Environment Report

Just Transition: Implications for the Corporate Sector and Financial Institutions in Australia

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Acknowledgement of Country

The Global Compact Network Australia, National Australia Bank and the Institute for Sustainable Futures, University of Technology Sydney acknowledge the Aboriginal and Torres Strait Islander peoples as the traditional owners and custodians of the lands that we live and work on across Australia. We pay our respects to Elders past, present and emerging, and recognise the valuable contributions Aboriginal and Torres Strait Islander peoples make towards all aspects of Australian life. We imagine a future where all Australians are united by our shared past, present, future and humanity. This is our vision for reconciliation.

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About the Organisations

Global Compact Network Australia

As a special initiative of the United Nations (UN) Secretary-General, the United Nations Global Compact is a call to companies everywhere to align their operations and strategies with ten universal principles in the areas of human rights, labour, environment and anti-corruption. Launched in 2000, the mandate of the UN Global Compact is to guide and support the global business community in advancing UN goals and values through responsible corporate practices. With more than 11,000 companies and 3,000 non-business signatories based in over 160 countries, and more than 60 Local Networks, it is the largest corporate sustainability initiative in the world.

Locally, the Global Compact Network Australia (GCNA) brings together signatories to the UN Global Compact, including more than 30 ASX 100 companies and other major corporates, SMEs, non-profits and universities, to advance the private sector's contribution to sustainable development through the universal framework provided by the UN-mandated Sustainable Development Goals (SDGs) and the Ten Principles. We lead, enable and connect business and stakeholders to create a sustainable future by supporting businesses to act responsibly and helping them find opportunities to drive positive business outcomes.

www.unglobalcompact.org.au

Institute for Sustainable Futures

The Institute for Sustainable Futures (ISF) is an interdisciplinary research and consulting organisation at the University of Technology Sydney. ISF has been setting global benchmarks since 1997 in helping governments, organisations, businesses and communities achieve change towards sustainable futures. We utilise a unique combination of skills and perspectives to offer long term sustainable solutions that protect and enhance the environment, human wellbeing and social equity.

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For 160 years, we've been helping our customers with their money. Today, we have more than 30,000 people serving nine million customers at more than 900 locations in Australia, New Zealand and around the world. As Australia's largest business bank, we work with small, medium and large businesses to help them start, run and grow. We fund some of the most important infrastructure in our communities – including schools, hospitals and roads. And we do it in a way that's responsible, inclusive and innovative.

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FOREWORD

DAVID GALL, GROUP EXECUTIVE – CORPORATE AND INSTITUTIONAL BANKING, NAB

When NAB considers the actions it can take to help address some of society's most important issues, we do so through the lens of our customers.

That's why earlier this year, and following devastating bushfires across many parts of Australia, we surveyed a broad cross-section of small to medium business owners to better understand their views on climate change.

Of the businesses surveyed, 90% expressed concern about climate change risk and environmental degradation. Not surprisingly, more than 70% revealed their view on climate change had altered since the bushfires.

These are customer-led insights we consider every day in our business. It's also why we are taking a range of actions as a bank to help address climate change. These actions include actively working to reduce our exposure to thermal coal and importantly, helping our customers do so too.

We know our world is transitioning to a low carbon future. We need to support and manage that transition sensibly and ensure we and our customers look after the people and communities it might affect.

Around the world, most countries have now committed to reduce emissions under the Paris Agreement, which aims to limit global warming to below 2˚C above pre-industrial levels, striving for no more than 1.5˚C.

At NAB, customers are progressing with their transition plans and we're working side by side with them on their journey.

Transitioning in any context – not just with energy generation – takes time and considered planning.

A "*just transition*" ensures that people and community impacts are considered by those making decisions. Stranded assets, lost jobs and the destruction of livelihoods can become by-products of rushed decision making.

Planning for this transition to a low-carbon economy in a way that is fair to the people it will affect is complex. A zero-carbon world is possible, but the decisions and choices we make today around how we manage the transition will have lasting impacts for generations.

Indeed, this is what the Paris Agreement requires. The United Nations Sustainable Development Goals and the International Labour Organization Standards both call for it too.

A "*just transition*" will create new jobs, drive economic diversification and encourage investments. It ensures environmental sustainability, but also social inclusion. It leaves nobody behind.

This report highlights the implications for businesses and financial institutions in managing their interests and those of their customers and shareholders through the transition. It demonstrates the importance of inclusive planning and the need for a collaborative approach with impacted communities, governments, corporates and unions to enable a planned and co-ordinated transition.

The report also provides a clear framework about how we can think about the transition in the context of corporate strategy and embedding this into decision making.

Together with Global Compact Network Australia (GCNA) and the Institute for Sustainable Futures (ISF), we encourage the private and public sectors to work together and start a national conversation.

The transition is fast accelerating; that is certain. We can all play a role in making sure it brings new jobs and new opportunities with it. That it looks after Australians today, as well as Australians tomorrow.

David Gall

FOREWORD

KYLIE PORTER, EXECUTIVE DIRECTOR, GCNA

The COVID-19 crisis has brought into sharp focus the many vulnerabilities across our systems and institutions.

As the pandemic continues to unfold, the strain on our businesses, financial institutions, political leaders and global governance structures has become all too apparent.

We have grown accustomed to the doom and gloom narratives that continue to permeate our news outlets. But there is also a new narrative that has started to emerge. One that moves us away from a business as usual approach and instead favours a recovery from the pandemic that is sustainable and resilient to future environmental and economic shocks.

There are decisions and actions that we can take today that have the potential to put us on the path to a green and inclusive future.

The significant technological advances that have been made make the attainment of a net zero carbon economy by 2050 possible for Australia.

Now we have a critical choice to make about how we manage the clean energy transition. An unplanned and abrupt transition risks creating stranded assets, stranded workers and stranded communities. Whilst a fair and equitable transition – a "*just transition*" - is one that calls for an environmentally sustainable economy that contributes to the goals of decent work, social inclusion and the eradication of poverty. These three defining challenges are clearly articulated within the 2015 Paris Agreement, the United Nations Sustainable Development Goals (SDGs) and the International Labour Organization Standards (ILO).

There is no 'one size fits all' model but planning, coherent policies and programming, strong social consensus on the goal and pathways to sustainability are fundamental. This will require unprecedented efforts and collaboration by all sectors of society and business will play a crucial role in forging this path. Despite the immense challenges, there are reasons for optimism. Globally and in Australia we have seen a growing number of businesses and financial institutions moving to align their strategies and operations with the goal of net zero emissions.

As we are see increasing calls to *build back better* this has become an opportunity for Australia to create a new deal, one that protects social interests and public services; tackles inequalities in our communities; provides job growth and security; and creates an economy that is no longer at odds with our environment. The *just transition* is not a silver bullet but if it is well planned and managed it could support the structural transformations needed to provide positive community outcomes that ensure that no one is left behind.

The Global Compact Network Australia (GCNA) is committed to being a leading catalyst for a *just transition* in Australia. With this report, we hope to drive the conversation forward and highlight the crucial role that the Australian corporate sector and financial institutions can play in planning and delivering a *just transition*. Together, we can unlock opportunities, create new markets, drive innovation and create long-term transformational change to the benefit of people and the planet.

Kylie Porter

EXECUTIVE SUMMARY

The era of coal-fired power is coming to an end. Solar and wind energy are the least-cost source of new electricity generation in two-thirds of the world (Bloomberg New Energy Finance, 2019) and growing rapidly at the expense of coal power. Under the Paris Agreement, almost all nations have signed commitments that require net zero emissions by 2050.

Over 130 financial institutions globally have announced exit dates from financing, investing in or insuring thermal coal (Institute for Energy Economics and Financial Analysis [IEEFA]), 2020) and close to 1000 companies have set or committed to set targets aligned with the Paris Agreement under the Science Based Targets initiative (SBTi). The International Energy Agency (IEA) has highlighted that COVID-19 has caused a plunge in energy demand 'seven times greater than the global financial crisis', impacting heavily on coal, oil and gas whilst renewable energy is proving so far to be more resilient (IEA, 2020). The full impact of COVID-19 will be determined by the recovery paths taken around the world, but if low thermal coal demand persists as economies reopen, coal retirements are likely to accelerate. The question is no longer 'if' there will be a transition from coal to renewable energy but 'when' and 'how'. For coal producing countries such as Australia, the challenge is how to avoid a 'disruptive' transition with social and economic dislocation in coal regions, while at the same time positioning ourselves to maximise the economic opportunities.

The clean energy transition is progressing strongly in Australia. Renewable energy accounted for one quarter of electricity generation in 2019, driven by record growth of wind and solar farms and the largest per capita rooftop solar deployment in the world (Stocks, Baldwin & Blakers, 2019).

The Australian Energy Market Operator (AEMO) projects market and technology change will lead to at least 50 per cent renewable energy by 2030 under a business-as-usual scenario without additional policy measures and up to 90 per cent by 2040 (AEMO, 2020a). Even with battery storage or hydro power to 'firm' variable renewable energy supply, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) estimates new solar and wind farms are cheaper than coal-fired power stations in Australia (Graham et al., 2019). AEMO (2020b) has determined that the National Electricity Market (NEM) could securely integrate 75 per cent renewable energy as soon as 2025.

With high-quality renewable energy resources, Australia is well-positioned to prosper from the clean energy transition.

Some of the economic opportunities include:

- The development of comparative advantage in heavy industries such as steel, aluminium smelting and mineral processing underpinned by high-quality solar and wind resources as the global economy shifts to clean energy (Garnaut, 2020; Woods, Dundas & Ha, 2020);
- New export industries such as minerals for renewable energy technologies (e.g. lithium, nickel, copper, rare earths) and green hydrogen; and
- The creation of tens of thousands of jobs in renewable energy in regional areas (Briggs et al., 2020).

The broader shift towards a net zero emissions economy will require the mobilisation of large volumes of capital by financial institutions and create opportunities for wealth creation for a range of businesses with new products, services, markets and industries.

However, Australia is also vulnerable to disruptive change as one of the leading global users, producers and exporters of coal. Australian coal-fired power stations are currently scheduled for retirement from the late 2020s onwards, but the growth of renewable energy or technical failures in aging plants could lead to earlier closures. Around 75 per cent of Australian coal production is exported, primarily to South-East Asia, generating A$70 billion in export revenue

[1] As Professor Ross Garnaut (2020) states: 'it is quite clear now that supply of large industrial projects from 100 per cent renewable energy projects... is the low cost path to global competitiveness in a range of energy-using industries'.

in 2019 – around 15 per cent of Australia's export revenue (Cunningham et al., 2019, p. 28). Modest growth is currently the Government's forecast for Australian coal exports (Department of Industry, Science, Energy and Resources, 2020). However, the IEA projects major, rapid decline if South-East Asian buyers implement polices to meet the Paris Agreement and the ongoing cost reductions in renewable energy continue to sharpen the financial incentive for a clean energy transition. Responding to these trends, a growing range of investors, banks, insurers and corporates have announced commitments to exit thermal coal. Thermal coal is approaching a tipping point at which decline could accelerate rapidly.

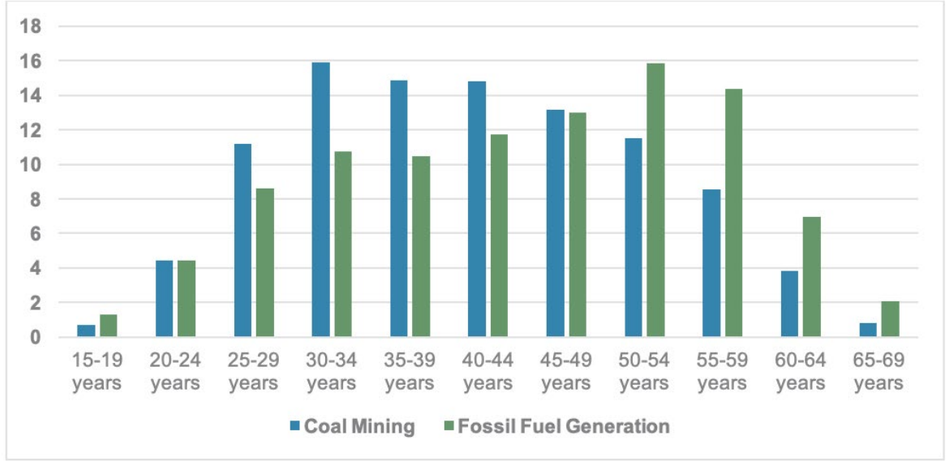
Globally, there has been a major and precipitous decline for coal-fired power and thermal coal prices are close to the lowest they have been in the past decade (IndexMundi, 2020).

Internationally, the exit strategies of financial institutions from coal are accelerating with announcements by over 25 organisations since the beginning of the year including Lloyds Banking Group, Citibank, Allianz and Morgan Stanley (IEEFA, 2020). Some asset owners are also accelerating their exit from coal. One of the largest European owners of coal plants, Enel, is bringing forward closure plans. As Antonio Cammisecra, head of global power generation at Enel, stated: 'We're basically not burning coal now... and this is not a temporary factor. I think this dynamic is here to stay. So better to close these plants now' (Edwardes-Evans, 2020). In Australia, Rio Tinto divested its coal mining assets in 2019 and BHP announced in August 2020 that over the next two years they would divest their thermal coal mining assets, mature oil and gas fields and diversify into higher quality raw materials for steel making and commodities, such as copper and nickel that are used for renewable energy generation (Hume, 2020).

If there is a wave of coal power stations or mine closures in coming years at short notice without advance planning and investment, there will be devastating social and economic impacts in regional communities. Just over 10,000 workers are employed in domestic coal generation and mining with a further 35,000 workers in coal mining for export (Briggs et al., 2020). In the context of a national workforce of over 12 million, coal is not a large employer but the workforce is concentrated in a handful of regions in New South Wales (NSW), Queensland and Victoria which are built around mining, transport, generation and servicing of coal. Almost one-in-two coal workers is a semi-skilled machine operator or truck driver (Australian Bureau of Statistics [ABS], 2016). Whereas the power station workforce is ageing, the coal mining workforce includes a large proportion of prime-aged workers (25 to 44 years) (Figure 1). Consequently, although early retirement packages played an important role in transition overseas, the role they can play for Australian coal mining is more limited.

The impact of the closure of a single coal power station (Hazelwood Power Station) in the Latrobe Valley with only a few months' notice demonstrates the risks. Two and a half years after the closure of the Hazelwood Power Station (Hazelwood), only one-in-three workers has found a full-time job and one-in-four remains unemployed (Victorian Parliament, 2019). Around A$250 million has been invested in rebuilding the Latrobe Valley economy with some positive results but regional labour markets and economies do not adjust quickly to shocks.

Figure 1: Coal Mining and Fossil Fuel Generation, Age Profile (%)



Source: Australian Census (ABS, 2016)

An abrupt transition could lead to a collapse in regional economies with business defaults, high unemployment and inter-generational poverty. Economic collapse and the COVID-19 pandemic's impact on unemployment in the region will also have wider impacts on financial, social and political stability. Not only is there a risk of 'stranded assets' – but if there is a wave of coal power station and coal mine closures without planning and investment ahead of time there will also be 'stranded workers' and 'stranded communities' (Robins, Brunsting & Wood, 2018).

Consequently, there is an imperative for a *just transition*, a 'fast and fair' energy transition that addresses equity and social impacts.

The costs and benefits of climate change will not be evenly distributed; less developed economies and regions, poor households, vulnerable and disadvantaged groups including Indigenous communities, and carbon-intensive regions and communities are likely to be severely impacted by an unplanned energy transition.

However, a well-planned transition that builds and maintains public support is essential for a timely and efficient transition. A *just transition* aims to create decent work, improve access to clean energy and address other equity impacts as part of the clean energy transition (United Nations Framework Convention on Climate Change [UNFCCC], 2017). A *just transition* was formally included as an objective of the Paris Agreement and is now a core part of international climate frameworks.

Box 1 What is a *Just Transition*

What is a *Just Transition?*

Originally, the concept of *just transition* emerged from trade unions as a vision for:

> *An economy-wide process that produces the plans, policies and investments that lead to a future where all jobs are green and decent, emissions are at net zero, poverty is eradicated and communities are thriving and resilient (International Trade Union Confederation, 2017).*

One of the objectives of the Paris Agreement is 'a *just transition* of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities.' *Just transition* is now being incorporated into a range of climate and finance instruments (e.g. Principles for Responsible Investment [PRI]), work programmes arising out of the Paris Agreement (UNFCCC, 2016) and national responses to the Paris Agreement.

Broadly, there are four dimensions:

- **Decent work:** access to secure employment with conditions that meet community standards;
- **Environment quality:** improved environmental quality and removal of hazards in carbon-intensive regions;
- **Equity** in costs and benefits in the transition, especially for vulnerable groups inside and outside the workforce; and
- **Social dialogue:** processes that are inclusive and enable voice and representation for impacted groups.

Leading examples of a *just transition* approach include national coal closure packages (e.g. Germany and Spain) and the development of the Just Transition Mechanism by the European Commission (EC) (which includes €150 billion [A$246 billion] in public and private finance) for coal regions within the European Union (EU).

Different nations are at different stages of the clean energy transition and some are managing the social dimensions better than others. In Germany and Spain, major settlements have been negotiated to phase out coal mining. These negotiations have not been without challenges and there remain ongoing tensions, but there is a policy framework and process which reflect the interests of a broad range of stakeholders. Some nations are in the midst of community engagement processes in which they are developing and negotiating *just transition* packages (e.g. Canada, Scotland). Other countries such as Australia and South Africa that have large coal export sectors are yet to reach the level of common understanding or social consensus required to negotiate and implement transition arrangements.

There are four key lessons for policy-makers and stakeholders from efforts to manage a *just transition* around the world to date (Briggs, Dominish & Mey, 2019):

- **Build a social compact:** community engagement, participation, dialogue and framework agreements across a range of stakeholders are a pre-condition for a *just transition*, a process that needs to be negotiated and implemented over a long period;
- **Plan early for closures:** early notice, industry and workforce planning is essential to reduce the impacts of closures and prepare communities and workers for life after coal;
- **Diversify regional economies over time:** regional economies and labour markets will not adjust quickly – new industries and jobs need to be developed for coal regions over time; and
- **Establish a specialist national or regional *just transition* authority and fund(s)** to invest and plan for a *just transition*.

Whilst governments have often led energy transition processes, *just transition* has significant implications for a wide range of corporates and financial institutions to manage their interests and those of their customers and shareholders.

Just Transition and the Australian Corporate Sector

Amongst the Australian corporate sector, there has been a growing recognition of the risks and opportunities from climate change.[2] An increasing number of corporates are undertaking climate disclosure through mechanisms such as the Task Force on Climate-Related Financial Disclosures (TCFD) and the Principles for Responsible Investment (PRI), committing to ambitious greenhouse emissions reduction targets and signing up to initiatives such as RE100[3]. Over 80 organisations have signed corporate renewable energy power purchase agreements (PPAs) to buy electricity from solar and wind farms since 2017 (Briggs et al., 2019).

Internationally, following the inclusion of *just transition* as an objective of the Paris Agreement, there is a growing movement for corporates and financial institutions to apply and integrate *just transition* principles into their climate change strategies (Bolton et al., 2020; Müller, Börger & Bovenzi, 2019; Robins, Brunsting & Wood, 2018; Robins, Tickell & Irwin, 2019). Leading international advocates for a *just transition* approach, Professor Nick Robins et al. (2018), identified five key reasons why financial institutions should incorporate a *just transition* perspective into their operations which apply to all corporates:

- Understand and manage their exposure to risks;
- Reinvigorate fiduciary duty to maintain trust and confidence of customers and regulators (social license to operate);
- Recognise material value drivers;
- Uncover new investment opportunities and develop products that combine environmental and social goals; and
- Contribute to societal goals and the management of systemic risks and stability.

Incorporating *just transition* principles is an extension of environmental, social and governance (ESG) principles now widely applied across the corporate sector; ESG-based asset allocation, for example, now covers US$30.7 trillion (A$42.8 trillion) of assets under management (Bolton et al., 2020).

The focus of the corporate sector in Australia to date has primarily been on climate risk disclosure and the development of greenhouse and renewable energy targets, but the debate that is emerging in the US and Europe will also come to Australia (Allens, 2020). The implications for businesses will vary depending on their sector and level of exposure to the thermal coal sector. There are a range of opportunities to better incorporate social dimensions of the clean energy transition into the climate risk frameworks of financial institutions and the corporate sector.

[2] There are parallels with COVID-19 which has illustrated the vulnerability of global and national economic systems. Climate change, like COVID-19, could unleash unpredictable environmental, social, economic and geo-political shocks – raising the spectre of a 'Green Swan' event (or 'climate black swan') which creates a systemic financial crisis (Bolton et al., 2020).

[3] RE100 is a global corporate renewable energy initiative which brings together hundreds of businesses committed to 100 per cent renewable energy electricity. Members of the initiative disclose their electricity data annually, which is then reported on by RE100. The initiative is led by The Climate Group in partnership with CDP. Link: https://www.there100.org/re100

Table 1: Sector Roles in a *Just Transition*

Sector	Role in Transition from Coal to Clean Energy	*Just Transition* Implications
Investors	A rapidly growing number of investors are divesting or committing to divest from thermal coal. Equity finance is increasingly hard to source for thermal coal mining and generation and investors are a major source of pressure for change by energy companies.	If all investors and financiers exit from thermal coal simultaneously and in an uncoordinated manner, they could amplify the social and economic impacts (as well as destroying asset values). Investors and financiers have a shared interest in a *just transition* with coal region communities. **Roles include:** • Engagement with operators of coal mines and power stations for exit plans which include social, economic and environmental considerations; • Collaboration between public and private finance in place-based initiatives to drive regional diversification and revitalisation in coal regions; and • Developing financial instruments such as transition bonds (for 'brown' fossil fuels asset owners), green bonds (clean energy projects), green mortgages (e.g. discount mortgage finance for homes with high environmental ratings) and corporate sustainability linked loans. The concept of a *just transition* sovereign bond has also been promoted to bridge the capital gap for financing the transition in coal regions (Robins, 2020).
Financiers	Coal mines and power stations require insurance and may need re-financing. Australian banks and insurers with commitments to exit from financing thermal coal cover 90 per cent of corporate finance and insurance for the market. **Major Australian Banks:** • Commonwealth Bank of Australia: Exit thermal coal mining and coal fired power generation by 2030. Finance will only be provided to new oil, gas or metallurgical coal projects if supported by ESG assessment and in line with Paris Agreement; • National Australia Bank (NAB): exposure to thermal coal mining projects capped at September 2019 levels. Thermal coal mining financing to be reduced by 50 per cent by 2028 and to effectively zero by 2035. Current coal-fired power generation customers will be supported to implement transition pathways aligned with the Paris Agreement. NAB will not finance new or material expansions of coal-fired power generation facilities unless there is technology in place to materially reduce emissions; and • Westpac: zero exposure to thermal coal mining by 2030. Financing of electricity generation sector to support Paris-aligned transition (net zero emissions economy by 2050). **Major Australian Insurers:** • IAG: cease underwriting entities primarily in the business of extracting fossil fuels and power generation using fossil fuels by 2023; • QBE Insurance: zero thermal coal exposure by 2030; and • Suncorp: zero thermal coal exposure by 2025.	
Energy companies	Energy companies are responsible for the closure and transition of coal mines and power stations. The management of closures will be shaped by regulatory requirements but a *just transition* approach under current regulation will require a more holistic approach that includes transition planning for the workforce, suppliers, community and environment.	If energy companies wish to retain social licence to operate across communities, commitment to *just transition* mechanisms and initiatives is vital. Ongoing relationships with investors, regulators, stakeholders and communities across their portfolio will be shaped by how closures are managed.
Supply-chain	For businesses that operate in the supply chain for thermal coal (e.g. rail, port), diversifying out of thermal coal into other commodities and industries will be vital to their future.	For supply chain businesses, the timely diversification into other activities is essential for their workforce. There are likely to be other implications such as re-training.
Non-finance group	The TCFD lists a range of non-finance sectors with major exposure to climate change and energy transition, such as transport, materials and building and consumer products. For these corporates, their exposure is primarily as users of fossil fuels and the associated risks and opportunities from energy transition. Commitments and programs to reduce greenhouse gas emissions and how they are implemented can impact both on the speed and equity of clean energy transition. For many corporates their exposure will be to the electricity system as it transitions from coal to renewable energy whilst others will have a higher exposure to oil (e.g. transport) and gas (e.g. chemical manufacturing) which will experience similar dynamics.	The non-finance group will face increasing expectations to review, disclose and implement measures to manage the social dimensions of climate and energy programs. For example, when investing in renewable energy, there are social dimensions that can be addressed: solar and wind farms are large infrastructure projects which have a range of economic, social and environmental impacts – positive and negative – within regional communities. Poorly managed projects can lead to community opposition that reflects poorly on corporates and damages the 'social licence' for renewable energy, whereas well-managed projects deliver benefits for regional communities and offer a vehicle for the delivery of corporate social responsibility goals.

Around the world, *just transition* discussions, negotiations and programs have been led by governments. However, Australia currently lacks an integrated climate and energy policy or social agreement on the necessity of a transition program. This presents challenges for all stakeholders managing their interests in the clean energy transition but does not mean businesses can or should put off transition planning.

There are significant initiatives and forums emerging at the regional level such as the Latrobe Valley Authority (LVA) and the Hunter Valley Energy Transition Alliance which was formed by AGL (see Section 4). A wide range of business and non-business groups – including, for example, the Business Council of Australia (BCA), the Global Compact Network Australia (GCNA), the Property Council of Australia, the Investor Group on Climate Change (IGCC), the Australian Council of Trade Unions (ACTU), ClimateWorks and WWF-Australia – are advocating for COVID-19 recovery packages as an historic opportunity to build low-carbon economies that are more sustainable and resilient (Morton, 2020; Skarbeck, 2020).

Market and technology changes will continue to drive the clean energy transition and COVID-19 has demonstrated how quickly change can come in a crisis. In Australia, the pandemic has also demonstrated the capacity of governments to respond quickly to scientific evidence and make policy decisions on that basis. These experiences of addressing challenges emerging at the intersection of science, health, community well-being and economics provide considerable learnings that could be applied to the planning and delivery of a *just transition.*

The 2019 – 2020 summer bushfires demonstrated the vulnerability of Australia to climate change and as the economy re-opens it is likely that community and business will push for stronger action on climate change once again. Financial institutions and the corporate sector are acting ahead of national policymakers to manage their interests and those of their customers and shareholders – and will need to continue to do so to be ready for the transition.

Next Steps for the Australian Corporate Sector and Financial Institutions

The key question for Australian corporates and financial institutions is: 'how can your organisation best respond to the economic and social opportunities and risks that flow from the transition to a net zero economy?'

In Australia, the concept of *just transition* is relatively new and less advanced than in Europe, albeit one of 'increasing interest to the investment community' (Allens, 2020). What are the implications for Australian corporates and financial institutions? What could be the next steps to incorporate *just transition* principles to manage social risks and benefits from clean energy transition?

The purpose of this report is to provide a starting point for discussion on the role of corporates and financial institutions in planning for and supporting the delivery of a *just transition* in Australia by:

- Improving the understanding of the clean energy transition in Australia, the social dimensions and implications for corporates and financial institutions; and
- Highlighting lessons from overseas jurisdictions on how to manage a *just transition* for policy makers and businesses; and mapping the stakeholders and resources for understanding their positions.

Beneath is a summary of some of the next steps and considerations for Australian corporates and financial institutions.

1. Socialise the concept

The first step is to 'socialise the concept' inside and outside organisations. Is there an understanding of *just transition* and its implications within key decision-makers in your organisation? Is there an awareness or discussion of the social dimensions of energy transition within your industry associations or multi-stakeholder forums? How would your organisation respond if shareholders, government, or civil society organisations asked what is your approach to *just transition*? Very few Australian organisations would currently be able to respond to these questions.

One of the features of the response to COVID-19 is the growth in multi-stakeholder initiatives advocating for a 'green recovery' including business groups alongside environmental, clean energy, social service, and union organisations. There is an opportunity to build on these forms of multi-stakeholder collaboration to engage in dialogues that also build shared understandings of the importance of *just transition* between business, government, civil society organisations, unions, workers and communities.

Key Considerations:

- Put *just transition* on the agenda in multi-stakeholder forums to develop dialogue, understanding and a shared framework.
- Develop initiatives to build discussion and understanding of *just transition* and its implications for your business across executive, strategy, governance and risk teams.
- Make *just transition* a part of your organisation's public discourse – corporates and financial institutions can help raise the profile of *just transition* by simply making it part of how they talk about climate change.

2. Assess the social risks and opportunities for your organisation arising from the clean energy transition

Understanding the social dimensions of climate risks is a pre-requisite for organisations to act on *just transition* (Network for Greening the Financial System, 2019, p. 30). The Cambridge Institute for Sustainable Leadership (CISL) (2020) found that the key characteristic of a bank to successfully enable its clients to transition to a low-carbon economy is an 'active mindset' which regards the transition as a strategic opportunity for their business and builds internal capacity for the long-term. Developing, understanding and applying *just transition* principles will be an iterative process that is required to understand and identify social risks and opportunities.

To position themselves for the clean energy transition, corporates should apply a 'proactive' lens to understand how to take advantage of opportunities as well as a 'defensive' lens to minimise exposure to the risks from the social dimensions of energy transition for their organisations and customers.

A commitment to climate disclosure reporting can provide a framework for risk and opportunity assessment, information exchange and improve market, regulatory and community reputation.

Two leading examples of reporting mechanisms are:

- **PRI:** Signatories to the PRI include 2500 investors with over US$90 trillion of assets, that are required to incorporate ESG dimensions into decision-making. The social dimension will likely come to incorporate *just transition* principles. Already, 159 investors with US$10.1 trillion in assets have separately signed a Statement of Investors Commitment to Support a *Just transition* on Climate Change (PRI, 2020). For PRI – and other initiatives following the lead of PRI – social commitments that include *just transition* are likely to grow in significance.
- **TCFD:** Over 1440 companies and organisations have committed to support the TCFD which is a global climate disclosure and reporting mechanism encompassing corporate governance, strategy, risk management and metrics / targets (TCFD, 2020). The TCFD includes financial institutions and non-finance businesses for other sectors (TCFD, 2019).

The PRI and TCFD are working on alignment and together represent the major climate disclosure reporting mechanisms. The identification, management and reporting of social risks and dimensions of the clean energy transition can be incorporated within and strengthen existing climate disclosure and commitment mechanisms.

Key Considerations:

- Review the financial and social risks associated with the exposure of your organisation to fossil fuels.
- Review social and equity dimensions of current clean energy or sustainability procurement, products, services and markets to identify gaps, opportunities and implementation issues.

3. Adopt climate, renewable energy and *just transition* commitments

Growing numbers of corporates and financial institutions are signing onto climate change and renewable energy commitments. An organisational commitment creates a focal point and a driver for change, shifting the internal conversation from 'why' to 'how', ensuring it is taken seriously and diffuses throughout strategy and operations. Benefits include increasing low-carbon innovation, reducing exposure to regulatory change, strengthening investor confidence, brand and reputation and social licence to operate (including trade access).

Two of the leading examples of initiatives to be considered are:

- **Science Based Targets initiative (SBTi):** close to 1000 companies are taking action through the initiative (a collaboration between CDP, World Resources Institute [WRI], WWF and the UN Global Compact) under which organisations commit to an emissions reduction target consistent with the goals of the Paris Agreement.
- **RE100:** Over 240 companies have signed the RE100 commitment to 100 per cent renewable energy, (Greenpeace, 2019; The Climate Group, 2020). There are currently 11 Australian organisations that are signatories, these include: Accenture, Atlassian, Commonwealth Bank of Australia, Dexus, Westpac, NAB, the Australia and New Zealand Banking Group (ANZ), Bank Australia, QBE Insurance and Macquarie Bank, Mirvac.

Key Considerations:

- Sign a commitment to a climate or renewable energy target, including a commitment to a *just transition*.
- Diversify assets, investments, finance and operations from thermal coal for investors, financiers, supply chain businesses and energy companies.
- Develop a commitment and transition plan for an orderly exit from thermal coal for investors, financiers, supply chain businesses and energy companies.

4. Incorporate *just transition* principles into corporate strategy and operations

The next step is for corporates and financial institutions to embed *just transition* principles into their own existing climate strategies, risk management and operating practices, tools and products and services. Established templates for a *just transition* framework do not yet exist, but useful sources include the EU Taxonomy (European Commission Technical Expert Group on Sustainable Finance, 2020), the International Labour Organization (ILO) Just Transition Guidelines (ILO, 2015) and the Climate Bonds Initiative[4].

For financial institutions, there are a range of opportunities for the development of new products. Transition finance needs to be developed for coal regions, such as transition bonds as an equivalent vehicle to green bonds for 'brown' assets for transition projects by coal companies that would be excluded from green bonds. Standards are emerging for transition bonds (Riordan, 2019). Robins (2020) has advocated for the establishment of sovereign transition bonds to lead the way:

> *'The next frontier for sovereign bonds is to ringfence proceeds for activities that support a Just Transition. This would have a powerful signalling effect across the financial system on the importance of the Just Transition ... A Just Transition sovereign bond would not finance any social activity, but only those linked to climate and the wider ecological transition. This could include workplace and community initiatives in areas that have already seen or will experience a decline in high-carbon sectors. In regions dependent on coal, for example, the World Bank has highlighted that substantial public spending is often needed to fund retraining, enhanced social welfare, early retirement and environmental remediation.'*

Financial support for workers and community members in coal regions such as hardship / crisis tools for homeowners, loan pauses and concessional lending is likely to be another element.

Financial institutions may also be able to support a more orderly exit from coal. The Grattan Institute (Wood, Dundas & Percival, 2019) reviewed options for ensuring more orderly coal plant closures such as a legislated requirement at a certain age of plant or a negotiated exit timetable (as employed in Germany). Their recommendation is for coal plants to nominate a closure 'window' and for funds to be held in escrow as an incentive to ensure they meet these commitments (and provide resources for the AEMO to manage impacts if they do not). There may be other models including the use of transition bonds or other products provided by financial institutions to incentivise orderly exit and compliance with notice mechanisms.

[4] See https://www.climatebonds.net.

For corporate Australia, there are a range of ways in which *just transition* can be incorporated into corporate strategy and operations once organisational commitments have been established for emissions reduction and renewable energy targets.

For some businesses, there will also be opportunities to develop new products and business models to increase access to the benefits of clean energy for low-income households. In relation to opportunities for new products and services, the Banking on a Just Transition project in the United Kingdom (UK) has identified a series of questions that should be asked of key customer segments (see Appendix 1), including households, small and medium-sized enterprises (SMEs), corporate finance and public authorities.

For many businesses, this will primarily involve managing risks and taking advantage of opportunities when procuring renewable energy directly (e.g. incorporating social programs into the roll-out of renewable energy) or indirectly (e.g. negotiating local economic, social and environmental benefits with solar and wind farms contracted to supply electricity) and the management of emissions reduction commitments in supply chains (e.g. see the case study on Apple's Power for Impact program and Impact Accelerator programs on p.48).

Renewable energy purchased globally through corporate PPAs has grown significantly year on year. Bloomberg New Energy Finance (2019) estimate the volume of renewable energy purchased has increased from 4300 Megawatts (MW) (2014) to 19,500 MW (2019). Current commitments under RE100 for 2030 are equivalent to a further 105,000 MW.

A growing number of corporate renewable PPAs also include initiatives to drive change through supply chains and social programs to improve access to clean energy and economic opportunities.

PPAs with renewable energy projects can therefore be a powerful way to deliver on corporate social responsibility goals, especially for organisations with commitments on the UN Sustainable Development Goals (SDGs). Solar and wind farms deliver on climate action (SDG 13), clean energy (SDG 7) and sustainable communities (SDG 11) – but also a range of other SDGs.

Table 2: A 'Menu' of Benefits that can result from Australian Renewable Power Purchase Agreements

Benefit	
Community development	• Annual grants to local community organisations; • Local infrastructure upgrade (e.g. in partnership with local councils); • Support for human services programs (seniors, disability, mental health); • Discounted microgrid; • Community retail electricity offerings; • Community investment – shared equity with neighbouring land-owners, opportunity for local individuals to co-invest in the facility, etc.; and • Conversion of staff on-site amenities into long-term community facilities (e.g. staff lunchrooms into community rooms).
Local content, local jobs	• Local employment targets (e.g. percentage of staff); • Development of local supply chains (e.g. wind tower manufacturing or assembly, local steel fabrication); • Sub-contractor local jobs register; and • Regional operations personnel.
Indigenous reconciliation	• Indigenous scholarships and apprenticeships; • Dedicated Indigenous jobs provision; • Support for Indigenous service provision; • Cultural landscapes protection; and • Adoption of a Reconciliation Action Plan (RAP).
Skills development & education	• Science, Technology, Engineering and Mathematics (STEM) scholarships; • VET sector skills trade training; • Education and research activity; and • Tertiary education (e.g. partnerships with institutions).
Biodiversity and landscape regeneration	• Invasive plant species eradication funding; • Biodiversity protection investments; and • Landscape restoration activities and support for regional agricultural capabilities (e.g. beekeeping programs).
Technology transfer	• Utilisation of developer or engineering, procurement and construction (EPC) capabilities to support regional service provision or economic development objectives (e.g. battery storage, waste to energy, electric vehicles, hydrogen development).
Gender equity	• 'Women in the energy sector' strategy (e.g. Bomen solar farm in Wagga Wagga, NSW had a 'women in solar' initiative that led to 10 per cent of the construction workforce being women).
Poverty / reduced inequality	• Commitment to employ staff from traditionally disadvantaged backgrounds including: – Long-term unemployed; – People with disabilities; – Indigenous Australians; and – Skilled refugees and migrants etc.

Source: Hicks, Briggs & Mey (2020)

The focus of this report is on the most immediate fossil fuel sector at risk – thermal coal used for power stations – but in time, similar dynamics are likely to apply to metallurgical coal (used for steel production), oil and gas in the transition to a net zero economy. 'Green steel' is emerging as an alternative to the use of metallurgical coal for steel production, electrification and green hydrogen is emerging as an alternative to gas, and electric vehicles are emerging as an alternative to internal combustion engines. Financial institutions and corporates need a framework and approach that will be robust and transferrable to other fossil fuels as they too enter decline and transition.

Key Considerations:

- Develop a strategic framework for the management of social dimensions of energy transition within organisational climate and renewable energy strategies which can be updated, developed as circumstances change and applied to all fossil fuels over time.
- For financial institutions, investigate and develop transition finance products and services for coal regions and sustainable products and services for disadvantaged groups that can support a *just transition*.
- For corporate Australia, review and implement procurement and supply chain management practices to manage social risks and leverage opportunities to improve economic, social and environmental outcomes from clean energy transition.

5. Engage across sectors, clients and governments to support and implement *just transition* principles

Engagement across sectors and with clients and governments is vital as financial institutions and corporates cannot support the delivery of a *just transition* alone.

- **Engagement with government:** Australia currently lacks a clear energy and climate change policy to manage the transition in an orderly, efficient and equitable way. The policy uncertainty is increasing costs for businesses and the risk of disorderly adjustments threatens to impact financial stability and vulnerable communities. Continued advocacy is important as government leadership and public-private partnerships are a feature of nations which are best managing energy transition.
- **Engagement across the finance sector:** A managed exit is required to ensure that divestment does not lead to a fire-sale of assets. This would preferably come as part of a coordinated government strategy, but in the absence of such a strategy, financial institutions and businesses have the opportunity to coordinate a managed exit from thermal coal themselves (or prepare for a shift in Government policy).
- **Engagement with clean energy businesses:** Poor community engagement, employment practices and benefit sharing of renewable energy projects have also sometimes led to community divisions which can undermine social licence to operate. Corporates that are procuring renewable energy should also be engaging with clean energy businesses through tender processes to ensure they are also managing social risks that could impact on the project, returns and impacts on local communities. The Business Renewables Centre-Australia (BRC-A) has developed a guide for corporates on how to include social considerations in renewable PPAs (Hicks, Briggs & Mey, 2020).
- **Engagement with corporate clients on transition pathways and inclusion of social dimensions in disclosure:** There is a growing network of companies engaging through initiatives such as PRI, Australian Council of Superannuation Investors (ACSI), Responsible Investment Association Australasia (RIAA) and the IGCC which help to influence corporate activities and portfolios (RIAA, 2019 & 2020). These provide a platform for engagement on social dimensions of energy transition (see Appendix 2 for a list of questions developed in the Guide for Investor Action [Robins, Brunsting & Wood, 2018, p. 20] for engagement on issues such as human resources, health and safety, supply chains and community regeneration).
- **Engage in partnerships and initiatives within coal regions:** Place-based collaborations are important to foster regional economic diversification, innovation and investments (Robins, Brunsting & Wood, 2018). There are now regional initiatives for corporates and financial institutions to participate within Victoria and NSW (see Section 4). AGL's approach to engage in community consultations for ideas and proposals for the Liddell Power Station site after its retirement was a first of its kind in Australia – and the type of initiative needed for other power plant closures.
- **Direct engagement with coal asset owners:** Engagement to encourage planned transitions away from coal assets, including social, environmental and economic aspects such as workforce planning, progressive rehabilitation and reserving funds for site remediation

Key Considerations:

- Advocate for an integrated energy and climate change policy that includes the establishment of a taskforce including all stakeholders that can broker dialogue, identify solutions and establish a framework for transition.
- Develop an engagement strategy for coordination with financial institutions on the exit from thermal coal.
- Develop an engagement strategy for clients, coal regions and clean energy businesses.

Table 3: Next Steps: Summary

Summary	
Socialise the concept	• Put *just transition* on the agenda in multi-stakeholder forums to develop dialogue, understanding and a shared framework; • Develop initiatives to build discussion and understanding of *just transition* and its implications for your business across executive, strategy, governance and risk teams; and • Make *just transition* a part of your organisation's public discourse – corporates and financial institutions can help raise the profile of *just transition* by simply making it part of how they talk about climate change.
Assess the social risks and opportunities for your organisation from the clean energy transition	• Review the financial and social risks associated with the exposure of your organisation to fossil fuels; and • Review social and equity dimensions of current clean energy or sustainability products, services and markets to identify gaps, opportunities and implementation issues.
Adopt climate, renewable energy and *just transition* commitments	• Sign a commitment to a climate or renewable energy target, including a commitment to a *just transition*; • Diversify assets, investments, finance and operations from thermal coal for investors, financiers, supply chain businesses and energy companies; and • Develop a commitment and transition plan for an orderly exit from thermal coal for investors, financiers, supply chain businesses and energy companies.
Incorporate *just transition* principles into corporate strategy and operations	• Develop a strategic framework for the management of social dimensions of energy transition within organisational climate and renewable energy strategies which can be updated, developed as circumstances change and applied to all fossil fuels over time; • For financial institutions, investigate and develop transition finance products and services for coal regions and sustainable products and services for disadvantaged groups that can support a *just transition*; and • For corporate Australia, review and implement procurement and supply chain management practices to manage social risks and leverage opportunities to improve economic, social and environmental outcomes from clean energy transition.
Engage across sectors, clients and governments to support and implement *just transition* principles	• Advocate for an integrated energy and climate change policy that includes the establishment of a taskforce including all stakeholders that can broker dialogue, identify solutions and establish a framework for transition; • Develop an engagement strategy for coordination with financial institutions on the exit from thermal coal; and • Develop an engagement strategy for clients, coal regions and clean energy businesses.

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GLOSSARY

AAC	Australian Aluminium Council
ABC	Australian Broadcasting Corporation
ABS	Australian Bureau of Statistics
ACF	Australian Conservation Foundation
AEC	Australian Energy Council
AEMO	Australian Energy Market Operator
AIG	Australian Industry Group
APRA	Australian Prudential Regulation Authority
ARENA	Australian Renewable Energy Agency
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
ACOSS	Australian Council of Social Services
ACSI	Australian Council of Superannuation Investors
ACTU	Australian Council of Trade Unions
ALP	Australian Labor Party
ANZ	Australia and New Zealand Banking Group
BCA	Business Council of Australia
BRC-A	The Business Renewables Centre-Australia
CDFIs	Community Development Finance Institutions
CFMEU	Construction, Forestry, Mining, Maritime and Energy Union
CISL	Cambridge Institute for Sustainability Leadership
COP	Conference of the Parties
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DER	Distributed Energy Resources
DM	Deutsche Mark
EC	European Commission
ECB	European Central Bank
EPC	Engineering, Procurement and Construction
ESG	Environmental, Social and Governance
ETU	Electrical Trades Union
EU	European Union
GCNA	Global Compact Network Australia
GDP	Gross Domestic Product
GW	Gigawatt
IBA	International Building Exhibition
IEA	International Energy Agency
IEEFA	Institute for Energy Economics and Financial Analysis
IGCC	Investor Group on Climate Change
ILO	International Labour Organization
ISF	Institute for Sustainable Futures
IT	Information Technology
LVA	Latrobe Valley Authority
MP	Minister of Parliament
MUA	Maritime Union of Australia
MW	Megawatt
NAB	National Australia Bank
NEM	National Electricity Market
NFF	National Farmers' Federation
NGFS	Network of Central Banks and Supervisors for Greening the Financial System
NGOs	Non-Government Organisations
NSW	New South Wales
OHS	Occupational, Health and Safety
PE	Private Equity
PPAs	Power Purchase Agreements
PRI	Principles for Responsible Investment
RAP	Reconciliation Action Plan
RBA	Reserve Bank of Australia
RIAA	Responsible Investment Association Australasia
SBTi	Science Based Targets initiative
SDGs	Sustainable Development Goals
SHARE	Shareholder Association for Research and Education
SMEs	Small and Medium-Sized Enterprises
STEM	Science, Technology, Engineering and Mathematics
TCFD	Task Force on Climate-Related Financial Disclosures
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
VC	Venture Capital
WRI	World Resources Institute

1. INTRODUCTION

There is a growing recognition of the systemic risks posed by climate change for the broader corporate sector and financial institutions (Australian Securities and Investments Comission [ASIC], 2019; the Australian Securities Exchange [ASX] Corporate Governance Council, 2019; Australian Prudential Regulatory Authority [APRA], 2019; Governance Institute of Australia, 2020).

Climate-related risks will impact all economies, asset classes and industries, whether directly or indirectly (Climate Action 100+, 2019). At a minimum, 'the disruption to economic activity and changes to the industrial composition are likely to be substantial' (Guindos, European Central Bank [ECB], 2019). Climate change is a risk that involves nonlinear and unpredictable interactions between environmental, social, economic and geopolitical dynamics – raising the spectre of a 'Green Swan' event (or 'climate black swan') which creates a systemic financial crisis (Bolton et al., 2020).

One of the key sources of risk and opportunity is the requirement for a transition away from fossil fuels (coal, gas and oil) to clean energy to minimise the impacts of climate change. The 2019 – 2020 bushfires highlighted the devastating environmental, economic and societal impacts of climate change in the Australian landscape, and underscored the increasingly urgent need to transition to a net zero carbon economy and prepare for the climate change impacts that cannot be avoided. The Paris Agreement (2015) set a target to avoid a global temperature rise of 2 degrees Celsius above pre-industrial levels and aimed to limit the temperature increase to 1.5 degrees Celsius, which is reflective of the climate science on what is required to avoid dangerous climate change.

To meet the Paris Agreement, a transition to net zero emissions is required by the middle of the century and it is estimated no more than one-fifth of the current proven fossil fuel reserves can be burned to achieve the targets of the Paris Agreement (Carbon Tracker Initiative, 2011; McKibben, 2012). The value of fossil fuel assets is linked both to production levels and the value of proven fossil-fuel reserves. If these resources cannot be exploited, their value will depreciate sharply potentially leading to stranded assets. Stranded assets could not only have implications for particular companies and funds but lead to financial crises that require intervention by the federal / national governments and central banks (Bolton et al., 2020).

The shift to a net zero emissions economy will also create economic opportunities for wealth creation and employment. New products, services, markets, and industries are emerging such as renewable energy, electric vehicles, mining for renewable energy (e.g. lithium) and energy efficient technologies to save money and reduce emissions. Businesses that can develop low carbon-technologies, processes and services will thrive in the era of climate change. The low-carbon transition will require enormous mobilisation of capital and therefore presents risks and opportunities for financial institutions and businesses.

There are two key categories of climate-related risks for financial institutions and businesses:

- **Physical risks:** the financial impact of increased severity and frequency of climate events (acute and chronic) on production, infrastructure, capital and insurance costs etc.; and
- **Transition-related risks:** policy and legal risks, technology risks, market risks and reputation risks (e.g. loss of social licence to operate) from the sweeping transition required for a net zero emissions economy. Financial risks include credit risks, liquidity risks and insurance risks. Consequences range from loss of sales and increased operating costs through to asset devaluations and 'stranded assets' (e.g. coal power stations or mines closing abruptly because they are no longer financially viable).

[1] As Professor Ross Garnaut (2020) states: 'it is quite clear now that supply of large industrial projects from 100 per cent renewable energy projects ... is our low cost path to global competitiveness in a range of energy-using industries'.

A range of initiatives have emerged to help the corporate sector and financial institutions navigate these risks and opportunities, including disclosure mechanisms (e.g. Financial Stability Board's Task Force on Climate-related Financial Disclosures [TCFD]) and networks or initiatives (e.g. The Network of Central Banks and Supervisors for Greening the Financial System [NGFS], Science-Based Target initiative [SBTi] and RE100).

However, climate risk mechanisms have generally not adequately considered the social risks and opportunities in the transition (Müller, Börger & Bovenzi, 2019). The costs and benefits of climate change will not be evenly distributed without coordinated planning; less developed economies, poor households in rich nations and carbon-intensive regions and communities could be severely impacted. The economies of coal regions for example are built around mining, transport and electricity generation (and the flow-on expenditure from coal companies and miners). Regional labour markets do not change rapidly.

> If the transition is undertaken poorly without the creation of alternative industries and labour redeployment, there will not only be 'stranded assets' – but also 'stranded workers' and 'stranded communities' with high unemployment.

There is a risk of regional economic collapse and inter-generational poverty. As the World Bank (2018, p.16) notes: 'there are few if any instances of fully satisfactory economic rejuvenation outcomes in mono-industry coal mining towns'.

Consequently, there is a growing movement for a *just transition* which addresses equity and social impacts for a 'faster and fairer' transition. *Just transition*, which was formally included as an objective of the Paris Agreement, aims to create decent work, improve access to clean energy and address other equity impacts as part of the clean energy transition (United Nations Framework Convention on Climate Change [UNFCCC], 2017). A *just transition* is also essential to build and maintain public support for an orderly, efficient transition that can avoid systemic risks and maintain social stability.

What does a *just transition* look like? The European Commission (EC) has developed the Just Transition Mechanism which includes public and private funding vehicles to mobilise at least €150 billion (A$246 billion) and capacity-building initiatives for coal regions across Europe to diversify economies, build alternative industries, retrain workers and support communities (EC, 2020). At a national level, Germany has negotiated an agreement to phase out coal mining and generation by 2038 at the latest with a comprehensive strategy to manage transition through

measures such as generous early retirement payouts, retraining and investment in regional development. Other nations with significant coal sectors, such as South Africa, Poland and Australia, are struggling to manage social impacts and divisions. Within Australia, the Hazelwood Power Station (Hazelwood) in the Latrobe Valley closed in 2016 with just months' notice, leading to high unemployment and social impacts. Without a transition plan, it is very difficult for regional communities to adapt to or support a clean energy transition. Social and political divisions over the future of coal risk delaying policy and project implementation for a fast and least-cost transition.

Financial institutions and the corporate sector have an important role to play. Internationally, there is a growing movement for financial institutions and corporates to apply and integrate *just transition* principles into their climate change strategies (Robins, Brunsting & Wood, 2018; Robins, Tickell & Irwin, 2019; Müller, Börger & Bovenzi, 2019; Bolton et al., 2020) as a key tool to manage risks, enhance value and strengthen their social licence to operate (Robins & Rydge, 2019). Incorporating *just transition* principles is an extension of environmental, social and governance (ESG)-based asset allocation which now covers US$30.7 trillion (A$42.8 trillion) of assets under management (Bolton et al., 2020). There are also emerging financial instruments such as transition bonds (for 'brown' fossil fuel asset owners) and green bonds (clean energy projects). One of the leading advocates for *just transition* finance is promoting the concept of a *just transition* sovereign bond to bridge the capital gap for financing transition in coal regions (Robins, Tickell & Irwin, 2019).

Purpose of Study

Australia is one of the largest global producers, users and exporters of coal (Cunningham et al., 2019). Coal does not employ a large volume of workers in a national context and represents around two per cent of gross domestic product (GDP) – but the industry is of regional significance because of the concentration of employment and national significance as a large source of export revenue. The significance of coal to the Australian economy and the regional communities that host the industry and the absence of engagement, planning and investment for transition mean the future of the coal sector is a divisive issue.

As international market, technology and policy factors are accelerating the growth of clean energy, the risks and exposure of the Australian economy, key industries and regional communities to a costly, abrupt transition is growing. The consequences of an abrupt transition are highly likely to have severe impacts on regional workers and communities – and also potentially on the wider economy and financial institutions.

The Institute for Sustainable Futures (ISF) has been commissioned by the Global Compact Network Australia (GCNA) and National Australia Bank (NAB) to produce a report on the emerging *just transition* agenda for the corporate sector and financial institutions. The focus of this report is the most immediate sector at risk – thermal coal used for power stations. In time, similar dynamics are likely to apply to other fossil fuels; alternatives are emerging to metallurgical coal for steel production, clean energy technologies and electrification are emerging as an alternative to gas and electric vehicles are emerging as an alternative to oil. Indeed, at the time of writing, there are reports of major asset write-downs for oil majors (Toscano, 2020). As we move towards net zero, a range of other sectors such as transport and agriculture will also undergo transitions with major social, equity and regional dimensions. Consequently, whilst the focus in this report is on thermal coal, the principles and dynamics will apply widely as all sectors go through transition to a net zero economy.

There are six sections in this report:

1. **Introduction**
2. **From coal to renewable energy: an overview of the transition occurring within Australia's energy system away from coal-fired power and its implications**
3. **What is a *just transition* and why does it matter for corporates and financial institutions?**
4. **Who are the key stakeholders for corporates and financial institutions to work with and what are their positions on a *just transition*?**
5. **What are the lessons from other jurisdictions on how Australia can manage a *just transition*?**
6. **What are the next steps for Australian corporates and financial institutions: how can *just transition* considerations be incorporated to manage social risks, capitalise on opportunities, and support their customers and clients to navigate the transition in an equitable way?**

This report is intended to be a starting point for discussion on the role of corporates and financial institutions in planning for and supporting the delivery of a *just transition* in Australia. It is the beginning of the journey for Australian corporates and financial institutions, but the accelerating rate of change makes it increasingly urgent for the incorporation of *just transition* principles into their operations.

2. FROM COAL TO RENEWABLE ENERGY: AUSTRALIA'S ENERGY SYSTEM IN TRANSFORMATION

Australia has a distinctive position in relation to the clean energy transition: high-quality renewable energy resources leave Australia well-placed to prosper from energy transformation but as one of the leading global users, producers and exporters of coal it is vulnerable to disruptive change.

There is a global transformation of energy systems underway, driven primarily by the falling cost of renewable energy and measures to reduce greenhouse gas emissions. Low-cost renewable energy could underwrite the development of comparative advantage in heavy industries such as aluminium smelting (Garnaut, 2020; Wood, Dundas & Ha, 2020), new exports in minerals for renewable energy (e.g. lithium) and green hydrogen, and tens of thousands of jobs in renewable energy in regional areas (Briggs et al., 2020). The flipside of this transition is the impact on coal exports. For thermal coal (used in power plants) and metallurgical coal (used in steel production), Australia is the largest and second-largest exporter in the world respectively. In 2018 – 2019, the Reserve Bank of Australia (RBA) estimated the revenue from the export of coal was A$70 billion (A$44 billion for metallurgical coal, A$26 billion for thermal coal) (Cunningham et al., 2019). In 2019 – 2020 metallurgical coal export revenue was estimated to be A$35 billion and forecasted to fall to A$25 billion in 2020 – 2021 (Department of Industry, Science, Energy and Resources, 2020, p. 42). Thermal coal export revenue was estimated to be A$20 billion in 2019 – 2020 and forecasted to fall to A$16 billion in 2020 – 2021 (Department of Industry, Science, Energy and Resources, 2020, p. 53).

Australia's own electricity system and network was built around coal-fired power which provided over 90 per cent of supply until recently. In Australia, there is an accelerating transformation with the rapid growth of large-scale renewable energy and the highest penetration of rooftop solar on homes in the world (Bloomberg New Energy Finance, 2019). Renewable energy supplied 24 per cent of Australia's electricity generation in 2019 with 34 large-scale renewable energy projects completed and a record 2200 Megawatts (MW) of rooftop solar installed (Clean Energy Council, 2020). The Australian Energy Market Operator (AEMO) is preparing to transition to a renewable energy system: an 'integration study' has concluded 75 per cent renewable energy by 2025 is technically feasible and there are no 'insurmountable reasons' why higher penetrations are not possible beyond 2025 (AEMO, 2020b).

Coal mining and coal-fired electricity generation are not a large-scale source of jobs in a national context, but the industry is highly concentrated in a handful of regions (the Bowen Basin [Queensland], Hunter Valley [New South Wales] and the Latrobe Valley [Victoria]). At the time of writing, coal mining employed around 40,000 people out of a national workforce of around 12 million. However, the regional concentration of the industry, the economic activity it creates within these communities and the demographic and occupational mix of the workforce (high proportion of truck drivers and semi-skilled machine operators) means abrupt closures are likely to lead to high unemployment and social impacts within coal communities.

2.1 Coal Exports

Coal exports are a major source of revenue for the Australian economy. A profile by the RBA (Cunningham et al., 2019) highlights the growing export orientation of coal mining, increasing from 55 per cent (1990 / 1991) to 75 per cent of the production volume (2017 / 2018). Domestic coal consumption has fallen since the mid-2000s (over 10 per cent) whilst there was a period of rapid export to China and India which has now levelled off. Australia is the largest global exporter of metallurgical coal, shipping over half the exported metallurgical coal in 2018 – 2019 (184 million tonnes at a value of A$44 billion). Australia is the second-largest global exporter of thermal coal in the world (after Indonesia), shipping 210 million tonnes in 2018 – 2019 at a value of A$26 billion. The major destinations were Japan (45 per cent), China (16 per cent) and South Korea (15 per cent). Together, thermal and metallurgical coal accounts for around 15 per cent of all Australian export revenue and is the largest resource export after iron ore (Cunningham et al., 2019, p. 28).

Australia's thermal coal exports were projected to remain stable or even grow in the next couple of years but there is a major risk of decline – and disruptive change – in the medium to long-term, heightened by the impacts of COVID-19. The latest government forecast is for modest growth in the volume of thermal coal exports but falling revenue due to price falls (Department of Industry, Science, Energy and Resources, 2020). The longer-term outlook will be driven by the pace of energy transformation, energy demand, local industry support measures and climate change and energy policies across South-East Asia.

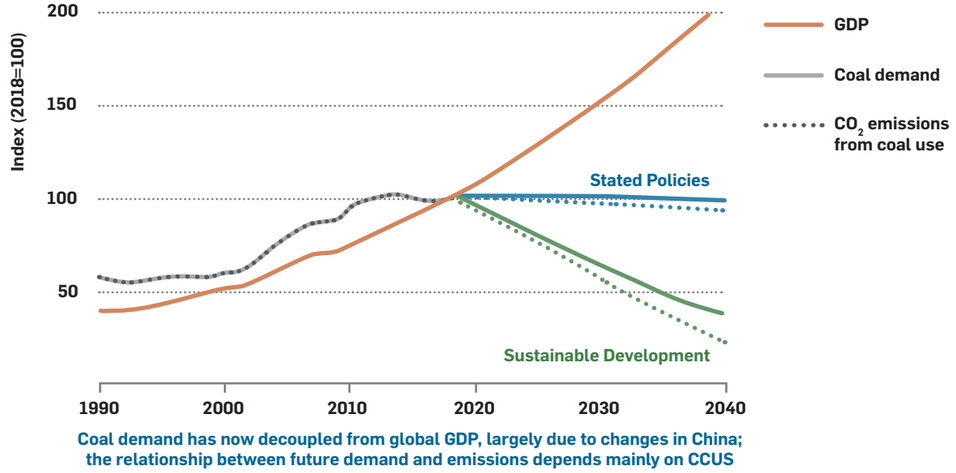
The 2019 World Energy Outlook from the International Energy Agency (IEA) has three scenarios one based on Current Policies, one on Stated Policies and a Sustainable Development Scenario (see Figure 2).

Under the Stated Policies Scenario, Australia's coal production is still projected to grow – but under the Sustainable Development Scenario in which nations implement policies consistent with the Paris Agreement there would be a sharp decline from 40 per cent to 5 per cent of global electricity generation by 2040. Further, under a 1.5 degrees Celsius scenario, there would be complete phase out coal-fired power generation by 2030 in the OECD and a global phase out by 2050 – mostly occurring in China (Nace, 2018).

Australia's metallurgical coal exports are less exposed but could also experience structural decline. Export growth has been driven by China and India. Chinese steel production is more coal intensive than developed economies because around 90 per cent of production occurs in blast furnaces which use metallurgical coal and iron ore, whereas 55 per cent of production elsewhere is produced in electric arc furnaces which allows for the use of scrap steel and does not rely on metallurgical coal. As the availability of scrap steel grows, Chinese steel production is expected to shift over time to electric arc furnaces (Cunningham et al., 2019, p. 33). Renewable hydrogen could also be used to replace the use of metallurgical coal in steel furnaces. 'Green steel' may be some time away, but major European steel producers are also currently investing and trialling the use of renewable hydrogen with targets to produce fossil-free steel in the mid-2020s or 2030s.[5]

The finance sector is also an increasingly significant influence on the future trajectory of the coal sector. The RBA states 'funding availability has also been noted as a constraint on investment, as banks are increasingly reluctant to finance coal developments; most new finance is being secured from consortiums of lenders, which can be more complicated to arrange' (Cunningham et al., 2019, p. 34). Australian lenders are responding to changes in the energy system, as well as the risks associated with new coal projects.

Figure 2: International Energy Agency, Scenarios for Growth in Global GDP, Coal Demand



Source: IEA (2019)

Notes: GDP = gross domestic product. The divergence in decline rates for coal demand and CO_2 emissions from coal use over the period stems from efficiency gains and the uptake of CCUS.

[5] For example, one major producer, the Swedish firm SSAB, has recently brought forward their target to produce fossil free steel to 2026 (Hes, 2020).

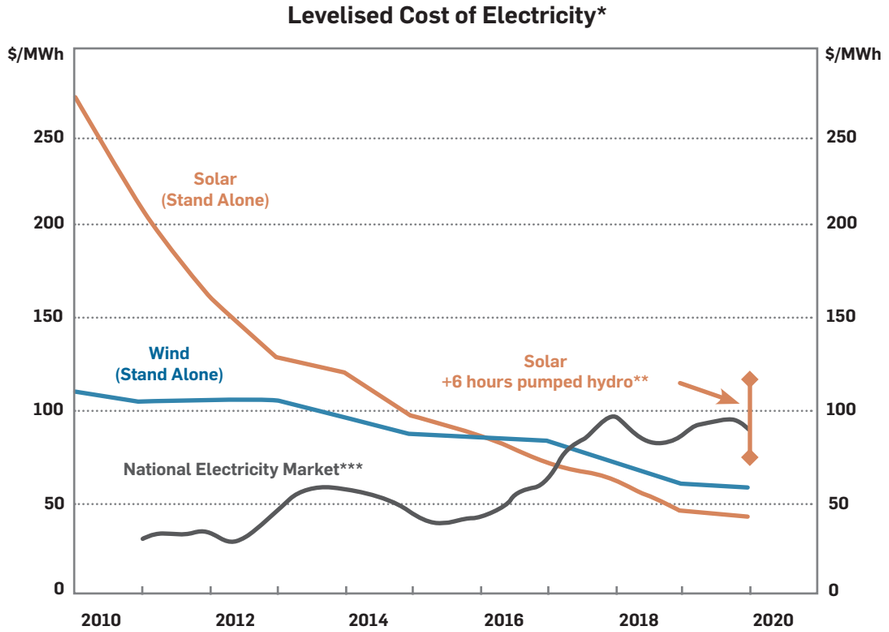
2.2 Australia's Electricity System

Coal's share of domestic electricity consumption has fallen as the energy transition accelerates but it is still high. Around 60 per cent of electricity generation in Australia is currently produced by coal-fired power stations with significant variations between states. South Australia and Tasmania do not have any coal-fired power stations. The remaining brown coal power stations are located in Victoria and black coal power stations are located in NSW and Queensland. However, Australia's fleet of coal-fired power stations is under increasing pressure; many of the power stations are aging, increasingly unreliable, and the growth of renewable energy is eroding market share. Closure dates provided by the owners of coal-fired power stations would see two-thirds of capacity from the late 2020s until 2040. The financial risks associated with a new coal-fired power station for investors mean there is little prospect of any new plants unless government subsidises and indemnifies them against future climate policies.

The key driver is the reduction in the cost of solar and wind energy. As illustrated by the analysis of the RBA (Figure 3), solar and wind energy is now cheaper than wholesale electricity through the National Electricity Market (NEM). Battery storage is still relatively expensive, but its cost is falling even more rapidly than solar and wind energy. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) publishes an annual estimate of generation costs which illustrates that solar and wind energy is cheaper than coal-fired power even with battery storage or hydro added to 'firm' the supply of variable renewable energy (Graham et al., 2019).

AEMO is planning for a transition to renewable energy. The AEMO project list contains over 45,000 MW of solar and wind farms in the pipeline (AEMO, 2020c). Major new electricity transmission projects to improve the flows of electricity between states are underway and AEMO has identified 'renewable energy zones' where new generation is likely to be concentrated for planning investment to connect these regional areas with the consumers based in cities.

Figure 3: Levelised Cost of Electricity in Australia, 2019

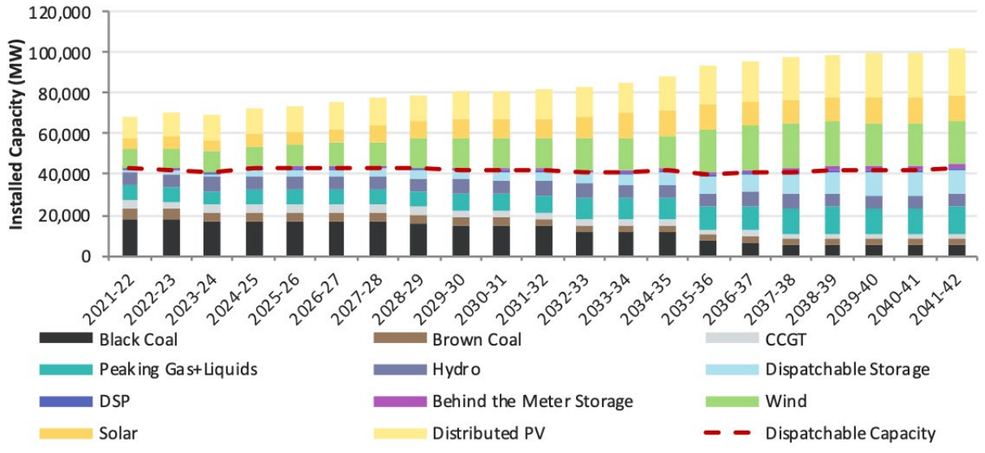


* This can be regarded as the minimum constant price at which electricity must be sold in order to break even over the lifetime of an asset
** Range of CSIRO estimates
*** Wholesale electricity price (not levelised cost of electricity); 12-month moving, population-weighted average
Sources: AEMO; CSIRO; IRENA; RBA

Adapted from: De Atholia et al. (2020)

Under the Integrated System Plan, AEMO's 'roadmap' for planning, there are a range of scenarios with different projections for the timing and level of renewable energy growth. Under AEMO's Central Scenario, in which market forces determine the trajectory-based on current policies (e.g. Federal Government's commitment to an emissions reduction target of 26 per cent by 2030), renewable energy generates 50 per cent of electricity generation by 2030. Black coal generation would decline from 18.3 Gigawatts (GW) to 14.4 GW (2030) and 5.2 GW (2040).

Figure 4: Energy Generation (Megawatts [MW]), Central Scenario, 2020 – 2040

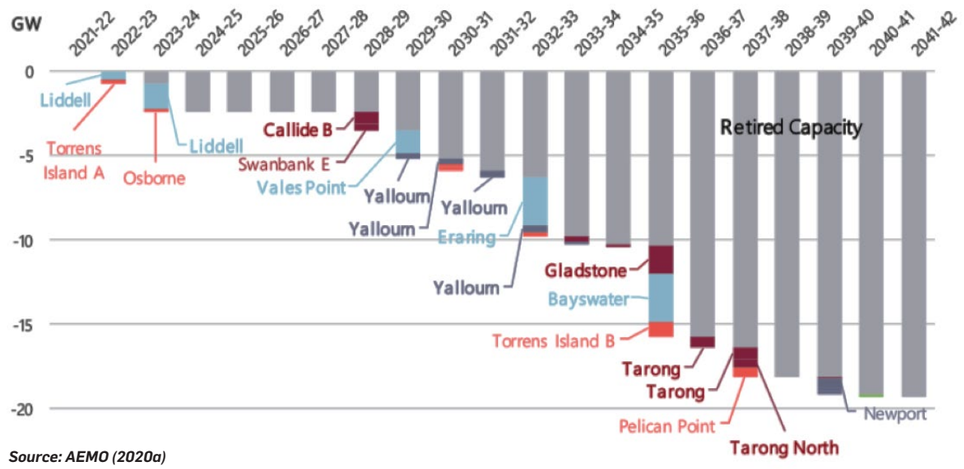


Source: AEMO (2020a)

Under the 'Step Change' scenario, where there is major global decarbonisation, the change would be more rapid and far-reaching with the market share of renewable energy reaching almost 95 per cent by 2040. As the current CEO of the AEMO, Audrey Zibelman, stated: 'It is inevitable… we are at a position where the existing coal fleet is coming to the end of its technical life and is going to retire' (Parkinson, 2020).

The growth of renewable energy is placing enormous pressure on coal-fired power stations by eroding market share. Based on public information supplied by the owners, Figure 5 shows the current schedule for closures of coal-fired power stations based on their technical operating life.

Figure 5: Coal Power Station Retirements[7]



Source: AEMO (2020a)

[6] For information on the assumptions behind AEMO's planning scenarios (including the 'Step Change scenario), see the Integrated Systems Plan: https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp.

[7] Coal-fired generation and gas-powered generation retirements (top) and capacity (bottom).

It's important to understand that the growth of renewable energy could lead to economic closures ahead of the end of their technical operating life – which under current rules could be abrupt.

There is a requirement under the National Electricity Rules to give three-years notice for a closure of a coal-fired power station but the penalties (A$100,000 plus A$10,000 per day for ongoing breaches) are not considered to be a significant deterrent (Woods et al., 2019, pp. 29-30). When a coal-fired power station closes, the removal of supply is likely to lead to a spike in the wholesale electricity price (as occurred after the shutdown of the Hazelwood in 2016).

Consequently, there is an incentive to remain in the market as long as possible, hoping to enjoy a windfall when other power stations exit first – what Jotzo and Mazouz (2015) have called a 'barrier to exit'.

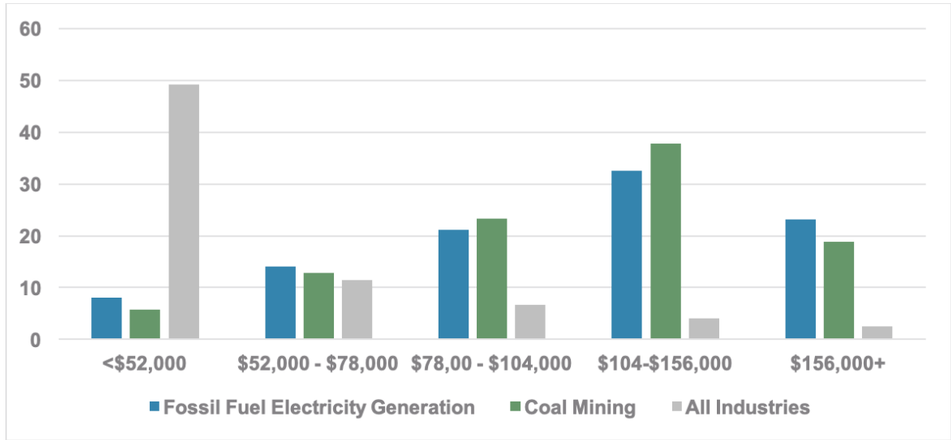
As many of Australia's coal power stations are more than 30 years old and subject to issues of reliability, there is the potential for an abrupt closure due to technical failures. The combination of economic incentives to remain open as long as possible, the dramatic growth of renewable energy and ageing plants also increase the risk of abrupt closures of coal power stations. Abrupt closures have dramatic impacts on regional communities and workers as there is little opportunity to diversify economies and reskill workers.

2.3 Coal Industry and Workforce

Coal mining and coal-fired electricity generation are not a large-scale source of jobs but the workforce and regions in which the industry are located are vulnerable to structural change. At the time of writing, there were around 40,000 jobs in coal mining and just over 5,000 jobs in coal-fired power stations (Briggs et al., 2020). As around 75 per cent of coal is produced for export, there is just over 10,000 jobs in the domestic coal sector (Australian Bureau of Statistics [ABS], 2016; ABS, 2019). Most of these jobs are in the Bowen Basin, Hunter Valley and the Latrobe Valley. Whilst coal sectors are highly paid relative to average Australian wages, the regional concentration of the industry and demographic and occupational mix of the workforce means many are vulnerable to structural change. Importantly, the near-term risk of job loss is concentrated on the power station workforce, but the coal mining workforce is larger and more vulnerable to structural change.

Coal mining and generation workers are well paid compared to the average worker. Over half the workforce earns more than A$104,000 per annum and around one-fifth earns over A$156,000 per annum. Average earnings in the resources sector are around A$140,000 per year, more than 64 per cent higher than the average for all industries (Minerals Council of Australia, 2020).

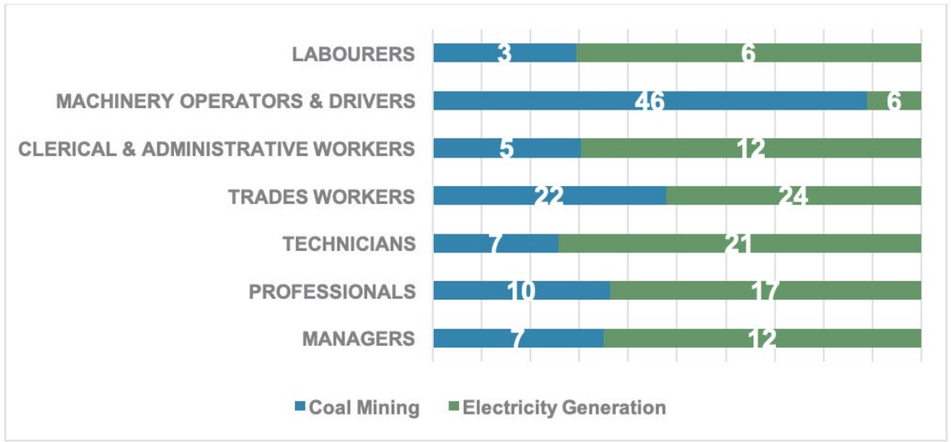
Figure 6: Coal Mining and Fossil Fuel Generation, Earnings Profile (%)



Source: Australian Census (ABS, 2016)

The pay rates for the coal sector are high but the age and occupational profile of the workforce combined with regional concentration renders much of the workforce vulnerable to structural change. Over 60 per cent of the power station workforce (in green) are professionals, trades and technicians (Figure 7). However almost half the coal mining workforce (in blue) is either a semi-skilled machine operator (e.g. drillers) or a truck driver which are harder to transfer to other industries.

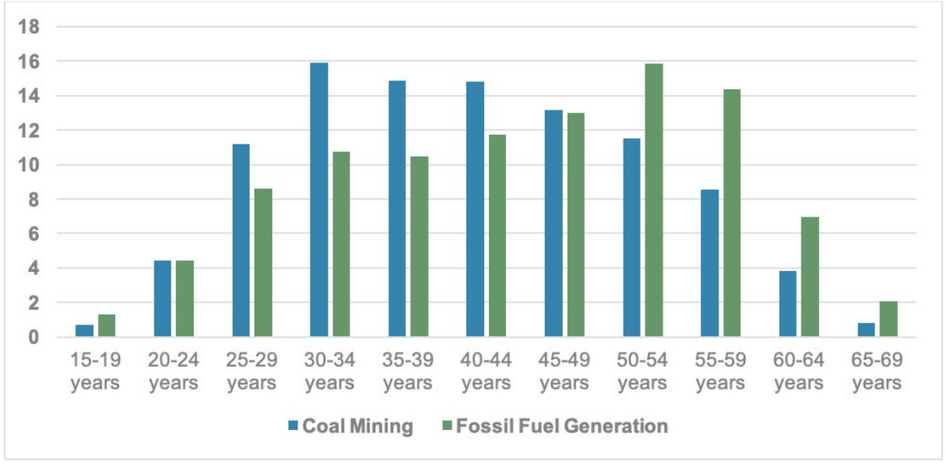
Figure 7: Coal Mining and Fossil Fuel Generation, Occupational Profile (%)



Source: Australian Census (ABS, 2016)

The power station workforce (in green) is ageing; 40 per cent of the workforce is over 50 years of age (Figure 8). By contrast, over 40 per cent of the coal mining workforce (in blue) are prime-aged workers (25 – 44 years) and close to half the workforce is under 40 years of age. Consequently, whereas early retirement packages have played an important role in transition packages overseas and could do so for Australian power stations, their role will be comparatively limited for Australian coal miners: alternative work will need to be found for a higher proportion of the workforce.

Figure 1: Coal Mining and Fossil Fuel Generation, Age Profile (%)



Source: Australian Census (ABS, 2016)

Beyond the direct coal sector workforce, there are many suppliers and other businesses in these communities that would be impacted by abrupt closures.

The outcomes from past industrial restructuring indicates the social and economic impacts for coal workers and their communities are likely to be severe without planning and investment. Sheldon, Junan & De Rosa Pontello (2018, p. 22) summarise the findings of previous studies across a range of Australian industries such as car manufacturing. Typical outcomes include:

- One third of workers find alternative 'decent work';[8]
- One third of workers find work under worse conditions or do not find work; and
- One third of workers take early retirement, voluntarily or involuntarily.

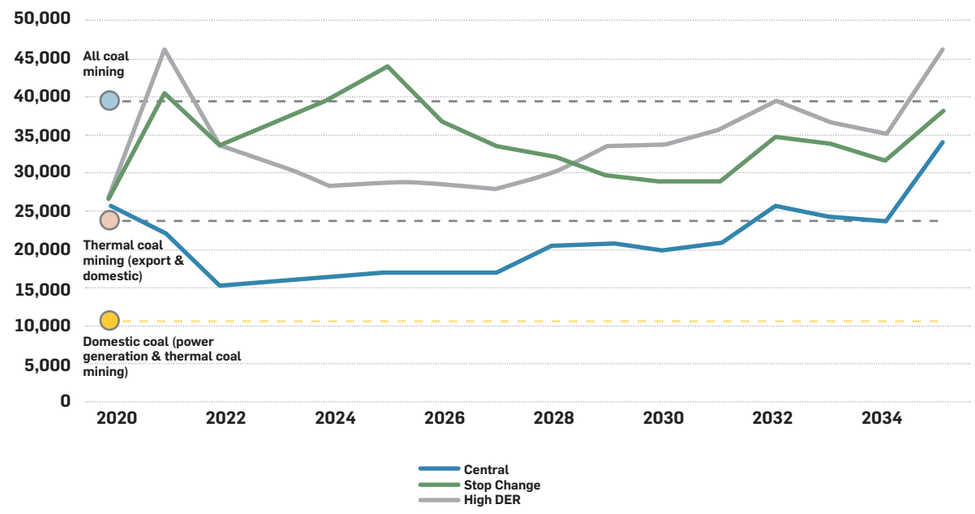
Coal mine and power station closures often have 'economic and social shocks' with lasting impacts. The World Bank (2018) notes: 'there are few if any instances of fully satisfactory economic rejuvenation outcomes in mono-industry coal mining towns.'

2.4 The Role of Renewable Energy Jobs

What role could renewable energy play in replacing lost coal jobs for good, secure employment? Briggs et al. (2020) have recently completed the first major survey of renewable energy employment in Australia. The short answer is that the growth of renewable energy can contribute to the supply of replacement jobs but the right types of jobs will not be created in sufficient numbers in the right place: regional industry development is needed to create alternative employment sources in coal regions.

Renewable energy currently employs more people than the domestic coal sector (power stations and thermal coal mining supply) and future projections under AEMO scenarios indicate that renewable energy employment will be comparable to employment in all coal mining (thermal and metallurgical). Figure 8 compares renewable energy growth under three different scenarios projected by AEMO – central scenario (business as usual), step change (major decarbonisation) and high distributed energy resources (DER) (a scenario with higher DER such as rooftop solar). Renewable energy under the step change and high DER scenarios employs up to 40,000 – 45,000 persons compared to just over 10,000 in the domestic coal sector, 25,000 in the export coal sector and around 40,000 across all coal mining.

Figure 8: Renewable Energy Jobs Compared to Coal Sector Jobs, 2020 – 2035



Source: Analysis by Briggs et al. (2020). Coal employment calculated using ABS (2019) and Department of Resources and Energy (2019) resources.[9]
Note: the coal employment figure is the current workforce – it is not a forecast of future coal employment.

[8] 'Decent work' is defined by the ILO (2020) - a tripartite body with Government, employer and union representation - as 'opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.'

[9] There is another ABS series, Labour Quarterly, under which total coal mining employment averaged just over 50,000 for 2018 – 2019 – but the ABS describes Labour Account as more accurate (Australian Broadcasting Corporation [ABC], 2019). Data from the Department of Resources and Energy (2019) is used to calculate share by export/domestic and thermal/metallurgical based on production volumes. Labour intensity is assumed to be the same for thermal and metallurgical employment. Fossil fuel power stations: the Australian Census (ABS, 2016). Employment is apportioned based on the share of installed capacity in coal and gas power generation in 2016. Note the figure pre-dates the closure of Hazelwood Power Station.

These projections do not include all renewable energy jobs such as mining for renewable energy (e.g. lithium for batteries, rare earths), bio-energy, renewable hydrogen (which may develop into a significant export sector), professional services and end-of-life treatment / recycling. Australia also has a relatively low level of supply chain jobs and there are opportunities to develop industrial activities (e.g. battery manufacturing). Renewable energy can reasonably be projected to develop a comparable workforce to the current coal workforce and higher if export and supply chain opportunities are developed.

Renewable energy could also underwrite the development of comparative advantage in minerals processing and heavy industry such as aluminium and steel. As the global economy shifts to clean energy, nations with high-quality, low-cost renewable energy resources should develop a comparative advantage in energy-intensive industries. As Professor Ross Garnaut (2020) states: 'it is quite clear now that supply of large industrial projects from 100 per cent renewable energy projects... is our low-cost path to global competitiveness in a range of energy-using industries'.

The Grattan Institute (Woods et al., 2020) has identified steel production using renewable energy (or 'green steel') as the best industrial opportunity for Australia alongside biofuels for aviation and ammonia. Together, the Grattan Institute (Woods et al., 2020, p.26) estimates 40,000 – 55,000 jobs could be created in emission-intensive industries using renewable energy in high-carbon regions.

However, the capacity of renewable energy to replace coal jobs depends on location and timing. Detailed mapping of potential job creation using AEMO forecasts shows there is some overlap between 'renewable energy zones' identified by AEMO and coal regions, but renewable energy jobs are more distributed throughout other regional areas. There is also overlap between a range of occupations in renewable energy and the coal sector such as electricians, mechanical trades, truck drivers and engineers – but not for the core workforce of semi-skilled machine operators (Briggs et al., 2020). Renewable energy can play a role in providing employment opportunities for workers in the coal sector with retraining – but only within comprehensive regional industry development plans which diversify coal region economies into other sectors.

Box 2: The Social and Economic Consequences of an Unplanned Transition

The Social and Economic Consequences of an Unplanned Transition

Appalachian Region (United States [US])

Appalachia is a large coal mining area stretching across 13 United States (US) states. Coal in the region is in terminal decline due to competition from much cheaper natural gas, the proliferation of fracking technology and solar and wind energy generation. A lack of leadership, poor planning, exploitative business models and a lack of government strategy in the face of inevitable mine closures have had disastrous socio-economic and ecological impacts. These impacts include:

- The Appalachian region lost over 600,000 jobs between 2007 and 2010. In the last nine years coal mining employment further decreased by 60 per cent – seeing over 19,000 miners retrenched (Appalachian Regional Commission, 2019). Job losses have accelerated under COVID-19 with 6000 jobs lost in March and April 2020 (Sainato, 2020).
- Open cut mining has also had a significant impact on local health and social conditions. Between 2013 and 2017, the opioid-related overdose mortality rate for people ages 15 – 64 was 79 per cent higher in Appalachia than in the US overall. One-in-six Appalachian residents live below the poverty level (Appalachian Regional Commission, 2019). Parts of the Appalachians, the southern coalfields in West Virginia are considered as one of the poorest and least healthy areas in the US (Surber & Simonton, 2017).
- Insufficient funding for mine rehabilitation has left vast areas of land and water polluted creating local environmental hazards and health damage (Surber & Simonton, 2017).

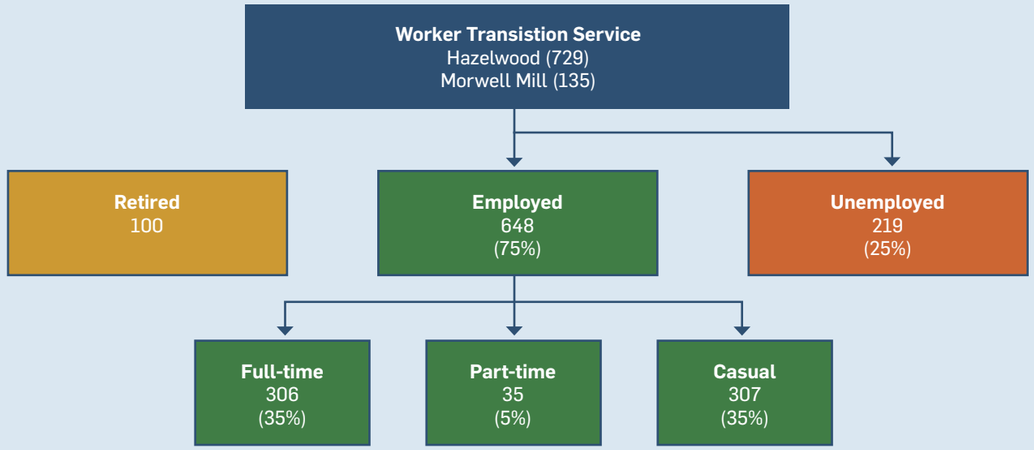
Mining companies continue to declare bankruptcy and shut down coal mines without warning, retraining or support for displaced workers to find new jobs (Sheldon, Junan & De Rosa Pontello, 2018). Within the region, a larger class of working poor is being created with unemployment, wage stagnation, the 'evisceration' of social safety nets and low paid jobs (Schimmel, 2019). The lack of accountability of the industry is leaving a damaged environment and workers and communities without economic prospects. Additionally, since the outbreak of the COVID-19 pandemic and the associated economic crisis, over 6000 coal mining jobs have been lost in the Appalachian region (Sainato, 2020) and an operator of a coal-fired power plant in the region filed for bankruptcy (Hill, 2020).

Box 2: The Social and Economic Consequences of an Unplanned Transition

Closure of Hazelwood Power Station (Australia)

Engie announced the closure of Hazelwood Power Station (Hazelwood) in November 2016 with only five months' notice. The short-term closure left no real opportunity for the region or the 730 retrenched workers to prepare – many of whom had never worked in another industry. A local mill also closed at a similar time. Although the Federal and Victorian State Governments have subsequently invested over A$250 million, two years later only a third of the workforce has found a full-time job and one-in-four remains unemployed.

Figure 9: Worker Transition Service, Outcomes



Source: Question on Notice, Victorian Parliament (2019)

The closure of Hazelwood highlighted the lack of notice provisions for stakeholders to plan for coal plant closures and infrastructure for negotiated solutions between employers, unions and governments. Plant closures are viewed in policy and legal frameworks as a private, commercial decision belonging wholly to the plant owners but there are major impacts on the electricity system and industry (prices spiked after the closure of Hazelwood and have not returned to historic price levels), local communities and workers.

Sources: Surber and Simonton (2017); Wiseman et al. (2017); Sheldon, Junan & De Rosa Pontello, (2018); Appalachian Regional Commission (2019)

3. WHAT IS A *JUST TRANSITION*

_A just transition ad_dresses the social dimensions of climate change for a 'fair and equitable process of moving towards a post-carbon society' (McCauley & Heffron, 2018). It means planning ahead, managing the structural changes to ensure that communities and workers do not unfairly bear the burden of a societal need to decarbonise the economy, and more fairly distributing the benefits and costs of the energy transition.

In particular, plant closures must be anticipated and coordinated, workers should be retrained and supported in the transition period to find new jobs, and the local economy should be diversified with new business opportunities for the local community. It is not just about outcomes but also the process of change which will need more representative and participatory engagement with affected workers and their local communities. The slogan 'leave no-one behind' is often a feature of *just transition* programs.

The idea of a *just transition* is not new. It originates from the trade union movement in North America in the 1990s and was initially understood as a program to support workers who lost their jobs due to environmental protection policies (Goddard & Farrelly, 2018; ILO, 2018). Today, it is a core part of the work of the tripartite ILO and the concept of a *just transition* has been formally incorporated in the Paris Agreement where it is defined as:

> *'...taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities'* (UNFCCC, 2015).

Building on the Paris Agreement, a new United Nations (UN) initiative 'Climate Action for Jobs' was established at the December 2019 Conference of the Parties (COP25) which calls on countries to formulate national plans for a *just transition* (Secretary-General UN, 2019).

Workers in carbon-intensive industries have been the core focus in the emergence of a *just transition* agenda but a holistic perspective should be taken which recognises that there are a range of groups and communities who could be negatively impacted, including:

- **Workers:** especially in carbon-intensive industries, supply chains and regions;
- **Unions:** especially those representing workers in carbon-intensive industries, supply chains and regions who can play an important role in the social dialogue;
- **Local communities:** surrounding communities in carbon-intensive regions will also be heavily impacted due to the flow-on from the decline of traditional industries and the expenditure of companies and workers – noting that mining communities have been heavily impacted by past downturns already;
- **Vulnerable groups:** low-income and disadvantaged households are vulnerable to energy stress as expenditure accounts for a higher proportion of spending. The implementation of rooftop solar can have regressive impacts if low-income households cannot install panels and pay higher network charges because unit costs rise to recover fixed costs from lower consumption (the Australian Council of Social Services [ACOSS], Brotherhood of St Laurence & The Climate Institute, 2017). Hence, a *just transition* also has to ensure that vulnerable communities do not pay higher energy bills and have access to distributed clean energy resources (Robins, Tickell & Irwin, 2019); and
- **Indigenous communities:** the interests of Indigenous communities need to be considered in both the closure of coal sites and the development of renewable energy projects, where there are opportunities for cultural landscape protection, rehabilitation and jobs, apprenticeships and scholarships for Indigenous Australians.

There are four key dimensions to a *just transition:*

- **Decent work:** access to secure employment with conditions that meet community standards;
- **Environment:** communities within carbon-intensive regions can be exposed to environmental hazards and risks (e.g. air, water and soil pollution), especially if there is inadequate site remediation when power plants and mines close;
- **Equity** in costs and benefits in the transition; and
- **Social dialogue:** processes that are inclusive and enable voice and representation for impacted groups (Sovacool et al., 2017).

Consequently, there is *distributional fairness* and *procedural fairness* (Table 4).

Table 4: Framework of Key Dimensions of the *Just Transition* Process

	Distributional fairness			Procedural fairness
	Decent work	Environment	Equity in cost and benefits	Social dialogue
Workers	Quality jobs in low-carbon industries or other alternate regional industries	Health impacts relating to pollution, water and soil quality especially in carbon-intensive regions	Labour market initiatives to manage job losses	Transition dialogue
Local Community	Diversified job market with employment opportunities		Manage impacts within regional communities and develop access to new economic opportunities	Community participation (e.g. applying the IAP2 spectrum)[10]
Vulnerable Groups	Access to work in the low-carbon economies		Manage distributional impacts and ensure low-income groups have access to benefits of new technologies (e.g. solar panels)	Inclusion and participation

Defining *Just Transition* for Finance

Consideration of ESG risk in credit and operational decisions is now an established part of risk management for many financial institutions, but *just transition* and the social dimension of climate-related risks have not yet been fully integrated into climate strategies (Robins, Brunsting & Wood, 2018; Robins, Tickell & Irwin, 2019; Müller, Börger & Bovenzi, 2019). In 'Climate change and the just transition: A guide for investor action' financial institutions are encouraged to embrace the concept as:

> *'...the just transition is a forward-looking, action-oriented framework that identifies opportunities for public and private investment in economic development that is both sustainable and inclusive ... [and] to connect activities across international organisations, regional and national governments, businesses and investors, the development and philanthropic sectors, and, crucially, the workers and communities who will feel the effects of the transition – whether well or poorly managed – most keenly. Importantly, the just transition is a global agenda for industrialised as well as emerging and developing economies, one that addresses both the decarbonisation and resilience dimensions of the transition.'*
> (Robins, Brunsting & Wood, 2018, p 6).

The 'Green Swan' report views the social dimension as the 'nexus' between the physical and transition risks (Bolton et al., 2020, p. 79) and can be missed if transition and physical risk are treated as non-overlapping silos – which they frequently are. Social risks include the loss of social licence to operate for 'brown' and 'green' assets where they lose community support, the collapse of regional economies and industries and the flow-on consequences for the financial sector, and the impacts on political and social stability and policy that minimises the costs of transition.

To achieve a *just transition*, what is required is a holistic risk assessment of the change or transition to help the corporate sector and financial institutions understand 'where' the impact of policies will be felt, 'what' policies need to be implemented for a 'fast but fair' transition and identify opportunities for financial product innovation and customer engagement and support.

[10] IAP2 Spectrum of public participation consist of five levels (inform, consult, involve, collaborate and empower) and was designed to assist with the selection of the level of participation of the public. Link: IAP2 Spectrum.

4. ENERGY TRANSITION IN AUSTRALIA: KEY STAKEHOLDERS AND INITIATIVES

Currently, there is no coordinated and integrated national energy and climate change policy in Australia.

Engagement with the Federal Government to plan for transition is important for corporate Australia and financial institutions, many of whom have emissions reductions targets public commitments to exit thermal coal financing.

There are a range of stakeholders involved in energy transition debate and initiatives in Australia. The key stakeholders, their current position on *just transition* and sources for further information are listed beneath to assist corporates and financial institutions in Australia.

Table 5: Australian Stakeholders Involved in the Energy Transition Debate and Initiatives

Stakeholder	Institution	Position and Initiatives	Sources
Governments	Federal Government	At the 2018 Conference of the Parties (COP) in Krakow Poland, 55 nations signed the 'Solidarity and Just Transition Silesia Declaration'. Australia is not a signatory.	Silesia Declaration
	State Governments	The Queensland Government has established a 'Just Transition Group' to develop a *just transition* framework for Queensland, with a focus on directly affected workers and communities. The Victorian Government has provided A$264 million for the Latrobe Valley Authority (LVA) and other initiatives to diversify and regenerate the local economy following the closure of the Hazelwood Power Station (Hazelwood) in 2016. These include an Economic Growth Zone and an incentive fund to support businesses to start or expand operations in the region (LVA, 2020). The NSW Government has established the Upper Hunter Economic Diversification plan. Supporting the plan is the Upper Hunter Industry Leaders Forum which includes AGL, NSW Minerals Council, Hunter Thoroughbred Breeders, NSW Farmers' Association, Dairy Connect and Hunter Valley Wine and Tourism Association.	Queensland Just Transition Group Upper Hunter Economic Diversification Action Plan
	Local Government	The Hunter Joint Organisation, the regional organisation of ten councils in the area, formed a Regional Economic Transition Standing Committee in September 2019. One of the key objectives is to consider how to develop the regional economy as the coal sector declines.	Hunter Joint Organisation
Regional Institutions	Latrobe Valley Authority	There are a number of regional bodies and collaborations in operation. The LVA oversees a range of projects to diversify and regenerate the local economy (LVA, 2020). Local staff administer grant funds in concert with regional government programs (e.g. incentives for new businesses) and collaborate closely with the community to deliver on plans for new jobs and sustainable development. Examples include: • Smart Specialisation Strategy to develop local economy based on existing strengths; • Expression of Interest process to encourage jobs and investment for renewable energy and new energy technologies in the Latrobe Valley; and • Community funds to invest in home energy upgrades, community facilities etc. A report summarising their activities was released in December 2019.	Latrobe Valley Authority
	Hunter Economic Transition Alliance	The Hunter Economic Transition Alliance is a group formed by AGL including a range of stakeholders as a collaboration to manage the closure of the Liddell power station.	Hunter Valley Economic Transition Alliance Blueprint

Table 5: Australian Stakeholders Involved in the Energy Transition Debate and Initiatives

Stakeholder	Institution	Position and Initiatives	Sources
Civil Society	Cross-sectoral	The Australian Climate Roundtable is a collaboration between industry groups, trade unions and environment groups on principles for climate policy. Members are: • Australian Aluminium Council (AAC); • Australian Council of Trades Unions (ACTU); • Australian Council of Social Services (ACOSS); • Australian Energy Council (AEC); • Australian Industry Group (AIG); • Australian Conservation Foundation (ACF); • Business Council of Australia (BCA); • National Farmers' Federation (NFF); • Investor Group on Climate Change (IGCC); and • WWF-Australia	Australian Climate Roundtable Policy Statement (December 2019)
	Trade Unions	The Australian Council of Trade Unions (ACTU) has a 'Just Transition Policy' and a *just transition* campaigner. The Construction, Forestry, Mining and Energy Union (CFMEU) released a discussion paper advocating for a *just transition* for coal miners as part of action to address climate change. There are some variations in policy between the national branch and its state branches. The Queensland branch supports the Adani coal mine and the Victorian branch has called for construction of nuclear power stations. Other unions with notable climate and energy policies: • The Electrical Trades Union (ETU) supports strong and rapid energy transition. The union has however been highly critical of employment standards on renewable energy projects. In Queensland, the ETU called for a halt on large solar projects until a *just transition* policy was in place. There has been a legal dispute over when licenced electricians were required to mount solar panels. • The Maritime Union of Australia (MUA) is advocating for the creation of an offshore wind industry to transition workers in the oil and gas industry to new clean energy jobs.	ACTU Just Transition Discussion Paper CFMEU Just Transition Discussion Paper Maritime Union of Australia – Offshore Wind Report
	Environmental Groups	• Lock the Gate and Hunter Rivers Central Alliance are running the Hunter Renewal campaign, which is a local campaign to advocate for economic diversification and a *just transition* for coal workers and communities. Other major environmental groups such as WWF-Australia and the ACF have publicly supported *just transition* principles and policies	Hunter Renewal
	Welfare Organisations	Welfare groups have advocated strongly for inclusive climate and energy policies that provide support for low-income households. Ahead of the 2019 Federal Election, a group of welfare and community organisations signed a Joint Social Sector Climate Statement. Its key principles were: • Climate change and a slow, poorly managed transition is a major threat to achieving our vision; • People on low-incomes are most affected by climate change; • Need a rapid transition to clean energy and clean economy, but it has to be fair and just; and • People on low incomes are at risk of being left behind. Signatories included the ACOSS, the Salvation Army, Anglicare Australia, the National Association of Community Legal Centre and Early Childhood Australia.	Joint Social Sector Climate Statement

Table 5: Australian Stakeholders Involved in the Energy Transition Debate and Initiatives

Stakeholder	Institution	Position and Initiatives	Sources
Civil Society	Welfare Organisations	ACOSS and other welfare groups have highlighted that low-income households are often excluded from the benefits of climate programs (e.g. they do not have the funds to buy solar panels or live in public housing or rental accommodation) and the impact of these programs can be regressive (e.g. solar panels reduce the energy throughput in the grid meaning networks increase charges to recover costs on capital expenditure).	ACOSS Climate Statement
Political Parties	Liberal-National Coalition	The Coalition does not have a *just transition* plan.	
	Australian Labor Party (ALP)	The ALP proposed establishing a 'Just Transition Authority' as part of its 2019 election platform. The Just Transition Authority was intended to cover coal power stations but not coal mining. In February 2020, the ALP re-committed to a target of net zero emissions by 2050, and announced its opposition to taxpayer funding of new coal-fired power plants (Murphy, 2020).	Australian Labor Party – Just Transition
	Australian Greens	The Australian Greens' policy is to establish a body to oversee a transition to 100 per cent renewable energy by 2030. 'Renew Australia' would establish a timetable for the closure of coal-fired power stations in consultation with industry and the community. A A$1 billion Clean Energy Transition Fund would fund retraining, relocation and early retirement to 'ensure that no coal worker is left behind' (Australian Greens, 2019).	Australian Greens – Renew Australia
	Independents	The independent Minister of Parliament (MP) Zali Steggall released the Climate Change (National Framework for Adaptation and Mitigation) Bill 2020 calling for the Federal Government to take bipartisan action on climate change. It spells out how Australia's carbon emissions could be brought down to zero by 2050. It calls for a detailed risk assessment of the challenges of warming across all sectors, and national plans for adapting to those challenges, while reducing emissions in a transparent and accountable way. It also calls for the establishment of an independent climate change commission to advise Parliament (Steggall, 2020).	Zali Steggall – Independent for Warringah

5. LESSONS FROM AROUND THE WORLD

Energy systems are in transition around the world as renewable energy replaces coal and gas-fired electricity generation. For nations with major coal sectors in particular, the transition is complex due to the impacts on regional economies built around coal mining and generation.

Different nations are at different stages of the clean energy transition and some are managing the social dimensions better than others. In Germany and Spain, major settlements have been negotiated to phase out coal mining. These negotiations have not been without challenges and there remain ongoing tensions, however there is a policy framework and process which reflect the interests of a broad range of stakeholders. Some nations are in the midst of community engagement processes in which they are developing and negotiating *just transition* packages (e.g. Canada, Scotland). Other countries such as Australia and South Africa that have large coal export sectors are yet to reach the level of common understanding or social consensus required to negotiate and implement transition arrangements.[11]

Here we draw on the experience from other countries which offer learnings on what a *just transition* could look like in Australia.

Box 3: Key Lessons Learnt for a *Just transition* from International Examples

Key Lessons Learnt for a *Just Transition* from International Examples

There are four key lessons from efforts to develop *a just transition a*round the world to date:

- **Build a social compact:** community engagement and framework agreements are a pre-condition for a *just transition*;
- **Plan early for closures:** early notice, workforce planning and negotiation is essential to reduce the impacts of closures;
- **Diversify regional economies over time:** build new industries and jobs for coal regions; and
- **Establish** specialist national or regional *just transition* authorities and fund(s) to invest and plan for a *just transition*.

Source: Mey et al. (2019)

5.1 Build a Social Compact

A social compact is a framework agreement between local, regional, national (and sometimes international) stakeholders about the process, the implementation, and outcomes of an industry transition. This framework agreement is negotiated through a multi-stakeholder governance process involving national, state, and local governments, industry, civil society, unions, community members of the affected areas, local associations, environmental groups and experts. This provides a forum for discussion of opportunities and challenges and negotiated trade-offs. The framework agreement should include details about funding, closure timeframes, pathways for local or regional economic diversification, and negotiation processes because it is a long-term process that will inevitably need to be adjusted over time.

A social compact takes time. As part of the development of the framework agreement where these have been successful, there has usually been extensive community engagement and consultation in addition to the stakeholder negotiations. A key concern is securing social cohesion in the region.

[11] This is not an exhaustive list, there are many more examples of countries more or less reliant on coal industries (mining or power supply) at different stages of phase out process. For example, France (coal only provides 0.01 per cent of the electricity supply) will phase out coal by 2022; Denmark, Spain, the Netherlands, Portugal and Finland aim to do so by 2030. Poland is the second largest coal mining country in Europe and the ninth largest producer in the world, with most of the coal used domestically, delivering almost 80 per cent of Poland's electricity. The country is significantly lacking behind with no plans for a clean energy transition phase-out yet in place. In Indonesia the transition will be particular challenging. The country is one of the world's largest exporters of coal making the country's economy and GDP heavily dependent on the export income, and 1.3 per cent (935,753 workers) of the local workforce employed in the sector.

Therefore, the process counts as much as the outcomes. It is an essential foundation for a transition that will take months if not years to establish.

There are a number of countries which have successfully established social dialogues and frameworks:

- Canada has established a 'Task Force on Just Transition for Canadian Coal Power Workers and Communities' with a mandate for implementing a *just transition* by 2030 (see Box 4);
- Spain has negotiated a settlement for the closure of their coal sector (see Box 5);
- Germany's 'Coal Commission' is mandated to negotiate a pathway for the phase-out of coal in the next two decades (see Box 6); and
- The 'Just Transition Commission' in Scotland has been set up to advise Scottish Ministers on how to apply *just transition* principles to Scotland to achieve a net zero economy by 2045.

Notably, these processes have been led by respective national governments.

Box 4: Task Force: Just Transition for Canadian Coal Power Workers and Communities

Task Force: Just Transition for Canadian Coal Power Workers and Communities

Canada has committed to phase out coal-fired electricity generation by 2030. To support this process, a 'Task Force on Just Transition for Canadian Coal Power Workers and Communities' (the Task Force) was created in early 2018.

The Canadian Government acknowledged the geographically and socially uneven distribution of the negative effects of a coal-phase out in four provinces – Alberta, Nova Scotia, New Brunswick and Saskatchewan. The mandate of the Task Force was to provide knowledge, options, and recommendations to the Canadian Minister of Environment and Climate Change over a period of nine months. Members included the majority of workers representatives from trade unions, the coal sector, affected communities as well as advocates and experts for the environment, sustainability and community development.

The Task Force used a unique approach to meeting local communities. They travelled to 15 towns, met with more than 80 stakeholders, hosted eight sessions for the public and conducted several study tours. The process was successful since it operated within a clear framework provided by a firm political commitment to the coal-phase out. The Canadian government also provided clear guidance in the form of terms of reference, which specified the mandate, duration and composition of the Task Force in advance.

The final report provided 10 recommendations for the Government of Canada including a multi-stage planning process for the transition; legal and regulatory changes; a long-term research fund for impacts; locally-driven transition centres; a comprehensive funding program for workers, infrastructure and economic diversification for the communities.

Key achievements included:

- A fair process and building trust by directly engaging with affected local communities and taking local concerns seriously;
- Co-designing a *just transition* pathway by taking in all of the different perspectives, ensuring recognition for affected workers and communities, ensuring their voices were heard and regarded as valid in their own right;
- Providing recommendations with the necessary legitimacy towards the National Government and Canadian society;
- Based on the Task Force's recommendations, the Government has devoted CA$35 million (A$38.6 million) over the next five years to create worker transition centres, and to explore new ways to protect wages and pensions;
- A CA$150 million (A$165.6 million) infrastructure fund is to be created (projected to start in 2020 – 2021) to support priority projects and economic diversification in impacted communities; and
- The Government established the first regional transition centres in Alberta with a unique approach of former coal miners providing assistance to fellow miners who are looking for employment.

The Government mandate and the inclusive engagement process were crucial to the success of the Task Force.

Source: Government of Canada (2020)

Box 5: Landmark Deal Between Unions and Government for a *Just Transition* in Spain

Landmark Deal Between Unions and Government for a *Just Transition* in Spain

In 2018, the Spanish Government, unions, and the National Federation of Coal Mining Businesses struck a *just transition* deal which replaced subsidies to the coal industry with a sustainable development plan. The deal is considered as ground-breaking and includes €250 million (A$450 million) will be invested in mining regions over the next decade. The deal covers eight privately-owned companies and almost 1000 workers. It mixes early retirement schemes for miners over 48 years of age, with environmental restoration work in pit communities and re-skilling schemes for cutting-edge green industries.

The package of benefits to miners and their communities include:

- About 60 per cent of miners – those aged 48 and older, or with 25 years' service – will be able to take early retirement;
- Younger miners will receive a redundancy payment of €10,000 (A$16,828), as well as 35 days' pay for every year of service;
- Miners with asbestosis (long-term inflammation and scarring of the lungs due to asbestos fibres) will receive an additional compensation payment of €26,000 (A$43,748) (singular payment);
- Funding will be provided to restore and environmentally regenerate former mining sites. Priority for employment in these jobs will go to former miners;
- Money will be set aside to upgrade facilities in the mining communities, including waste management, recycling facilities and water treatment plants, utilities infrastructure and distribution for gas and lighting, forest recovery, atmospheric cleansing and reducing noise pollution; and
- An action plan will be created for each mining community, including plans for developing renewable energy and improving energy efficiency, and investing in and developing new industries.

Source: Benavides (2019); Del Río (2017); Neslen (2018); Ribera (2020)

5.2 Plan Early for Closure

Planning early for closure is a prerequisite for avoiding major disruptions: regional labour markets and economies do not cope well with rapid change. Too often there is a lack of notice, and government support is too late to arrest decline or create alternative industries. The decline affects the local as well as regional economy costing jobs and business opportunities. Without planning there will be large-scale unemployment amongst coal workers. There are also major risks for the security and price stability of the electricity system as the withdrawal of large coal plants at short notice is highly disruptive.

What does a planned approach to energy transition look like? Some of the common elements include:

- A closure timetable – or at least a transparent process with advance notification of plant closures with workers, communities and all levels of government;
- Managed workforce transition over time through early retirement provisions and incentives, voluntary redundancies, retraining and redeployment for workers within power stations and to other industries;
- Consultation and negotiation with the workforce and their representatives (unions typically play an important representative and bargaining role); and
- Site remediation and rehabilitating degraded areas.

International examples include planned close-downs of the coal sector in Germany and Spain and at a company level, the planned approach of Italian multinational power company Enel to close 13 GW of thermal coal power stations by 2050 (Burrow & Polman, 2018). In Australia, AGL's approach to engage in community consultations for ideas and proposals for the Liddell Power Station site after its retirement was a first of this kind – and the type of initiative needed for other power plant closures in the country.

Financial institutions are starting to play an important role by engaging with asset owners regarding their development of closure plans, for example they can seek information and incentivise early action through sustainability linked loans. In the US, Morgan Stanley has forecast 47 GW of coal plants will close in the coming years and called on owners to share closure plans.

Box 6: German Commission on Growth, Structural Change and Employment (the 'Coal Commission')

German Commission on Growth, Structural Change and Employment (the 'Coal Commission')

The German Commission on Growth, Structural Change and Employment (the 'Coal Commission') was established in June 2018 as part of the German Climate Action Plan 2050. The Coal Commission comprised 28 members from environmental non-government organisations (NGOs), unions, industry and energy associations, representatives from the coal regions and scientists who were tasked to develop recommendations for the closure of lignite mining, whilst maintaining economic prospects, social cohesion and social acceptability.

The Coal Commission presented their final report in January 2019, with a €40 billion (A$67 billion) package tied to a timetable for the closure of lignite and black coal mining and power production. The Commission proposed an 'exit corridor' for a phased decline of coal mining and coal-fired power generation. These included the following steps:

- Between 2018 and 2022 brown and hard coal power plants should be reduced by 12.5 Gigawatt (GW) based on negotiated agreements with the plant owners;
- In the next phase between 2022 and 2030 additional 10.9 GW brown coal power plants and 14.7 GW hard coal plants should be closed-down; and
- While the Commission proposes 2038 as the final exit date, another review in 2032 shall assess whether an accelerated phase out can be achieved by 2035.

After further negotiations between the local, state and Federal government and a heated public debate over the end-date of the coal exit, the German parliament implemented legislation for the coal-phase out in January 2020. The law is mostly aligned with the recommendations of the Coal Commission (although, against the Coal Commission recommendations it also includes compensations for the lignite coal industry of €4.35 billion [A$7.3 billion]).

How the €40 billion (A$67 billion) will be invested is still being negotiated with legislation expected towards the end of 2020. Broadly, the investments will cover development of new employment opportunities through infrastructure projects, research facilities, and the establishment of federal agencies in the region. It also comprises early retirement payments for black and brown coal workers aged 58 years or over for five years. Workers can also benefit from a new program for further qualification and vocational training. Proposed measures include communication and education infrastructure e.g. establishment of subsidiaries of high-profile research institutes such as the Max Planck Society and Frauenhofer Society, the German Aerospace Centre.

Sources: Bundesministerium für Umwelt Naturschutz Bau und Reaktorsicherheit (2020); Bundesministerium für Wirtschaft und Energie (2019); Machowecz (2019)

5.3 Economic Diversification: Creating New Industries and Jobs

Another dimension of planning for closures is to create new industries and jobs for workers in previous coal regions. Diversification of regional economies over time is the key to a successful transition. Securing future employment and the economic livelihood of workers, their families and the broader community with equivalent paid and quality jobs is crucial to avoid social deprivation and community collapse. A core feature of diversification strategies has been 'smart specialisation', a place-based approach which aims to develop new industries based on adapting existing industry capabilities, workforce skills, natural resources and infrastructure. Often diversification strategies include infrastructure upgrades and the identification of regional clusters and new strategic sectors, with research centre infrastructures and pilot projects, as well as investments at the level of small and medium-sized enterprises (SMEs).

Europe has been a leader in regional economic diversification. The German Ruhr region has successfully transitioned through multiple waves of restructuring of the coal industry with no involuntary redundancies (see Box 7). This is being extended at the level of the European Union (EU). Since 2011, the EC's 'Smart Specialisation Platform' brings together local authorities, academia, business spheres and civil society for the implementation of long-term growth strategies supported by EU funds. In 2017, the 'Platform for Coal Regions in Transition' was launched as an element of the 'Clean energy for all Europeans' package. The Platform for Coal Regions is an open forum for information exchange and includes tailored support (advice, bilateral discussion and EU funds, financial tools and programs) for 20 coal regions participating in the platform (EC, 2017). In January 2020, a 'Just Transition Mechanism' was established as part of the European Green Deal which includes support for economic diversification and workers (see Section 5.4).

Box 7: Coal Phase Out in the Ruhr Region in Germany

Coal Phase Out in the Ruhr Region in Germany

The Ruhr region in Germany is the best-known example of a successful transformation and diversification of coal, steel and related industries. The region is the largest urban agglomeration in the country and was characterised by large-scale industry, few small and medium-sized enterprises (SMEs) and a weak educational system with no university until 1962. It also was Germany's prime hard coal-producing region for 150-years.

The coal industry decline started in the late 1950s with mines closing and thousands of workers (at its height 600,000) moving into unemployment. To moderate this development and support a socially acceptable transition process, federal and state level government established a number of programs and initiatives buoyed by significant funding. The transition was characterised by four phases:

- 1966 – 1974: integrated structural policy. State and federal government, as well as the European Union (EU) and Federal Labour Office, provided 17 billion Deutsch Mark (DM) (approximately €8.5 billion [A$14.2 billion]) to modernise the coal industry, establish new industries and education institutions (University Essen, 1972), local public transport and tourism. With the support of mining unions and state government, the Ruhr AG was founded during this period to consolidate the majority of struggling mines and coordinate restructuring of the sector. While some of the measures were successful and employment slowly increased in other sectors (car manufacturing, education), large parts of the funding were used to reinvigorate the coal and steel industry and there was a high cost for taxpayers (visible in the so-called coal-penny levy in 1974);
- 1975 – 1986: centralised structural policy including 6.9 billion DM (approximately €3.5 billion [A$5.8 billion]) of funding to support key technologies and innovations, extending beyond the coal and steel industry to also include SMEs;
- 1987 – 1999: regional structural policy. The third phase was characterised by a stronger focus on decentralisation. This included the International Building Exhibition (IBA) which funded more than 129 projects for land use development and environmental remediation of brownfields in 17 communities over a 10-year period; and
- 2000 onwards: end of all subsidies and policy to support areas of expertise and regional strengths. The establishment of innovation clusters and strategic areas of activity based on the region's strengths such as sustainable resource management, information technology (IT) system integration and medical devices, and biotechnological applications. The Ruhr region has developed a comparative advantage in energy supplies and waste disposal, with a great deal of research and development going into 'renewable resources, recycling and waste combustion.'

To comply with an EU directive, in 2007 the Federal Government decided to phase out all black coal subsidies by 2018. Careful staggering of mine closures was negotiated between unions, coal companies and governments. There were generous benefit packages for workers, re-location to still operating mines or within companies, an early-retirement scheme, and training and support to transition into the service sector.

The transition process for the Ruhr region was successful in developing a diversified economy, employment growth in new areas and environmental improvements and contributed to the region's resilience, growth potential and liveability. Nonetheless, the Ruhr region has the highest unemployment rate in the country with twice the national average (4.9 per cent) and is still struggling with the decline of the coal sector.

Lessons learnt:

- Strong early engagement of Federal and state governments to support the region in the transition process;
- Collaborative approach for planning and implementing the transition including unions, mining companies and all levels of government;
- Support for local infrastructure and the remediation and renaturation of brownfields as an opportunity to innovate and create new employment opportunities;
- Large-scale public investments in infrastructure, education (university establishment and technical education system), cultural industry and eco-tourism helped to improve the liveability and attractiveness of the region;
- Stronger emphasis on a bottom-up approach to recognise regional strength and increase community participation;
- Benefit schemes for workers ensured generous compensation but also opportunities for further training, education and skill development; and
- Subsidies and direct funding for coal companies created windfall effects and adverse structural impacts with minimal job creation, which later led to prioritising support of innovations, business creation, start-ups and collaboration.

Sources: Dahlbeck & Gärtner (2018); Fischedick, Schüle & Venjakob (2017); Oei et al. (2019); Sheldon, Junan & De Rosa Pontello (2018)

In Australia there is no coordinated approach yet to the regional diversification of its coal regions, but there are some initiatives and partnerships to engage with for financial institutions and corporates.

- In the Latrobe Valley, there are local government (Regional Partnerships Gippsland) and the Latrobe Valley Authority (LVA) (see Box 8) programs actively supporting innovative products and business models to boost the local economy, create jobs and make the region more resilient. The Latrobe Valley has become an Economic Growth Zone which offers financial support in the form of grants or tax reduction to businesses to establish, expand or diversify their businesses and employ more people in Latrobe Valley. Beyond the coal industry, the region's main economic activities are agriculture (dairy production), healthcare and manufacturing; and
- In the Hunter region, local stakeholders are driving a *just transition* agenda. The NSW Government has established an Upper Hunter Economic Diversification Action Plan but progress has been slow and it remains based on a growing mining sector. Local initiatives have emerged to drive diversification and transition including business collaborations such as the Hunter Energy Transition Alliance[12] and the grassroots organisations Lock the Gate and Hunter Central Rivers Alliance[13], as well as local government initiatives. The Hunter Valley has a large coal mining and generation sector, but it also has major strengths in agriculture, tourism, equine, viticulture and manufacturing sectors. The region also has high-quality infrastructure (rail loops, major ports and access to airports could be used for exporting food products and value-added products from the region) and local initiatives are exploring opportunities for biodiversity and sustainable agriculture and new industries such as processing plants for dairy, pork and poultry.[14]

5.4 *Just Transition* Funds and Authorities

Specialist funds and authorities are being established to create strong and trusted institutional structures with a focus and resources on managing transition processes. The World Bank (2018, p. 32) has noted 'coal mine closure requires enormous budget outlays, often in a relatively short period of time' from income support and redundancy, labour market adjustment programs and environmental and site remediation. In addition to the German (€40 billion [A$67 billion]) and Spanish deals (€250 million [A$450 million]) already highlighted, the World Bank cites examples such as Poland's Miners Social Package (US$2 billion [A$3.1 billion]) and the Netherlands support package (US$6 billion [A$9.2 billion]).

As mentioned in the previous section, the EU has recently announced the European Green Deal which is a roadmap to achieve zero net emissions by 2050 (EC, 2019) and a funding commitment of €485 billion (A$814 billion) until 2030. An additional €280 billion (A$470 billion) will be leveraged through private and public co-funding. *Just transition* initiatives are a central component of the European Green Deal (EC, 2020). These include:

- The 'Just Transition Platform' which provides technical and advisory support, expanding the Initiative for Coal Regions in Transition; and
- The 'Just Transition Mechanism' which includes three components:
  - 'Just Transition Fund': a €40 billion (A$67 billion) for economic diversification, retraining and environmental rehabilitation in regions most impacted by energy transition;
  - InvestEU scheme (€1.8 billion [A$2.9 billion]): investment in a wider range of projects (e.g. energy and transport infrastructure) focussed on *just transition* objectives, in addition to supporting investment projects outside *just transition* territories if they benefit the *just transition* territories; and
  - New public loan facility leveraged by the European Investment Bank: the public sector loan facility is expected to mobilise €25 – 30 billion (A$41 – 49 billion) of public investment in areas such as energy and transport infrastructure, energy efficiency and social infrastructure.

With mechanisms for matched funding through the private sector, the 'Just Transition Mechanism' aims to mobilise over €150 billion (A$246 billion) in investment. Europe is now the leader in *just transition* finance and policy.

In Australia, the establishment of the LVA is a local example of a dedicated *just transition* authority (see Box 8).

[12] Hunter Energy Transition Alliance was established as a partnership between AGL and the NSW Energy and Resources Knowledge Hub and developed a Blueprint Report for the future of the Hunter Valley.

[13] Both groups are focussed on supporting regional communities to develop a community-driven transition plan. They engaged with the local community through door-knocking in the Hunter of over 3000 households and community forums. The Hunter Renewal project serves as the platform for local community engagement.

[14] At the time of writing, the NSW Government (2020) released a which stated it would support diversification of coal-reliant regional economies to assist with the phase-out of thermal coal mining over 'coming decades'.

Box 8: Latrobe Valley Authority

Latrobe Valley Authority

After the sudden closure of the Hazelwood Power Station (Hazelwood), the Victorian Government established the Latrobe Valley Authority (LVA). Its roles include transition support for the workers who have lost their jobs, economic diversification and growth, fostering the resilience of local businesses and supporting the regeneration of the whole regional supply chain in the face of the inevitable decline of the coal sector. Although the LVA institutionally belongs to the Victorian State Government, it has strong autonomy in setting priorities and allocating funds. The LVA is working with other state and community agencies to transition the region using a comprehensive community approach.

Some of the key initiatives include:

- **The Smart Specialisation project:** with an initial focus on the horticulture and food industry. The project is examining the region's current strengths with the aim of creating new networks and linkages;
- **Latrobe Valley Microgrid for farmers:** an Australian Renewable Energy Agency (ARENA) funded feasibility study found great potential for consumers, and in particular Latrobe Valley dairy farmers, to buy and sell locally-generated renewable energy using a virtual microgrid. This marketplace would allow farmers to take greater control of their energy use, providing an opportunity to sell their excess solar power back to the grid. Microgrids have applicability to other communities in the area who are exploring the potential of microgrid solutions;
- **Retrofitting and energy efficiency upgrades:** in 2018, the Home Energy Upgrade Program started to deliver upgrades to up to 1000 households. This has reduced energy bills for local households while increasing jobs;
- **Manufacturing:** SEA Electric will set up a new electric vehicle assembly plant in Latrobe Valley, creating up to 500 jobs and manufacturing up to 2,400 vehicles per year; and
- **Technology research cluster:** the Gippsland High Tech Precinct is a co-location of TAFE Gippsland, Gippsland Tech School, Latrobe City's Kernot Hall, along with the construction of the new Innovation Centre built and operated by Federation University. It will play an important role in supporting the expansion of the region's growth sectors – health, food and fibre, advanced manufacturing and new energy.

Work done by the LVA has resulted in more than 2,500 new jobs and helped generate more than A$99 million of private investment in the Latrobe Valley to date. At the time of writing, the unemployment rate has fallen by 3.7 percentage points since September 2016, with an additional 10,600 people in employment across the Latrobe-Gippsland region.

These initiatives have been made possible by the clear mandate of the LVA, investment from key stakeholders including government funding, and community presence and engagement. However, the experience of the Latrobe Valley highlights the importance of forward planning and better coordination between private and public sectors for a smooth and equitable transition.

Source: LVA (2019 & 2020)

6. NEXT STEPS

Australian corporates and financial institutions have an important role to play in facilitating a fair, timely and efficient transition to a net zero emissions economy – as 'stewards of assets, allocators of capital and as influential voices in public policy to make sure that the transition produces inclusive and sustainable development' (PRI, 2020).

Just transition is a new and emerging agenda which can provide a focal point and guiding principles for integrating the social dimensions of energy transition into climate strategy frameworks, which will reduce systemic risks, enhance value and strengthen the social licence to operate of corporates, financial institutions and their clients (Robins & Rydge, 2019). *Just transition* fits within the international movement for corporates and financial institutions to reaffirm their core societal purpose – what Robins Robins, Tickel & Irwin (2019, p. 8) define as 'to serve the real economy over the long-term'.[15]

The key question is: how can corporates and financial institutions best respond to the social opportunities and risks that flow from the transition to a resilient, net zero economy (Robins, Tickel & Irwin, 2019)?

For Australia, we see five broad next steps to building discussion, interest and uptake of a *just transition* agenda:

- Socialise the concept;
- Assess the social risks and opportunities for your organisation from energy transition;
- Adopt climate, renewable energy and *just transition* commitments;
- Incorporate *just transition* principles into corporate strategy and operations; and
- Engage across sectors, clients and governments to support and implement *just transition* principles.

6.1 Socialise the concept

In Australia, the concept of *just transition* is relatively new and less advanced, albeit one of 'increasing interest to the investment community' (Allens, 2020, p.44). This is especially contrasted in relation to Europe where there are *just transition* forums, initiatives, policy and a major public-private fund being rolled out by the EU. Climate governance, risk management and ESG governance are well-established concepts – even if there is still work to do based on the assessment of Minter Ellison (2020) that only one-in-five ASX 300 companies had 'meaningful' climate risk disclosures.

The first step is to 'socialise the concept' inside and outside organisations. Is there an understanding of *just transition* and its implications within key decision-makers in your organisation? Is there an awareness or discussion of social dimensions of energy transition within your industry associations or multi-stakeholder forums? The answer is most likely no.

The establishment of *just transition* platforms have been an important step in building social dialogue in other nations (e.g. Germany, Canada, Scotland, South Africa). In the UK new ways of engaging citizens and stakeholders in the debate about climate action are being trialled. Climate Assembly UK invites over 100 members, representative of the UK population, to hear balanced evidence on the choices the UK faces, discuss them, and makes recommendations about what the UK should do to become net zero by 2050 (Climate Assembly UK, 2020).

Financial institutions and corporates can play a co-ordinating role by engaging with industry, business, investors, community and union organisations. One of the features of the response to COVID-19 is the growth in multi-stakeholder initiatives advocating for a 'green recovery' including business groups alongside environmental, clean energy, social service and union organisations. There is an opportunity to build on these forms of multi-stakeholder collaboration to engage in dialogues that also build shared understandings of the importance of *just transition* between business, government, civil society organisations, unions, workers and communities. The first step is to 'socialise the concept' of *just transition*, build a shared understanding of its principles and implications, and include *just transition* as an established part of multi-stakeholder dialogue and advocacy.

Key Considerations:

- Put *just transition* on the agenda in multi-stakeholder forums to develop dialogue, understanding and a shared framework.
- Develop initiatives to build discussion and understanding of *just transition* and its implications for your business across executive, strategy, governance and risk teams.
- Make *just transition* a part of your organisation's public discourse – corporates and financial institutions can help raise the profile of *just transition* by simply making it part of how they talk about climate change.

6.2 Assess the social risk and opportunities for your organisation arising from the clean energy transition

Understanding the social dimensions of climate risks is a pre-requisite for organisations to act on *just transition* (Network for Greening the Financial System, 2019, p. 30). The Cambridge Institute for Sustainable Leadership (CISL) (2020) found that the key characteristic of a bank to successfully enable its clients to transition to a low-carbon economy is an 'active mindset' which regards the transition as a strategic opportunity for their business and builds internal capacity for the long-term (CISL, 2020). Developing, understanding and applying *just transition* principles will be an iterative process required to understand and identify social risks and opportunities.

The first step is to identify social dimensions of energy transition risks and opportunities for your organisation and customer base. Organisations should be applying a 'defensive' lens to assess risks but also a 'proactive' lens to understand how they can position themselves to take advantage of opportunities. Organisations that do so will be well prepared for the inevitable clean energy transition.

The implications vary depending on their sector and level of exposure to the thermal coal sector. Broadly, there are five different types of sectors with different roles and *just transition* implications (see Table 1).

Financial institutions and corporates would be prudent to assess their exposure to the social and financial consequences from the decline of all fossil fuels (coal, gas and oil). Whilst our focus here is on thermal coal, COVID-19 is illustrating that all fossil fuels are vulnerable to disruption– and there are few corporates without different types of exposure to coal, gas and oil, even if they are not direct asset owners, financiers or managers.

A commitment to climate disclosure reporting can provide a framework for risk and opportunity assessment, information exchange and improve market, regulatory and community reputation. Two leading examples of reporting mechanisms are:

- **PRI:** Signatories to the PRI include 2500 investors with over US$90 trillion (A$125 trillion) of assets, that are required to incorporate ESG dimensions into decision-making. The social dimension will likely come to incorporate *just transition* principles. Already, 159 investors with US$10.1 trillion (A$14 trillion) in assets have separately signed a Statement of Investors Commitment to Support a *Just transition* on Climate Change (PRI, 2020). For PRI – and other initiatives following the lead of PRI – social commitments including *just transition* are likely to grow in significance; and
- **TCFD:** Over 1440 companies and organisations have committed to support the TCFD which is a global climate disclosure and reporting mechanism encompassing corporate governance, strategy, risk management and metrics / targets (TCFD, 2020). The TCFD includes financial institutions and the non-finance group for other sectors.

PRI and TCFD are working on alignment and together represent the major climate disclosure reporting mechanisms. The identification, management and reporting of social risks and dimensions of the clean energy transition can be incorporated within and strengthen existing climate disclosure and commitment mechanisms.

In relation to opportunities for new products and services, the *Banking on a Just Transition* project in the UK has identified a series of questions that should be asked of key customer segments (see Appendix 1), including households, SMEs, corporate finance and public authorities. For example, how can financial institutions support low-income households, small-medium enterprises and disadvantaged groups access funding, so they do not unfairly bear the burden of the costs of change or are excluded from the benefits of technology change (e.g. solar panels)? These are the types of questions all corporates should be asking themselves in relation to their activities that have a relationship with fossil fuels.

Key Considerations:

- Review the financial and social risks associated with the exposure of your organisation to fossil fuels.
- Review social and equity dimensions of current clean energy or sustainability procurement, products, services and markets to identify gaps, opportunities and implementation issues.

[15] This is timely in Australia in the aftermath of the *Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry.*

Table 1: Sector Roles in a *Just Transition*

Sector	Role in Transition from Coal to Clean Energy	*Just Transition* Implications
Investors	A rapidly growing number of investors are divesting or committing to divest from thermal coal. Equity finance is increasingly hard to source for thermal coal mining and generation and investors are a major source of pressure for change by energy companies.	If all investors and financiers exit from thermal coal simultaneously and in an uncoordinated manner, they could amplify the social and economic impacts (as well as destroying asset values). Investors and financiers have a shared interest in a *just transition* with coal region communities. **Roles include:** • Engagement with operators of coal mines and power stations for exit plans which include social, economic and environmental considerations; • Collaboration between public and private finance in place-based initiatives to drive regional diversification and revitalisation in coal regions; and • Developing financial instruments such as transition bonds (for 'brown' fossil fuels asset owners), green bonds (clean energy projects), green mortgages (e.g. discount mortgage finance for homes with high environmental ratings) and corporate sustainability linked loans. The concept of a *just transition* sovereign bond has also been promoted to bridge the capital gap for financing the transition in coal regions (Robins, 2020).
Financiers	Coal mines and power stations require insurance and may need re-financing. Australian banks and insurers with commitments to exit from financing thermal coal cover 90 per cent of corporate finance and insurance for the market. **Major Australian Banks:** • Commonwealth Bank of Australia: Exit thermal coal mining and coal fired power generation by 2030. Finance will only be provided to new oil, gas or metallurgical coal projects if supported by ESG assessment and in line with Paris Agreement; • National Australia Bank (NAB): exposure to thermal coal mining projects capped at September 2019 levels. Thermal coal mining financing to be reduced by 50 per cent by 2028 and to effectively zero by 2035. Current coal-fired power generation customers will be supported to implement transition pathways aligned with the Paris Agreement. NAB will not finance new or material expansions of coal-fired power generation facilities unless there is technology in place to materially reduce emissions; and • Westpac: zero exposure to thermal coal mining by 2030. Financing of electricity generation sector to support Paris-aligned transition (net zero emissions economy by 2050). **Major Australian Insurers:** • IAG: cease underwriting entities primarily in the business of extracting fossil fuels and power generation using fossil fuels by 2023; • QBE Insurance: zero thermal coal exposure by 2030; and • Suncorp: zero thermal coal exposure by 2025.	
Energy companies	Energy companies are responsible for the closure and transition of coal mines and power stations. The management of closures will be shaped by regulatory requirements but a *just transition* approach under current regulation will require a more holistic approach that includes transition planning for the workforce, suppliers, community and environment.	If energy companies wish to retain social licence to operate across communities, commitment to *just transition* mechanisms and initiatives is vital. Ongoing relationships with investors, regulators, stakeholders and communities across their portfolio will be shaped by how closures are managed.
Supply-chain	For businesses that operate in the supply chain for thermal coal (e.g. rail, port), diversifying out of thermal coal into other commodities and industries will be vital to their future.	For supply chain businesses, the timely diversification into other activities is essential for their workforce. There are likely to be other implications such as re-training.
Non-finance group	The TCFD lists a range of non-finance sectors with major exposure to climate change and energy transition, such as transport, materials and building and consumer products. For these corporates, their exposure is primarily as users of fossil fuels and the associated risks and opportunities from energy transition. Commitments and programs to reduce greenhouse gas emissions and how they are implemented can impact both on the speed and equity of clean energy transition. For many corporates their exposure will be to the electricity system as it transitions from coal to renewable energy whilst others will have a higher exposure to oil (e.g. transport) and gas (e.g. chemical manufacturing) which will experience similar dynamics.	The non-finance group will face increasing expectations to review, disclose and implement measures to manage the social dimensions of climate and energy programs. For example, when investing in renewable energy, there are social dimensions that can be addressed: solar and wind farms are large infrastructure projects which have a range of economic, social and environmental impacts – positive and negative – within regional communities. Poorly managed projects can lead to community opposition that reflects poorly on corporates and damages the 'social licence' for renewable energy, whereas well-managed projects deliver benefits for regional communities and offer a vehicle for the delivery of corporate social responsibility goals.

6.3 Adopt climate, renewable energy and *just transition* commitments

Growing numbers of corporates and financial institutions are signing climate change and renewable energy commitments. An organisational commitment creates a focal point and a driver for change, shifting the internal conversation from 'why' to 'how', ensuring it is taken seriously and diffuses throughout strategy and operations. Benefits include increasing low-carbon innovation, reducing exposure to regulatory change and strengthening investor confidence and social licence to operate. Two of the leading examples include:

- **SBTi:** close to 1000 companies are taking action through the SBTi (a collaboration between the CDP, World Resources Institute (WRI), the WWF-Australia and the UN Global Compact) under which organisations commit to an emissions reduction target consistent with the goals of the Paris Agreement; and
- **RE100:** Over 240 companies have signed the RE100 commitment to 100 per cent renewable energy, (Greenpeace 2019, The Climate Group 2020). There are currently 11 Australian organisations that are signatories to the RE 100 initiative these include: Accenture, Atlassian, Commonwealth Bank of Australia, Dexus, Westpac, National Australia Bank (NAB), the Australia and New Zealand Banking Group (ANZ), Bank Australia, QBE Insurance and Macquarie Bank, Mirvac.

A tracker by the Institute for Energy Economics and Financial Analysis (IEFFA, 2020) estimates there are now 130 financial institutions globally that have made a commitment of some type on exiting from thermal coal finance. Thermal coal is clearly at a tipping point where the decline of the sector could accelerate rapidly. Goldman Sachs found that coal producers have been de-rated by 60 per cent of investors since 2013 (Goldman Sachs Group, 2018, p. 6). Funds committed to divestment have leapt from US$52 billion (A$72.4 billion) in 2014 to more than US$11 trillion (A$15.3 trillion) in September 2019 (Cadan, Mokgopo Vondrich, 2019). One of the latest examples is BlackRock, the largest global fund manager (US$7 trillion [A$9.7 trillion] funds under management), which committed to remove companies that generate more than 25 per cent of their revenue from thermal coal production from their discretionary active investment portfolios which the fund manager intended to complete by the middle of 2020 (BlackRock, 2020).

Key Considerations:

- Sign a commitment to a climate or renewable energy target, including a commitment to a *just transition.*
- Diversify assets, investments, finance and operations from thermal coal (investors, financiers, supply chain businesses and energy companies).
- Develop a commitment and transition plan for an orderly exit from thermal coal (investors, financiers, supply chain businesses and energy companies).

Box 9: Business Snapshot: Apple

Business Snapshot: Apple

In July 2020, Apple announced its intention to become 100 per cent carbon neutral for its supply chain and products by 2030. This builds upon the existing carbon neutral status of its corporate emissions worldwide.

To become carbon neutral Apple will initiate a series of programs that will support efforts to reduce emissions by 75 per cent by 2030 whilst developing a suite of carbon removal solutions for the remaining 25 per cent.

Apple's 10-year *Climate Roadmap* outlines a series of actions that fall across five broad pillars to decarbonise Apple's carbon footprint. These include:

Low-carbon design: All products and manufacturing processes will become less carbon-intensive by using less materials across their product lines, supporting recycling innovations that recover materials such as rare earth magnets and steel and by incorporating materials that are manufactured using low-carbon energy.

Energy efficiency: Investing in energy efficiency upgrades to over 6.4 million square feet of new and existing buildings has lowered electricity needs by nearly one-fifth and saved the company US$27 million (A$37.6 million). Through its Supplier Energy Efficiency program, it has helped educate suppliers and identify initiatives that reduce energy use and will eventually support suppliers shift to renewable energy sources.

Renewable electricity: Since 2018 Apple has generated or sourced 100 per cent renewable electricity for all of its global facilities, this has meant that its scope 2 emissions from electricity are now zero. As the business will remain at 100 per cent renewable energy for its operations it will instead focus on creating new projects and moving its entire supply chain to clean power. In 2019, they launched their Power for Impact program that promotes renewable energy projects but also delivers community benefits such as access to cost-effective energy.

Direct emissions abatement: Emissions reductions will also come from advances in technological improvements. Through its investments, Apple has been working closely with Rio Tinto and the Alcoa Corporation to develop a direct carbon-free aluminium smelting process. This advancement has wide-reaching implications for one of the world's most used metals.

Carbon removal: Apple has been working to restore wetlands, forests and grasslands since 2015 through its partnership with the Conservation Fund and WWF. This has led to the improved management and protection of over one million acres of forests in China, Colombia and the United States (US).

In addition to these programs and initiatives, Apple continues to advocate for setting national and regional science-based targets, to support the development of a new green economy and advocate for governments to create sector specific policies to support transition in difficult to decarbonise sectors.

Source: Apple, Environmental Progress Report (2020a); Apple, Press Release (2020b)

Box 10: Business Snapshot: CHANEL

Business Snapshot: CHANEL

CHANEL Mission 1.5 sets out the company's strategy to reduce carbon emissions consistent with the Paris Agreement and tackle climate change and environmental degradation by 2030. Chanel currently sources 41 per cent of its global electricity from renewable sources and in 2019 became carbon neutral across its full footprint (scope 1, 2 and 3). CHANEL has set a science-based target through the Science Based Targets initiative (SBTi) and joined the RE100 initiative

CHANEL identifies two key areas for action in which it makes the following commitments:

- Reduce the impact of its operations and value chain; and
- Accelerate the speed of the transition to a lower carbon economy and more resilient world.

To deliver these commitments, CHANEL outlines key actions that it will take which include:

Transitioning to 100 per cent renewable electricity in its operations by 2025: CHANEL will seek to maximise its capacity for on-site green power generation, purchase green tariffs wherever readily available on the market, and over time provide direct financial support for renewable energy projects at a community level in key regions (through mechanisms such as power purchasing agreements).

Decreasing emissions from its operations (scope 1 and 2) by 50 per cent by 2030: this will include aiming to comply with energy and environmental certification standards for CHANEL's buildings and undertaking energy efficiency upgrades. CHANEL plans to introduce an internal carbon price of US$60 (A$83.6) per tonne of CO_2 to ensure that the company can make the capital expenditure needed to drive down energy use.

Decreasing value chain emissions (scope 3) by 40 per cent by 2030: CHANEL will aim to reduce the emissions produced by the raw materials used by business as well as the emissions produced by the company's distribution network. CHANEL will seek to improve the efficiency and sustainability of the transportation of its goods by reducing air freight and transitioning to more sustainable solutions including the use of electric vehicles.

Removing and avoiding emissions: CHANEL will aim to invest in certified nature-based solutions and projects that remove or avoid emissions by protecting natural carbon sinks, restore degraded land and include local communities. For example, through a partnership with Ecosphere+ CHANEL supported the restoration of 22,000 hectares of damaged peatland rain forest in Sumatra Merang, Indonesia. The project also worked with local communities from nearby villages to improve livelihoods and reduce pressures on the forest.

Financing projects that enable communities and landscapes to adapt to climate change: this includes investing US$25 million (A$34.8 million) in the next five years in projects that protect local communities and landscapes, as well as supporting them to adapt to the impacts of climate change. One example is a focus on supporting local communities to diversify their income and reduce their exposure to climate hazards via climate-resilient farming and ecosystem management practice.

CHANEL also identifies the risks posed by climate change and the transition for already disadvantaged communities. The company reports that it will seek to deliver initiatives that have both an environmental and social impact to ensure that its climate strategy is as inclusive as possible. CHANEL's partnership with Sunrun, a residential solar energy provider, aims to deliver solar to 30,000 residents in low-income, multi-family accommodation in California. The partnership aims to provide the local community with access to training and job opportunities as solar installation engineers.

Source: CHANEL Mission 1.5 (2020)

6.4 Incorporate *just transition* principles into corporate strategy and operations

The next step is for corporates and financial institutions to embed *just transition* principles into their own existing climate strategies, risk management and operating practices, tools and products and services. Established templates for a *just transition* framework do not yet exist, but useful sources include the EU Taxonomy (European Commission Technical Expert Group on Sustainable Finance, 2019), the ILO's *Just Transition* Guidelines and the Climate Bonds Initiative.

For financial institutions, there are a range of opportunities for the development of new products. Transition finance needs to be developed for coal regions, such as transition bonds as an equivalent vehicle to green bonds for 'brown' assets for transition projects by coal companies that would be excluded from green bonds. Standards are emerging for transition bonds (Riordan, 2019). Robins (2020) has advocated for the establishment of sovereign transition bonds to lead the way:

> *'The next frontier for sovereign bonds is to ringfence proceeds for activities that support a Just Transition. This would have a powerful signalling effect across the financial system on the importance of the Just Transition… A Just Transition sovereign bond would not finance any social activity, but only those linked to climate and the wider ecological transition. This could include workplace and community initiatives in areas that have already seen or will experience a decline in high-carbon sectors. In regions dependent on coal, for example, the World Bank has highlighted that substantial public spending is often needed to fund retraining, enhanced social welfare, early retirement and environmental remediation.'*

Financial support for workers and community members in coal regions such as hardship / crisis tools for home owners, loan pauses and concessional lending is likely to be another element.

Financial institutions may also be able to support a more orderly exit from coal. The Grattan Institute (Wood, Dundas & Percival, 2019) reviewed options for ensuring more orderly coal plant closures such as a legislated requirement at a certain age of plant or a negotiated exit timetable (as employed in Germany). Their recommendation is for coal plants to nominate a closure 'window' and for funds to be held in escrow as an incentive to ensure they meet these commitments (and provide resources for AEMO to manage impacts if they do not). There may be other models including the use of transition bonds or other products provided by financial institutions to incentivise orderly exit and compliance with notice mechanisms.

For corporate Australia, there are a range of ways in which *just transition* can be incorporated into corporate strategy and operations once organisational commitments have been established to emissions reduction and renewable energy targets. For some businesses, there will also be opportunities to develop new products and business models to increase access to the benefits of clean energy for low-income households. Developing new products and business models which enable low-income households and regions to gain access to opportunities from the development of energy efficiency and renewable energy technologies is essential for a fair and socially inclusive transition. Some examples include:

- In Australia, pilots of 'solar gardens' which are trialling a new business model to extend access to solar PV to low-income households and those without their own roof space (Rutovitz et al., 2018);[16] and
- New finance products including green bonds, sustainability bonds which incorporate green and social criteria, green mortgages (e.g. Bank Australia's recent offer to discount mortgages by 0.4 per cent if they buy or renovate homes to be 7-Star under the Nationwide House Energy Rating Scheme or the Residential Energy Efficiency Scorecard) and sustainability linked loans.

For many businesses, however, this will primarily involve managing risks and taking advantage of opportunities when procuring renewable energy directly (e.g. incorporating social programs into the roll-out of renewable energy) or indirectly (e.g. negotiating local economic, social and environmental benefits with solar and wind farms contracted to supply electricity) and the management of emissions reduction commitments in supply chains.

Renewable energy purchased globally through corporate Power Purchase Agreements (PPAs) has grown significantly year on year. Bloomberg New Energy Finance (2019) estimate the volume of renewable energy purchased has increased from 4300 MW (2014) to 19,500 MW. Current commitments under RE100 for 2030 are equivalent to a further 105,000 MW.

A growing number of corporate renewable PPAs also include initiatives to drive change through supply chains and social programs to improve access to clean energy and economic opportunities. PPAs with renewable energy projects can therefore be a powerful way to deliver on sustainability goals, especially for organisations with commitments on the UN Sustainable Development Goals (SDGs). Solar and wind farms deliver on climate action (SDG 13), clean energy (SDG 7) and sustainable communities (SDG 11) – but also a range of other SDGs.

Key Considerations:

- Develop a strategic framework for the management of social dimensions of energy transition within organisational climate and renewable energy strategies which can be updated, developed as circumstances change and applied to all fossil fuels over time.
- For financial institutions, investigate and develop transition finance products and services for coal regions and sustainable products and services for disadvantaged groups that can support a *just transition*.
- For corporate Australia, review and implement procurement and supply chain management practices to manage social risks and leverage opportunities to improve economic, social and environmental outcomes from clean energy transition.

[16] A range of financial models are available including a leasing model by which payments are taken out of the savings on electricity bills. Although there are lower return, this system avoids up-front payments for lower income households.

Table 2: A 'Menu' of Benefits that can result from Australian Renewable Power Purchase Agreements

Benefit	
Community development	• Annual grants to local community organisations; • Local infrastructure upgrade (e.g. in partnership with local councils); • Support for human services programs (seniors, disability, mental health); • Discounted microgrid; • Community retail electricity offerings; • Community investment – shared equity with neighbouring land-owners, opportunity for local individuals to co-invest in the facility, etc.; and • Conversion of staff on-site amenities into long-term community facilities (e.g. staff lunchrooms into community rooms).
Local content, local jobs	• Local employment targets (e.g. percentage of staff); • Development of local supply chains (e.g. wind tower manufacturing or assembly, local steel fabrication); • Sub-contractor local jobs register; and • Regional operations personnel.
Indigenous reconciliation	• Indigenous scholarships and apprenticeships; • Dedicated Indigenous jobs provision; • Support for Indigenous service provision; • Cultural landscapes protection; and • Adoption of a Reconciliation Action Plan (RAP).
Skills development & education	• Science, Technology, Engineering and Mathematics (STEM) scholarships; • VET sector skills trade training; • Education and research activity; and • Tertiary education (e.g. partnerships with institutions).
Biodiversity and landscape regeneration	• Invasive plant species eradication funding; • Biodiversity protection investments; and • Landscape restoration activities and support for regional agricultural capabilities (e.g. beekeeping programs).
Technology transfer	• Utilisation of developer or engineering, procurement and construction (EPC) capabilities to support regional service provision or economic development objectives (e.g. battery storage, waste to energy, electric vehicles, hydrogen development).
Gender equity	• 'Women in the energy sector' strategy (e.g. Bomen solar farm in Wagga Wagga, NSW had a 'women in solar' initiative that led to 10 per cent of the construction workforce being women).
Poverty / reduced inequality	• Commitment to employ staff from traditionally disadvantaged backgrounds including: – Long-term unemployed; – People with disabilities; – Indigenous Australians; and – Skilled refugees and migrants etc.

Source: Hicks, Briggs & Mey (2020)

6.5 Engage across sectors, clients and governments to support and implement *just transition* principles

In relation to coal regions, financial institutions have a dual role. On the one hand, financial institutions are now one of the drivers of the transition away from the thermal coal sector as investors are divesting fossil fuels assets and an increasing number of banks and insurers have made commitments not to finance or insure new or upgraded thermal coal projects. On the other hand, large-scale investments in place-based initiatives will be needed to drive regional diversification and revitalisation, and ensure the phase-out of high-carbon sectors does not result in 'stranded regions' and 'stranded workers' (Robins & Rydge, 2019).

Engagement across sectors and with clients and governments is vital as financial institutions and corporates cannot support the delivery of a *just transition* alone.

- **Engagement with government:** Australia currently lacks a clear energy and climate change policy to manage the transition in an orderly, efficient and equitable way. The policy uncertainty is increasing costs for businesses and the risk of disorderly adjustments threatens to impact on financial stability and vulnerable communities. Continued advocacy is important as in most international cases there is a Government leadership and public-private partnerships.
- **Engagement across the finance sector:** A managed exit is required to ensure that divestment does not lead to a 'fire-sale' of assets. This would preferably come as part of a coordinated Federal Government strategy, but in the absence of such a strategy, financial institutions have the opportunity to coordinate a managed exit from thermal coal themselves.
- **Engagement with clean energy businesses:** Poor community engagement, employment practices and benefit sharing of renewable energy projects have also sometimes led to community divisions which can undermine social licence to operate. Corporates that are procuring renewable energy should also be engaging with clean energy businesses through tender processes to ensure they are also managing social risks that could impact on the project, returns and impacts on local communities. The Business Renewables Centre-Australia (BRC-A) has developed a guide for corporates on how to include social considerations in renewable energy PPAs (Hicks, Briggs & Mey, 2020).
- **Engagement with corporate clients on transition pathways and inclusion of social dimensions in disclosure:** there is growing network of collaborative company engagement through initiatives such as PRI, the Australian Council of Superannuation Investors (ACSI), Responsible Investment Association Australasia (RIAA) and the Investor Group on Climate Change (IGCC) which help to influence corporate activities and portfolios (RIAA, 2019 & 2020). These provide a platform for engagement on social dimensions of energy transition (see Appendix 2 for a list of questions developed in the Guide for Investor Action [Robins, Brunsting & Wood, 2018, p. 20] for engagement on issues such as human resources, health and safety, supply chains and community regeneration).
- **Engage in partnerships and initiatives within coal regions:** Place-based collaborations are important to foster regional economic diversification, innovation and investments (Robins, Brunsting & Wood, 2018). There are now regional initiatives for financial institutions and corporates to participate within Victoria and NSW (see Section 4). AGL's approach to engage in community consultations for ideas and proposals for the Liddell Power Station site after its retirement was a first of this kind in Australia–and the type of initiative needed for other power plant closures.
- **Direct engagement with coal asset owners:** Engagement by corporates and financial institutions to encourage planned transitions away from coal assets, including social, environmental, and economic aspects such as workforce planning, progressive rehabilitation and reserving funds for site remediation.
  - The engagement of Climate Action 100+[18] with Glencore (the world's largest exporter of thermal coal) led to an agreement to cap coal production to current levels by 2019 (145 million tonnes per year).
  - Rio Tinto sold its remaining coal assets in Australia in 2018, is undertaking climate disclosure through the TCFD, and committed to an asset-by-asset review to set emissions reduction targets (RIAA, 2019). They announced earlier this year their plans to invest $1 billion over the next five years to support the delivery of its new climate change targets and have set a company objective for net zero emissions from its operations by 2050 (RIAA, 2020).
  - Shareholder Association for Research and Education (SHARE) engages with more than 50 companies per year on behalf of investors on climate transition, including companies planning coal plant closures on their transition planning for the workforce (SHARE, 2020). Engage with carbon-intensive businesses to help them develop transition plans that cover social, environmental and economic impacts.

[18] Climate Action 100+ is an investor initiative to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change. The companies include 161 'systemically important emitters', accounting for 80 per cent of annual global industrial emissions, alongside more than 60 others with significant opportunity to drive the clean energy transition. Since its launch in December 2017, it has grown into one of the largest investor-led engagement initiatives, with over 370 investor signatories. Link: http://www.climateaction100.org/

Key Considerations:

- Advocate for an integrated energy and climate change policy which includes a *just transition* policy and fund.
- Develop an engagement strategy for coordination with financial institutions on the exit from thermal coal.
- Develop an engagement strategy for clients, coal regions and clean energy businesses.

7. CONCLUSION

Moving to a net zero carbon economy in Australia will require the mobilisation of significant capital. The success of the economic transformation will be determined not just by efficiency and technical performance of the energy market but also by the degree to which it delivers fairness and social justice (Robins, Tickell & Irwin, 2019).

A *just transition* can only be realised if there is an inclusive process that diversifies regional economies and supports impacted workers to find alternative employment.

Financial institutions and corporates can play a key role in helping to plan for and deliver a *just transition*. Through their current policies and strategies, corporates and financial institutions are already driving the energy transition occurring in Australia. In line with the transition to a low-carbon economy, thermal coal mines and power stations will find it increasingly challenging to secure finance and insurance. The demand for coal-fired power is decreasing as renewable energy prices continue to drop and corporates adjust their strategies and operations to meet emissions reductions commitments. The private sector has an interest in an orderly transition that avoids collapse in the value of assets and regional economies. The costs of an unplanned, chaotic transition far outweigh the costs of a planned transition that invests and provides support to coal regions.

The key findings from the report are:

- There is a global clean energy transition occurring: the cost advantage of renewable energy and climate change drivers mean the question is no longer 'if' but 'when' and 'how' this transition occurs;
- The lesson from past restructuring is that a planned transition will ultimately be much lower cost and that an unplanned transition will have critical social and economic consequences for vulnerable communities and households;
- Workers and communities in coal regions are vulnerable to disruptive change: the coal mining workforce is dominated by prime-aged, semi-skilled machine operators in regional economies with a heavy dependence on the coal sector;
- A disruptive transition will have serious social and economic consequences not only in coal intensive regions but also beyond on the wider economy and the prospects for an efficient transition that manages climate risks effectively;
- Nations which are managing transitions for coal regions more successfully have built a social compact through multi-stakeholder engagement to develop overarching policy frameworks and specialist authorities with funds to plan for closures and diversify regional economies - to ensure 'no-one is left behind.'

Specialist funds and authorities are being established internationally to create strong and trusted institutional structures that can coordinate public and private sector investment. The World Bank (2018) has noted 'coal mine closure requires enormous budget outlays, often in a relatively short period of time' from income support and redundancy, labour market adjustment programs and environmental and site remediation. In addition to the German (€40 billion [A$67 billion]) and Spanish deals (€250 million [A$450 million]), the World Bank cites examples such as Poland's Miners Social Package (US$2 billion [A$3.1 billion]) and the Netherlands support package (US$6 billion [A$9.2 billion]). The EC has recently announced the European Green Deal which is a roadmap to achieve zero net emissions by 2050 (EC, 2019) and a funding commitment of €485 billion (A$814 billion) until 2030.

Although the clean energy transition in Australia will occur over an extended period of time, this transition is rapidly accelerating. Substantial planning and investment are required if there is to be a *just transition*: it is important that financial institutions and the corporate sector start now.

There are a series of next steps for Australian corporates and financial institutions to consider which are summarised in Table 3.

Table 3: Next Steps: Summary

Summary	
Socialise the concept	• Put *just transition* on the agenda in multi-stakeholder forums to develop dialogue, understanding and a shared framework; • Develop initiatives to build discussion and understanding of *just transition* and its implications for your business across executive, strategy, governance and risk teams; and • Make *just transition* a part of your organisation's public discourse – corporates and financial institutions can help raise the profile of *just transition* by simply making it part of how they talk about climate change.
Assess the social risks and opportunities for your organisation from the clean energy transition	• Review the financial and social risks associated with the exposure of your organisation to fossil fuels; and • Review social and equity dimensions of current clean energy or sustainability products, services and markets to identify gaps, opportunities and implementation issues.
Adopt climate, renewable energy and *just transition* commitments	• Sign a commitment to a climate or renewable energy target, including a commitment to a *just transition*; • Diversify assets, investments, finance and operations from thermal coal for investors, financiers, supply chain businesses and energy companies; and • Develop a commitment and transition plan for an orderly exit from thermal coal for investors, financiers, supply chain businesses and energy companies.
Incorporate *just transition* principles into corporate strategy and operations	• Develop a strategic framework for the management of social dimensions of energy transition within organisational climate and renewable energy strategies which can be updated, developed as circumstances change and applied to all fossil fuels over time; • For financial institutions, investigate and develop transition finance products and services for coal regions and sustainable products and services for disadvantaged groups that can support a *just transition*; and • For corporate Australia, review and implement procurement and supply chain management practices to manage social risks and leverage opportunities to improve economic, social and environmental outcomes from clean energy transition.
Engage across sectors, clients and governments to support and implement *just transition* principles	• Advocate for an integrated energy and climate change policy that includes the establishment of a taskforce including all stakeholders that can broker dialogue, identify solutions and establish a framework for transition; • Develop an engagement strategy for coordination with financial institutions on the exit from thermal coal; and • Develop an engagement strategy for clients, coal regions and clean energy businesses.

The Global Compact Network Australia (GCNA) is uniquely placed to work collaboratively with business, the investor community, unions, civil society and governments to facilitate dialogue and draw out good practice based on lessons from abroad.

The GCNA supports an ambitious platform for action through which policies, initiatives and actions can be developed that recognises and responds to the needs of all stakeholders as we transition to a net zero carbon economy. The findings of this report are intended as a starting point to drive collaborative cross-sectoral discussion around the planning, financing and delivery of a *just transition* in Australia. To find out more about further consultation opportunities and how to get involved please contact the GCNA at secretariat@unglobalcompact.org.au.

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Appendix 1

Individuals and households	Small and medium-sized enterprises (SMEs)
• How can lending and mortgage products be aligned with a net zero future and better incorporate issues of social inclusion (e.g. fuel poverty)? • What regulatory and market changes are needed to support banks to transition to the point that all lending and mortgages are green? When will this be achieved? • How can savings product models respond better to the needs of Generations X and Y? • How can banking institutions be transparent about the contribution of savings products to the *just transition* (including place-based programmes)?	• How can SMEs, government and finance providers best quantify SME demand for *just transition* financing (e.g. to avoid stranding risks and support long-term development)? • What financial products and what advisory services are likely to be needed by SMEs, and under what terms? • What institutional mix is required to respond to these needs in terms of shareholder banks, mutual, community development finance institutions (CDFIs) and public finance? • How can climate finance capacity be built in the SME sector? • What is the role of technology such as cloud-based accounting in supporting SMEs to transition to net zero emissions?
Corporate finance	**Public authorities and partnerships**
• How can the environmental and social dimensions of the transition be incorporated into capital raising for large corporates (e.g. bonds, credit facilities)? • How can the social dimension be included in banking finance for sustainable infrastructure? • What new public finance mechanisms are needed to support investment for net zero and inclusive infrastructure? • How can the *just transition* agenda be incorporated into international trade finance?	• What innovative models exist for financing local projects that support a *just transition* (e.g. revolving funds, crowdfunding municipal bonds, use of digital technology?) • How can local authorities and enterprise partnerships work with banks to support net zero industrial clusters? • What fresh thinking is required to best connect banks with public financial institutions to deliver a *just transition*? • How can banks support national-level action for the *just transition* (e.g. through sovereign bond issuance)?

Source: Robins, Tickell & Irwin (2019, p. 10)

The Guide for Investor Action (Robins, Brunsting & Wood, 2018, p. 22) considers some of the implications of a *just transition* for capital allocation across various asset classes for banks and investors

Asset class	Integrated *just transition*	Thematic *just transition* (i.e. sectoral)
Cash	Engage all banks on *just transition* principles and strategies (e.g. green and ESG loans, safeguarding policies and lending strategies for exposed regions)	Focus on banks with specialist *just transition* lending strategies: green jobs, place-based development, and CDFIs
Fixed income	Incorporate *just transition* factors into core selection of bonds, index design and benchmarks; integrate *just transition* into green social and sustainable bond strategies	*Just transition* bonds linked to sectoral or regional transition plans and funding (e.g. green bonds with proceeds ring-fenced for specific areas)
Public equities	Integrate *just transition* factors into core stock selection, index design and benchmarking	Identify listed companies, focused on environmental solutions in affected regions
Private equity (PE) / venture capital (VC)	Engage PE / VC funds on *just transition* policies; include *just transition* in routine PE / VC screening and engagement policies	Seek specialist impact investment funds linking climate, job quality and community development
Real assets	Enforce *just transition* criteria in green real estate and infrastructure strategies, as well as in timber, land and commodity investments.	Target investment in communities and regions affected by the transition to deliver positive social and environmental impacts

Appendix 2

Strategy

- **Impacts:** What are the potential impacts of climate change-related risks and opportunities for employees, workers in the supply chain, and communities affected by business activity over the short, medium and long term? Do these have a particular gender or race dimension?
- **Scenarios:** Has the organisation included the implications for employees, workers in the supply chain and communities in its climate scenario analysis? If so, what are the results?
- **Human resources and industrial relations:** What are the strategic implications of climate-related risks and opportunities for the organisation's human resource management, notably the quantity and quality of employment; wages, benefits and pensions; role of unions; worker representation; employee satisfaction?
- **Restructuring:** How is the social dimension reflected in any restructuring plans linked to the transition (including mergers and acquisitions, capital expenditure, expansion plans, downsizing, closures)?
- **Investment:** How is the organisation investing to generate positive social outcomes from the transition and to mitigate potentially negative implications for employees, workers in the supply chain, and communities?
- **Regeneration:** How is the organisation contributing to wider plans for community renewal and economic revitalisation linked to the low-carbon transition in areas where it operates? What contacts has the company made with workers and their unions, and affected communities, to design regeneration plans?

Governance

- **Social dialogue:** How are workers and their unions, as well as affected communities, involved in developing and implementing the organisation's plans for responding to climate change risks and opportunities? What grievance mechanisms exist?
- **Social protection:** How are employee rights protected during the transition, for example in terms of the security of pensions or the use of public resources?
- **Skills and development:** What is the company strategy and performance in terms of developing employees with the skills they need to contribute to the transition? How does the company build inclusive strategies for worker retraining and recruitment?

Risk management

- **Identification:** How are climate change-related risks to employees, workers in the supply chain and communities identified?
- **Management:** How are climate change-related risks to employees, workers in the supply chain and communities managed? Has the organisation committed to respect for core labour standards and recognised collective bargaining in this process?
- **Health and safety:** How are the occupational health and safety (OHS) risks linked to a changing climate and resource scarcity identified and managed, and how are union OHS committees or delegates involved?
- **Due diligence:** How are workplace human rights and community impacts incorporated into corporate procedures for due diligence related to investments and activities linked to climate change strategies?

Source: Robins, Brunsting & Wood (2018, p. 20)

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