (O’Brien and Burrows, 2019).

ALMPs were vital in shaping the world’s labour market recovery from the COVID-19 pandemic – a public health crisis with sudden and far-reaching economic affects (OECD, 2021). Countries introduced new employment incentive schemes or increased the coverage

of existing ones to support the hiring of young jobseekers, long-term unemployed and other vulnerable groups. Countries that use employment incentives for young jobseekers include Argentina, Australia, Chile, France, Greece, Hungary, Ireland, Korea, Luxembourg, New Zealand, Portugal, Romania and the United Kingdom. Some of these measures are still available in some countries, while in others they only covered a short period of time (OECD, 2021).

The research shows that a combination of targeted ALMP programs can enhance and augment an individuals' skills and become increasingly important to connect people to jobs in a shifting labour market. Reallocating displaced workers and supporting employers to recruit skilled workforces that fully utilise their human capital will help to ensure a strong and balanced transition (OECD, 2021).

When it comes to the potential growth of a new, greener economy, there is evidence that specific labour market shocks to sectors and industries and the rapid adoption of new ways of working may result in an impetus for greater reskilling of the workforce. It has been long established the transition to net zero would affect the labour market and employment in four ways (UNEP, 2008):

1. new types of jobs will be created as the market for new technology management and consulting services increases;
2. some jobs will be replaced as the result of the transition from fossil-fuel-based (high-emissions) energy production to renewable (low-emissions) energy production;
3. some employment may disappear without replacement;
4. some existing jobs will be redefined or transformed to be 'greener' in term of skill sets and operational procedures.

The key question is what the Government can do to empower workers to capitalise on new career opportunities. According to the Technology Investment Roadmap (Australian Government, 2021), Australia's prioritised technologies investment could support up to 160,000 direct and indirect jobs by 2030. A large portion of these new jobs pertains to low emissions technology career opportunities located in regional areas. For example, by 2050, manufacturing and exporting minerals, rare minerals needed for clean energy will create up to 52,000 jobs in Southern Western Australia, the Pilbara and South Australia. Hydrogen production may generate 16,000 jobs in central Queensland, Southern Western Australia and the Pilbara, and 13,000 jobs across the country. Low emissions steel and alumina could create up to 18,000 jobs in South Australia and Queensland – making the total projection of more than 100,000 new direct jobs. Among the new jobs, 62,000 come from mining and heavy industry sectors according to the analysis of DISER and McKinsey (Australian Government, 2021).

To capture these opportunities presented by a shift to green technology, Australia needs to support the creation of a highly skilled workforce and provide competitive work conditions relative to other markets. The successful exploitation of an emerging yet highly varied jobs market is highly dependent on skills training, with some forecasting that the influence on skills will be far greater than on employment and job stability (Markey et al., 2014). In addition to general skills, such as problem solving, technology literacy, communication, the

workforce also needs to develop skills in specialised areas including sciences, engineering, data analysis, construction and project management (Australian Government, 2021).

What support has the government committed to so far?

While the Australian Federal Government has focussed its policy agenda on setting an agreed transition target by 2050, there are no clear plans for just how this major change will be resourced or delivered in close consultation with the regions most affected.

Key examples of net zero responses at the State and Territory level (JSA, 2023; see table below) have more in common with the examples provided above where there is a policy and funding commitment that involves close and ongoing consultation with local stakeholders and sets both employment and new industry growth targets in the short-to-long-term.

State/Territory	Net Zero response
Victoria	The <i>Clean Economy Workforce Capacity Building Fund</i> was designed to enable training providers and industry to work together to develop new training methods and products. The funding will address short- to medium-term needs, while a longer-term Clean Economy Workforce Development Strategy is produced. The Victorian Government is also creating state-wide project-based workforce planning tools to provide insights to inform skills delivery.
Queensland	The Future Energy Workforce Roadmap will be delivered in 2023 and will identify opportunities to build clean energy workforce capacity. It will build on the state's dedicated Hydrogen Industry Workforce Development Roadmap 2022-2032. The Queensland Energy and Jobs Plan also includes a \$90 million investment to establish two regional transmission and training hubs.
Tasmania	Energising Tasmania was established in 2019 to support the energy workforce to deliver major projects across transmission, infrastructure and renewable energy. It includes a Training Fund for endorsed RTOs to deliver fully subsidised training for related sectors.
New South Wales	The <i>Royalties for Rejuvenation Fund</i> sets aside at least \$25 million each year from mining royalties to support coal mining communities throughout the state. This funding will ensure that these communities can make targeted investments, including towards workforce development programs.
Western Australia	<i>Collie's Just Transition Plan</i> is a commitment to working with the community to create a strong and sustainable future as Collie shifts away from a dependence on coal. The plan includes \$200 million of funding to bring new and emerging industries to the region.
Northern Territory	<i>Renewable Hydrogen Master Plan</i> explores partnering with Charles Darwin University and training organisations to create new skills development pathways and apprenticeships for emerging renewable hydrogen jobs.

Australian Capital Territory	The Government is working with Tesla and other manufacturers to develop a new course to train Canberra's first Electric Vehicle (EV) apprentices under a new Certificate III in Electrical Vehicle Technology in 2023.
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What do we know about the economic impacts of a transition to net zero?

In this section we outline the economic impacts and growth potential from the CoPS modelling to demonstrate how particular industries, employment categories and states will be affected in both the base and net zero scenarios.

Industry Effects

The CoPS modelling suggests that, relative to the base case, employment in the Mining sector will decline by 6 per cent by 2030 and by 12 per cent by 2050. The Construction sector will remain stable until 2030 but decline by 5 per cent by 2050. The other industries that will experience (smaller) declines in employment by 2050 with the net zero policy in place, will be Accommodation and food services, the Rental sector, Retail trade, public administration and safety, Arts and recreation and Wholesale trade. With the exception of Accommodation and food services, the effects will be much smaller or zero in the short run, to 2030.

Figure 1 below shows how different industries will be affected, according to this modelling. The industry sectors whose employment will be positively impacted are: Manufacturing, Professional services, Administrative services, Agriculture, forestry and fishing, and Information, media and telecommunications.

Figure 1

A switch to net zero affects industries differently

Difference in total employment (%) in a net zero scenario versus a business as usual (base case) scenario

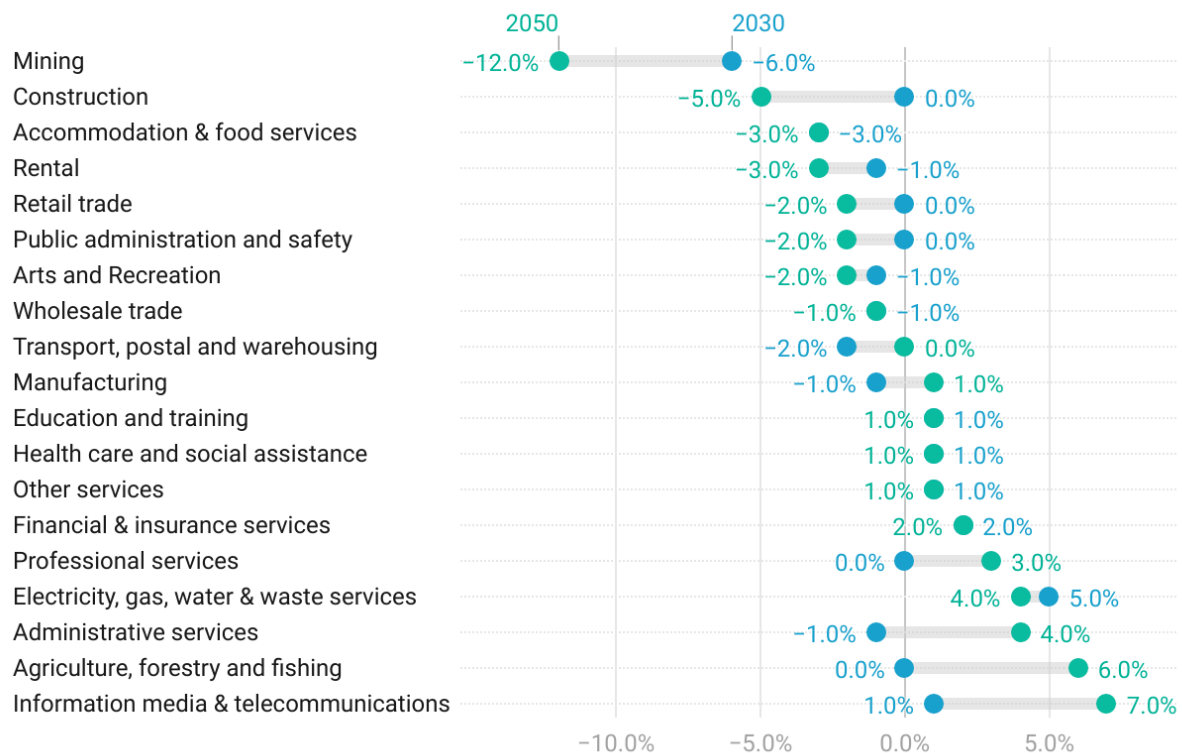


Figure 2 shows the absolute changes in employment by industry sector from the modelling. This indicates that although some sectors will experience significantly lower employment than in the base case, aggregate employment in every sector will nonetheless grow. So taking Mining as a prime example, although employment can be expected to decline by 12 per cent by 2050, relative to the base case, the model predicts an increase in employment in the Mining sector of 22.7 per cent over that period, which is about 435,000 more employed persons.

Figure 2

A switch to net zero affects industries differently but there is still employment growth in every industry

Difference in total employment in a net zero scenario versus a business as usual (base case) scenario

Industry	Total employment 2020	Base case total employment 2050	Net zero total employment 2050	Base total employment 2020 vs 2050 difference (%)	Net zero employment 2020 vs 2050 difference (%)
Agriculture, forestry and fishing	335,594	492,819	524,196	46.8%	56.2%
Mining	354,481	485,550	434,813	37.0%	22.7%
Manufacturing	932,724	1,470,332	1,487,178	57.6%	59.4%
Electricity, gas, water & waste services	186,651	231,055	239,699	23.8%	28.4%
Construction	1,002,871	1,410,068	1,349,244	40.6%	34.5%
Wholesale trade	390,511	601,594	595,347	54.1%	52.5%
Retail trade	1,498,291	2,293,508	2,247,212	53.1%	50.0%
Accommodation & food services	779,920	1,465,504	1,423,852	87.9%	82.6%
Transport, postal and warehousing	709,214	1,023,177	1,019,991	44.3%	43.8%
Information media & telecommunications	95,887	173,794	186,314	81.2%	94.3%
Financial & insurance services	426,922	665,343	676,085	55.8%	58.4%
Rental	47,647	70,838	68,461	48.7%	43.7%
Professional services	1,163,535	1,958,977	2,020,655	68.4%	73.7%
Administrative services	447,622	803,194	832,336	79.4%	85.9%
Public administration and safety	911,081	1,259,381	1,237,550	38.2%	35.8%
Education and training	1,104,715	1,542,456	1,551,124	39.6%	40.4%
Health care and social assistance	1,750,480	2,469,772	2,505,919	41.1%	43.2%
Arts and Recreation	249,513	356,731	349,692	43.0%	40.1%
Other services	400,935	625,450	630,345	56.0%	57.2%

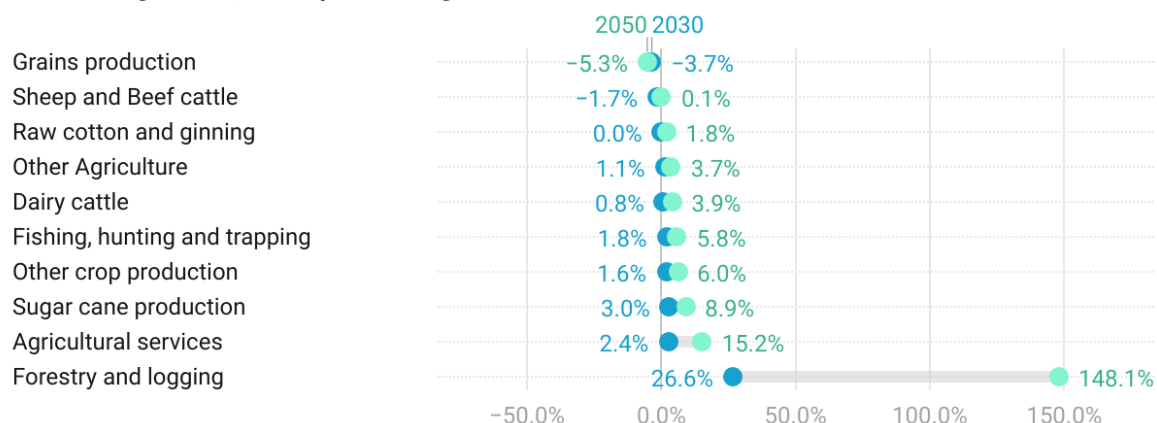
Figure 3 shows the variations in employment impacts within the Agriculture and Mining sectors. Mining is a particularly important sector to look at. The 12 per cent reduction in employment (relative to the base case) by 2050, masks considerable variations within the sector, with gas mining, coal mining and oil mining being impacted the most, with reductions of 47.8 per cent, 35.8 per cent reductions, respectively, relative to the base case.

Figure 3

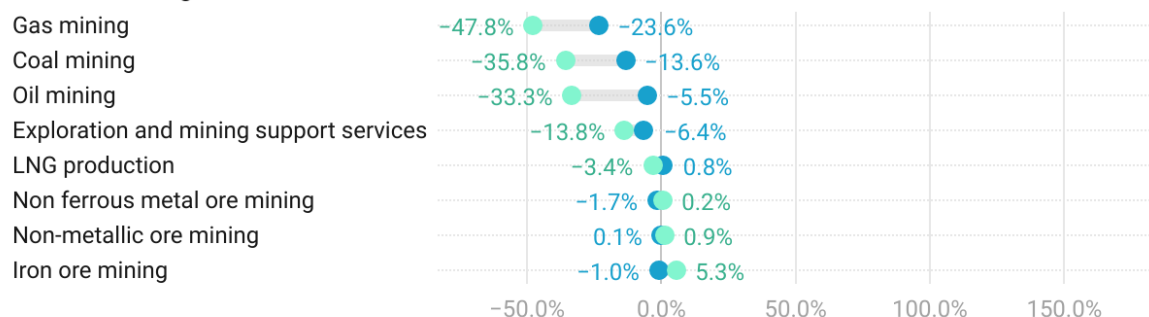
Within industry sectors, there is great variation in the impact of a transition to net zero

Difference in total employment (%) net zero vs business as usual (base case) by industry in 2030 and 2050

Sector 1 - Agriculture, forestry and fishing



Sector 2 - Mining



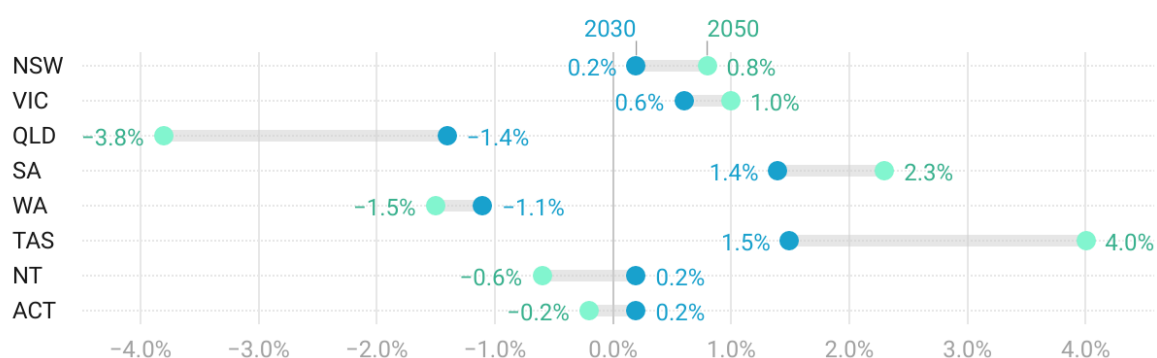
State Effects

Figure 4 shows the impact of net zero by state. Queensland and Western Australia are the most impacted negatively (3.8 per cent and 1.5 per cent by 2050) and Tasmania the most impacted positively (4.0 per cent by 2050), relative to the base case. However, the modelling shows that aggregate employment still grows strongly in Queensland and WA, by 44 per cent and 40 per cent respectively. They would have grown by 45 per cent and 46 per cent respectively, in the base case.

Figure 4

A transition to net zero alters growth patterns of different states

Difference in total employment (%) net zero scenario versus business as usual (base case) 2030 and 2050 by state and territory



What are the local and regional impacts of a transition to net zero?

This section details real-world examples from two key Australian mining regions that demonstrate just how important localised interventions are to successful workforce and industry transitions. The picture that emerges is of the incredible resilience, commitment and specialised knowledge in the regions to support its citizens to survive and thrive in the face of massive change.

To add an on-the-ground perspective to the raw data, qualitative research was conducted in the form of interviews with stakeholders involved in the jobs and skills outcomes for two case study regions were selected from the list of the most severely impacted localities identified in the modelling: **Latrobe Valley** (Victoria) and **Hunter Valley** (New South Wales). Please refer to the appendix for more details on the research methodology.

These regions are already at the sharp end of the changes brought on by a move to net zero and so provide a valuable profile of the challenges and responses required to support people and places through the transition.

We spoke to people working closely with their local populations to aid in the transition to new jobs and industries as the policy changes hit close to home. The interviews focused on regional industry, economic, work and living challenges, current jobs, skills and career development program responses and commentary on policies/program to support regions during the net zero transition phase.

The impact on workers and industries

The Latrobe and Hunter Valleys are at the centre of their state's respective energy industries, therefore the national goal of net zero by 2050 is largely reliant on the successful management of changes in these coal face regions.

With the closure of the Hazelwood Power Station in 2017, the Latrobe Valley has recent experience and lessons to impart on the impact of greenhouse reductions on its local industries. One of the most significant observations about this closure was the speed with which it was carried out. There was little-to-no-time for the region to prepare and cushion workers for the sudden loss of work across an entire power plant.

The **Latrobe Valley** produces a total of approximately 85% of the electricity (through the mining and burning of brown coal) for the entire state of Victoria and supplies some electricity to New South Wales and Tasmania. The valley is home to four of the highest electricity producing thermal power stations in Australia. Power plants still operating in the Latrobe Valley include Loy Yang Power Stations A & B, Yallourn Power Station, Jeeralang Power Station (Gas).

One interviewee recalled about the transition that, "it was so quick. It was three months. They announced it and it was closed at the end of March. Or four months it was. So that people hadn't time to make that decision anecdotally. We met with some clients who basically, the company allowed them to sign a new lease on a car three days before the announcement. There was a disbelief that it would happen. Right up until the 31st of March people said, 'It's not going to happen. They won't close the doors. They won't close the gate.' And it did."

The Hunter Valley is on the cusp of four major coal fired power station closures scheduled to take place over the next year. In addition, Eraring in Lake Macquarie is currently set to close in 2025 with others such as Vales Point and slated for 2028-9 and Bayswater in 2030-3. Despite the increased lead time, the stability of the region's economy and workforce remains uncertain. There are a number of mines set to close in the future, with anticipated job losses predicted at around 4,000 in a labour market of 320,000.

The most important economic activity in the **Hunter Valley** is coal mining (through businesses such as Rio Tinto and BHP), mostly for export. The Port of Newcastle is the world's largest export facility for coal, most of which is brought to the port by rail. Electricity generation at Eraring, Bayswater, Liddell, Munmorah, Redbank and Vales Point coal-fired power stations is a major industry of the region.

Even if the reallocation of jobs is managed successfully, it is impossible to know how the region will absorb such significant changes. This naturally brings with it a measure of anxiety about the future, especially in those parts of the Hunter that have suffered large-scale industry closures in the past.

As a participant from the Hunter Jobs Alliance put it, "the timeframes and how that churn impacts and interacts with path dependency and other value-adding options, I just don't think we know. I think there's a sense that the region does have this innate capacity for resilience. We bounce back pretty well, notwithstanding a lot of impacts on individuals and families, some that were permanently scarring from the steelworks closure."

Practical programs and strategies to support workers

The case studies highlighted the importance of targeted, in-place employment and counselling services for displaced workers. Whether these programs were implemented in response to sudden station closures or planned in response to impending job losses, connecting people with local career and employment support was reportedly crucial to navigating such large-scale change. Participants also highlighted that utilising the expertise of people with first-hand knowledge of the workforce and broader population was important. Programs need to be designed with a sensitivity to the needs of particular demographics to ensure that the help on offer is relevant? appropriate.

The lessons learned from the Hazelwood Closure in Latrobe point to some best practice program approaches and misconceptions to avoid such as:

- The importance of an on-site worker transition service team comprising case workers from employment services, social work and counselling services (some externally situated as in small towns people did not always want to see counsellors on site where they knew everyone).
- Consider the makeup of the workforce and provide tailored information to support decision making: most workers were casual contractors (the

"The other thing that worked really well [in **Latrobe**] is we're here for the long haul. We're still here. People came in and out of the service as they needed it. In some respects we were a security blanket for some, or some came in to get a little bit of support. Everyone's not just about skills and workforce. There was also mental health supports. Family members as well, we worked with family, partners, kids as well as the whole family, across that spectrum as well which is the first time that's happened."

assumption was that most workers were permanent full-time). Workers in the 60-65 plus age range were not necessarily ready to retire. Many needed support and employment for a further 18 months before they were ready to finish up. Options like further work, study or assistance with retirement planning should be provided based on individual desires and choices given accordingly.

“[At Hazelton] we did a lot of the mental health support and debrief ourselves because we spent the time. It's not like a job active where you had 170 people and you're just getting them out. We had the time to spend with them and work with them and their family and ask those questions. It would not be unheard of sometimes to sit with someone for two hours.”

- Have an intake point with triage capabilities: staff a voluntary program that can pivot from advice on mental health supports to discussions about small business or employment and so on.
- Develop integrated partnerships with local services such as the Worker Transition Service, the Gippsland Trades and Labour Council, Skills and Job Centre at TAFE and Small Business.

a \$5,000 wage subsidy for full-time employment and around \$2,000 for study or retraining. This subsidy was mostly taken up by small businesses in addition to grants for those businesses to employ displaced workers.

- Transition for the whole community, not just the industry and the power workers themselves.

For the Hunter Valley, which has had more time to prepare, much of the focus has been on setting up a robust advocacy and social research organisation that is familiar with the attitudes and needs in its community and the services required in the region if it is to make the transition successfully. The key work of the Hunter Valley Jobs Alliance has been centred on:

- Connecting with key stakeholders: Spend the time talking to the community, whether it is workers through affiliate unions, social research projects, public processes and gaining people's insights and issues and raising that with government.

- Becoming a trusted stakeholder: a regional organisation that acts as a function of union and environment groups is important because its objectives are around regional shared interests.

“We've become...a sort of credible and trusted stakeholder...it's pretty open and we work quite well with people. So we've...become a bit of a connector...a sort of glue organisation, making sure people are talking to each other in the region, which has been good.”

- Becoming an advocacy organisation: thinking about the projects and campaigns that will best highlight the needs of the region was highlighted, with a special focus on procedural justice and the mechanics of supporting workers in communities through change. Examples include campaigning for a regional Hunter Valley authority, workers support programs and supply chain diversification training.
- Working on investment attraction and opportunities for new industries.

Future opportunities in the regions

In discussing the prospects for future jobs and industry opportunities in the regions, the interviewees highlighted some of their hopes, concerns and clarifying messages for policy makers and people unfamiliar with the implications of the push for net zero.

In Latrobe, there is a sense that despite its challenges, the region has a bright future. New energy investment in Gippsland is around \$40 billion. However, it is anticipated that by 2025 there will be an inevitable worker shortage. The battle for existing power stations is to maintain their workforce as new industries emerge. At Yallourn, around 900 short term and casual workers – the bulk of the workforce – are employed on a cyclical basis for a twelve week period. This short-term employment ceases until the next cycle. These workers may well be diverted to jobs in the construction and building of new energy, so access to this workforce will be lost before permanent closure.

For the Hunter region, it was important to explain to people outside of the region that moving from the old carbon dense industries to newer, cleaner forms of production is not a simple case of substitution. The lack of understanding of the complexities involved in transitioning entire workforces to net zero operations was seen as damaging to expectation inside and outside the region.

“...there is a really big misperception out there... particularly amongst urban constituencies, environmental constituencies, that there’s some kind of like for like substitution. And...that has actually been really damaging because it’s created...this expectation that everyone who works in a mine will work in a wind farm or what have you. They’re really different industries in a lot of ways.”

Misconceptions aside, people want to see tangible opportunities and to have options and these are beginning to emerge in the region:

- “There’s a couple of local scale ups that are going quite quickly from 25 to 50 to 100 workers doing energy and energy storage”.
- “We’ve got offshore wind, which employ thousands of people in construction if it gets up. Maybe 500 to 1,000 in ongoing operations.”

Future workforce planning – what skills for which jobs?

One of the strongest threads running through the interviews across both regions was the need to identify what transferrable skills exist among the workforce and how to best enable existing workers to move into roles in new industries.

“The family income may change so partners might want to do some study or learn through that. It’s about giving advice and breaking down those myths. Working with people and targeting the training and getting advice on that so it goes to a job, a vocational outcome, rather than, ‘Someone said I need to do this...’

The power industry is full of people who have worked in the same place for 40 years. For individuals in this context it is difficult to know what a transferrable skill is. Case workers must provide tailored advice in concert with a Skills and Jobs Centre to point people in the right direction.

Understanding the skill base is one thing, but the interviews revealed the need to find the best fit for those skills in emerging technologies. The approach depends on the cohort on workers, especially in terms of age: “When we talk about young people, it’s about helping them understand emerging technologies and emerging skills. When we’re in it already, we’ve just got to try and enable them to give them the opportunity and them as in whoever is a trained tradesman or an engineer going back and doing a skillset that sits - so, technically it’s backward but it’s forward in skills.”

Workforce planning is not without capacity issues. Interviewees in the Hunter Valley recognises the difficulty of translating commissioned studies on skills into action. The key problem is the ability to be able to bridge from research into the recruitment of teachers and the provision of a place for young people and transitioning workers to

learn about their options. The big problem with the way place-based development is run is that it transfers responsibility onto regions that do not have the resources or the knowledge to resolve the problems.

“The enabling piece is propping [people] up...and saying...I’m going to give you a leg up because you’re an existing worker, you’ve already been trained in this space, you’re working in an industry that’s going to diversify, now we need to enable you the opportunity to step into a new realm.”

What can governments and local authorities do to help?

The interviewees also recommended the following in terms of strategies or policies that could aid their regions during the transition phase:

- Strong coordination and communication of the intersecting strategies, roadmaps and policies linked to net zero that affect the regions. For example, the New South Wales Government has energy infrastructure roadmaps, the renewable energy zone infrastructure, the net zero innovation policy and a suite of different policy changes, statements and objectives.
- The same coordination of regulation and standards development has to happen between the state and federal governments. This would enable the industries (e.g. hydrogen) to participate in a clean energy future with a knowledge and understanding of what standards need to be implemented.
- To enable future growth and stability, ensure that policy directions are clearly defined, maintained and timed in a way that is aligned with the infrastructure requirements of the regions.
- The need for a regional authority that can support workers through change. It would provide an extensive worker support service or function, whether that is done by existing local services or outsourced. This authority safeguards procedural justice so that everything that can be done for people, including supply chains and contractors, is done.
- A worker support service that has an office in half a dozen major towns and cities in the region, that had one or two qualified career practitioners that could speak to workers, would ensure that people have a good experience straight away: “Top shelf career [information]. Accessible financial advice. Wellbeing training, budgets, those type of things. You get silver buckshot instead of silver bullets. It’s really efficient, works well.”

Conclusion

With the Government announcement of a National Net Zero Authority, we welcome the shift from the public policy focus on emissions targets to a focus on concrete transition responses that will require a collaborative and multi-disciplinary approach.

For the work of the Authority to be a success, it must listen to knowledgeable regional voices and facilitate responses that will work best for local workers and industries.

A commitment to further and ongoing research to support regional workforces and mature workers will be central to the implementation of targeted and effective transition resources and programs.

The coordination of resources is critically important to ensure that information is disseminated in a timely manner, allowing for long-range planning to ameliorate negative impacts.

The response should also foster innovation in growth areas and consider incentivising new large opportunity investment in regions where change is necessitated to achieve net zero.

The promotion of formal as well as informal education and training approaches, including industry information sessions which can introduce new awareness of possible opportunities, particularly in partnership with local councils and business groups based in regions will be critical.

And finally, future net zero policies and programs will benefit from an appreciation of place-based approaches and targeted industry responses given the localised nature of change across diverse communities and demographics.

Including regional perspectives and expertise in targeted and well-resourced national plans will go a long way to ensuring that the communities at the heart of net zero 2050 will be guided through this critical period of change to embrace a sustainable low emissions future.

Appendix 1: Methodology

Further analysis of economic modelling

This report - stage two of the research project - uses further analysis of the new economic modelling data developed by the Centre of Policy Studies to more closely examine the economic impacts in the Australian regions most effected by the transition to net zero.

In the stage one report *Zero Greenhouse Gas Emissions by 2050 in Australia: What it means for the Australian Economy, Industries and Regions* (November, 2021), the modelling:

- compares two scenarios – business as usual and a transition to net zero emissions.
- takes a conservative approach and is based on today's technology and industries.
- allows us to identify industries that are most vulnerable to policies directed at net zero emissions.
- shows that most of Australia would receive a neutral or net economic benefit of going to net-zero.
- demonstrates that without government support and strategies, the pain will be experienced more severely in coal, oil and gas regions.

To better understand the scope and scale of the economic effects on these regions, additional data from the modelling was requested, as follows:

- data on the effect on employment by industry and occupation (separately presented) for the most severely affected localities, namely:
 1. Far West and Orana
 2. Hunter Valley (ex. Newcastle)
 3. New England and North West
 4. Newcastle and Lake Macquarie
 5. Latrobe - Gippsland
 6. Darling Downs – Maranoa
 7. Central Queensland
 8. Mackay – Isaac – Whitsunday
 9. Queensland – Outback.
- an occupational breakdown and location breakdown for 2020, 2030 and 2050 (for both the base case and the projected case) for the following industries identified as vulnerable in the stage one report:
 1. Grains production
 2. Coal mining
 3. Oil mining
 4. Gas mining
 5. Mining support services
 6. Petroleum refining products
 7. Alumina refining
 8. Electricity generation – coal
 9. Electricity generation – gas
 10. Gas supply.

The researchers used this data to provide the following analysis in Part II of the report based on both 2030 and 2050 timeframes:

1. **The employment implications of net zero emissions**, looking specifically at:
 - Industry effects
 - State effects
 - Local effects
2. **The major problems for the education and training sector**: analysis of future workforce training / re-training of redundant workers with a particular focus on the areas hit hardest
3. **Solutions** proposed in the following areas:
 - Regional engagement
 - Active labour market programs
 - Career information and education provision

Other research interviews were held with:

- Professor Ross Garnaut, Economist, Professorial Fellow in Economics and a Vice Chancellor's Fellow at the University of Melbourne.
- Mayor Greg Williamson, Mackay Regional Council.
- Warrick Jordan, Coordinator of the Hunter Jobs Alliance (now Consultant, Institute for Regional Futures).
- Liana Nadalin, Training Services Manager, NSW Department of Education.
- Clare Sykes, Engineer, Managing Director of LarkinSykes.
- Tony Flynn: Team Leader, Worker Transition Services at Latrobe Valley Authority.
- Peter Tatham, Career Strategies and Transition specialist.

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