Climate & Recovery Initiative

Stakeholder Roundtable Two

8 September 2020, 4:30-6:30pm

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Climate & Recovery Initiative

The **Climate & Recovery Initiative (CRI)** is a collaborative initiative coordinated by the Centre for Policy Development and ClimateWorks Australia, with a steering group that includes Pollination Group, Australian Industry Group and the Australian Council of Trade Unions. Working together, we are seeking to identify the best ideas and opportunities for aligning Australia's economic recovery with climate and transition priorities, and to get them into the right hands.

This stakeholder roundtable brings together trusted leaders, experts and advisers from business, regulation and policy to consider the challenges and opportunities ahead. We will use the discussion to share perspectives and insights, and to discuss key proposals that have been developed based on opportunities identified at the first roundtable in June.

The roundtable will be held under the Chatham House Rule.

Included in this pack

This briefing pack contains the following:

- Update on CRI process to date and forward agenda
- Roundtable agenda and participant list
- Summary of key proposals for discussion
- Briefings and analysis to inform discussion:
    i. Concept note: New process on climate risk and resilience to inform the National Cabinet
    ii. Concept note: Australian Clean Technology Market-Creation Co-Investment Partnership (CIP)
    iii. Analysis: Creating jobs in high-priority employment regions via decarbonisation-aligned stimulus

Overview of the CRI process

Identifying priorities

Framing paper on opportunities for transition-aligned recovery

First stakeholder roundtable to identify key priorities and opportunities (25 June)

Refining key CRI proposals

Develop key proposals and analysis identified through first roundtable

Second stakeholder roundtable to refine and test support (8 September)

Shaping the medium term agenda

Refine key CRI proposals and work towards their implementation

Pursue collaborations and policy development to **elongate the window for influence** and support better climate-recovery alignment in the medium term

Our approach

01 Build an informal coalition of trusted & credible voices who can bring together the best ideas on recovery-transition alignment and get them into the right hands

02 Build foundations for a strategic contribution into 2021, through

- A network that continues to focus on recovery-transition alignment
- Supporting more ambitious transition planning and implementation processes

Agenda — Roundtable Two, September 8, 2020



Time	Duration	Agenda Item
4:30pm	5 min	Welcome and introductions *Travers McLeod, CEO, CPD*
4:35pm	5 min	Context and agenda *Anna Skarbek, CEO, ClimateWorks Australia*
4:40pm	35 min	State of play and proposal on intergovernmental process on climate risk and resilience *Moderator: Travers McLeod*
5:15pm	40 min	Climate-aligned stimulus and proposal on co-investment partnership *Moderator: Anna Skarbek*
5:55pm	30 min	Collaborations for a sustainable economy *Moderator: Travers McLeod*
6:25pm	5 min	Conclusions *Travers McLeod*

Participant list for Roundtable Two

Name	Position and affiliation
Angela Cummine	Director - Sustainable Finance, **NSW Treasury**
Anna Skarbek	CEO, **ClimateWorks Australia**
Benedikte Jensen	First Assistant Secretary, **Department of Education, Skills & Employment**
Beth Brunoro	First Assistant Secretary, **Department of Agriculture, Water and the Environment**
Brian O'Callaghan	Doctoral Candidate in Renewable Energy Finance, **University of Oxford**
Cameron Hepburn	Director and Professor of Environmental Economics, **Smith School of Enterprise and the Environment, University of Oxford**
Chris Barrett	CEO, **Invest Victoria**
Darren Miller	CEO, **Australian Renewable Energy Agency (ARENA)**
David Thodey AO	Deputy Chair, **National COVID-19 Commission Advisory Board**
Don Russell	Chair, **AustralianSuper**
Emma Herd	CEO, **Investor Group on Climate Change**
Eytan Lenko	Chairperson and Interim CEO, **Beyond Zero Emissions**
Geoff Summerhayes	Executive Board Member, **Australian Prudential Regulation Authority (APRA)**
Guy Debelle	Deputy Governor, **Reserve Bank of Australia**
Ian Learmonth	CEO, **Clean Energy Finance Corporation**
Innes Willox	Chief Executive, **Ai Group**
Joe Morrison	Managing Director, **Six Senses Advisory**
Jo Evans	Deputy Secretary - Climate Change and Energy Innovation, **Department of Industry, Science, Energy and Resources**
John Thwaites	Chair, **ClimateWorks Australia**
Katherine Palmer	Executive Director - Financial Risk Management, **NSW Treasury**
Kellie Caught	Senior Adviser - Climate and Energy, **Australian Council of Social Services (ACOSS)**

Name	Position and affiliation
Ken Henry AC	Board of Governors, **Committee for Economic Development of Australia (CEDA)**
Larry Marshall	Chief Executive, **CSIRO**
Mark Wakeham	Senior Advisor - Climate, Energy & Just Transition, **Australian Council of Trade Unions (ACTU)**
Mark Rodrigues	Executive Director - Climate Change, **Victorian Department of Environment, Land, Water & Planning**
Martijn Wilder AM	Founding Partner, **Pollination Group**
Megan Flynn	Partner, **Pollination Group**
Meghan Quinn	Deputy Secretary - Markets Group, **Treasury**
Mike Rowe	Director General, **WA Department of Water & Environmental Regulation**
Patrick Suckling	Senior Partner, **Pollination Group**
Paul Grimes	Coordinator General - Environment, Energy & Science, **NSW Department of Planning, Industry & Environment**
Paul Heithersay	Chief Executive, **SA Department for Energy and Mining**
Philip Hirschhorn	Managing Director and Senior Partner, **Boston Consulting Group**
Pradeep Philip	Lead Partner, **Deloitte Access Economics**
Richard Yetsenga	Chief Economist and Head of Research, **ANZ Banking Group**
Sam Hurley	Policy Director, **Centre for Policy Development**
Sam Mostyn	Chair, **Citi**
Steven Worrall	Managing Director, **Microsoft**
Tanya Hosch	General Manager - Inclusion and Social Policy, **AFL**
Tennant Reed	Principal Advisor - National Public Policy, **Ai Group**
Tim Reed	President, **Business Council of Australia**
Travers Mcleod	CEO, **Centre for Policy Development**

Summary of key proposals and briefings for discussion

Proposal summary: New process on climate risk and resilience to inform the National Cabinet

Background

- There have been consistent calls for a new process to connect public and private sector activity on climate risk and resilience and facilitate coordination of resources, effort and expertise.
- The financial and economic dimensions of climate change are central to many initiatives underway. These include the Council of Financial Regulators Working Group on Climate Risk, the Australian National Outlook Project, the National Resilience Taskforce, the Disaster and Climate Resilience Reference Group, APRA's climate change financial risk vulnerability assessment and industry-led efforts including the Australian Sustainable Finance Initiative, Climate Action 100+, and the Global Commission on Adaptation.
- The transition to a new National Federation Reform Council structure provides an opportunity to enshrine a new intergovernmental process on climate risk and resilience.

The new intergovernmental process would:

- Focus on climate risk and resilience to enable jobs and investment in a challenging natural environment, informed by the implications of climate change for financial stability, economic growth, risk management and corporate governance.
- Provide a platform for high-level engagement by Commonwealth and state senior officials alongside financial regulators and business leaders.

Potential models

1. **Incorporate an explicit focus on climate risk and resilience as part of the new Council on Federal Financial Relations (CFFR).**
    - Frame climate risk as a key issue to be considered by Treasurers and officials as part of the economic policy agenda.
    - Reflects increased emphasis on climate risk and resilience by the Council of Financial Regulators and state treasuries.
2. **Establish a new ministerial forum or taskforce on climate risk and resilience, built around a 'Senior Officials Plus' model**
    - Include selected financial regulators and leaders from business and civil society.
    - Chaired (or co-chaired) by the Secretary of the Treasury or Secretary of the Department of Industry, Science, Energy and Resources.
    - Supported by a government and business secretariat.
    - Reports to the **CFFR** and the **National Cabinet**.
    - Similar structure to the 2006-07 Joint Government Business Prime Ministerial Task Group on Emissions Trading.

See concept note attached to this briefing pack for further information on this proposal

Proposal summary: Australian Clean Technology Market-Creation Co-Investment Partnership (CIP)

What it is

- The CIP is a proposed model for providing financing to scale up supply chain responses in all clean technology markets across all Australian States and Territories and all sectors of the Australian economy.
- Australia's Technology Investment Roadmap sets out over 100 clean technologies in seven sectors that can provide zero emissions solutions and the Australian Government, as the nation's largest early-stage technology investor, is committed to annual Low Emissions Technology Statements to support a partnership with the private sector and the states and territories. All State and Territory governments in Australia have committed to be net zero emissions economies by 2050.
- The CIP can be implemented as a partnership model between the Australian Government and state and territory governments, whereby state and territory government program investment, traditionally through the form of grants, can be better coordinated to leverage co-financing investment contributions from the Australian Government and attract private investment. Australian Government contributions can be provided through existing agencies such as CEFC and ARENA and/or additional funding.

How it would work

- Investment opportunities would be identified using a multi-sector goal-oriented approach, using 'reverse auction' style competitive rounds to achieve scale that catalyses market supply chains.
- Sectors and priority investment areas could correspond with those covered in the Australian Government's Technology Investment Roadmap, in addition to an 'enhanced manufacturing' stream to support growth of traditional manufacturing and new industries.
- Within each sector, funding would be allocated to align with sectoral decarbonisation pathway goals, while also incorporating COVID recovery goals and geographic investment priorities. Proposals would be called for to meet those goals.
- State and territory government program investment can leverage significantly more private sector finance when used in ways that are more tailored to meet commercial and private sector needs, including with risk-sharing instruments and coordinating with ARENA and CEFC.
- This model would collectively leverage a greater amount of overall private sector capital, delivering bigger economic and employment impacts, lowering economy-wide emissions and leading to greater resilience of the Australian economy.

See concept note attached to this briefing pack for further information on this proposal

Analysis summary: Creating jobs in high-priority employment regions via decarbonisation-aligned stimulus

There is growing appetite for tailored, place-based strategies to support job creation and economic development as part of COVID-19 recovery.

- Participants at the first Climate and Recovery Initiative Roundtable recognised a need to develop and assess specific, transition-aligned job creation opportunities in employment regions hardest hit by COVID-19.
- The Commonwealth Government recently announced the creation of 25 Local Jobs and Skills Taskforces in high priority employment regions.

CPD research demonstrates an approach to creating transition-aligned jobs in employment regions of highest need.

1. **Identify high-priority employment regions for targeted stimulus,** based on historic jobactive caseloads and the effects of COVID-19 on local labour markets.
2. **Assess transition-aligned stimulus program types frequently recommended in the literature,** based on economic impact, timeliness and ease of implementation, and alignment with energy transition.
3. **Develop transition-aligned job creation opportunities targeted at high-priority employment regions,** tailored to regional needs, opportunities and capacity for delivery.

The following priority initiatives were identified to create jobs in regions especially hard hit by COVID-19

Program type	Priority regional initiative	Direct jobs created	Public investment	Private Investment	Potential job creation if scaled nationally
Renewable energy infrastructure	Distributed solar, North Coast of NSW	1000	$80m	$170m	17,000
Building efficiency retrofits	Residential building retrofits, Western Melbourne	3100	$400m	$500m	15,000
Ecosystem improvement	Ecosystem restoration in South West WA	500	$75m	$7.5m	12,000
Sustainable transport infrastructure	Active transport infrastructure in Cairns, QLD	400	$65m	-	12,000

Key insights

- **Many regions hardest hit by COVID-19 coincide with areas of long-term high unemployment.** Jobactive caseloads have increased by 2-3 times as much in the worst affected regions compared to the least affected.
- **The proposed regional initiatives would on average directly create 8 jobs per $1 million of public investment.** This is similar to or better than "colourless" direct expenditure stimulus programs. Short courses, apprenticeships and on-the-job training can support timely and cost-effective worker transitions.
- **Once established, Local Jobs and Skills Taskforces should ensure that Local Jobs Plans consider opportunities to create jobs through decarbonisation-aligned investments.** This place-based approach could be scaled up when developing larger-scale stimulus packages.

See briefing attached to this pack for further information

Briefings and analysis to inform discussion

i. **Concept note: New process on climate risk and resilience to inform the National Cabinet**
ii. Concept note: Australian Clean Technology Market-Creation Co-Investment Partnership (CIP)
iii. Analysis: Creating jobs in high-priority employment regions via decarbonisation-aligned stimulus

Concept Note: New process on climate risk and resilience to inform the National Cabinet

Background

There have been consistent calls for a new process to connect public and private sector activity on climate risk and resilience and facilitate coordination of resources, effort and expertise. This was a key conclusion from the Centre for Policy Development's November 2019 business roundtable on climate change, which involved senior business, legal, union, civil society, regulatory and policy leaders.

The need to coordinate the significant activity on climate risk and resilience across many departments, regulators, investors and industries was reinforced by the 2019-2020 bushfire crisis. The financial and economic dimensions of climate change are central to many of the public, regulatory and private sector initiatives underway. These include the Council of Financial Regulators Working Group on Climate Risk, the Australian National Outlook Project, the National Resilience Taskforce, the Disaster and Climate Resilience Reference Group, APRA's climate change financial risk vulnerability assessment and a range of industry-led efforts including the Australian Sustainable Finance Initiative, Climate Action 100+, and the Global Commission on Adaptation.

The transition to a new National Federation Reform Council structure provides an opportunity to enshrine a new intergovernmental process on climate risk and resilience. The new process could be loosely modelled on the 2006-07 Joint Government Business Prime Ministerial Task Group on Emissions Trading chaired by Peter Shergold AC. This model enables senior representatives from financial regulators, state governments, the private sector, unions and civil society to participate.

Overview of proposal

The new intergovernmental process would:

- Focus on climate risk and resilience to enable jobs and investment in a challenging natural environment, informed by the implications of climate change for financial stability, economic growth, risk management and corporate governance.

- Provide a platform for high-level engagement by Commonwealth and state senior officials alongside financial regulators and business leaders.

Two potential and complementary models under the new National Federation Reform Council structure outlined by the Prime Minister are worthy of consideration:

- Incorporating an explicit focus on climate risk and resilience as part of the new **Council on Federal Financial Relations (CFFR)**. This would frame climate risk as a key economic issue to be considered by Treasurers and officials as part of a wider economic policy agenda, reflecting increased emphasis on climate risk, resilience and transition by the Council of Financial Regulators and state treasuries.

- Establishing a new ministerial forum or taskforce on climate risk and resilience, built around a 'Senior Officials Plus' model that allows direct participation by selected financial regulators and leaders from business, unions and civil society. This taskforce would be chaired (or co-chaired) by the Secretary of the Treasury or Secretary of the Department of Industry, Science, Energy and Resources as appropriate, and supported by a government and business secretariat. It would report to the **CFFR** and the **National Cabinet**. The structure would be similar to the 2006-07 Joint Government Business Prime Ministerial Task Group on Emissions Trading.

Process and next steps

We are seeking feedback from stakeholders to help refine the proposal for further dissemination following the second *Climate & Recovery Initiative* roundtable.

Briefings and analysis to inform discussion

i. Concept note: New process on climate risk and resilience to inform the National Cabinet

ii. **Concept note: Australian Clean Technology Market-Creation Co-Investment Partnership (CIP)**

iii. Analysis: Creating jobs in high-priority employment regions via decarbonisation-aligned stimulus

Australian Clean Technology Market-creation Co-Investment Partnership (CIP) - Concept note

Key points

- This concept note presents a high-level Australian Clean Technology Market-creation Co-Investment Partnership (CIP) model for providing financing to scale up supply chain responses in all clean technology markets across all Australian States and Territories and all sectors of the Australian economy.

- Australia's Technology Investment Roadmap sets out over 100 clean technologies in seven sectors that can provide zero emissions solutions and the Australian Government, as the nation's largest early-stage technology investor, is committed to annual Low Emissions Technology Statements to support a partnership with the private sector and the states and territories. All State and Territory governments in Australia have committed to be net zero emissions economies by 2050.

- The CIP represents a model that can be implemented as a partnership model between the Australian Government and state and territory governments, whereby state and territory government program investment, traditionally through the form of grants, can be better coordinated to leverage co-financing investment contributions from the Australian Government and attract private investment. The Australian Government contributions can be provided through existing agencies such as CEFC and ARENA and/or additional funding.

- Investment opportunities would be identified using a multi-sector goal-oriented approach, using 'reverse auction' style competitive rounds to achieve scale that catalyses market supply chains. Sectors and priority investment areas could correspond with those covered in the Australian Government's Technology Investment Roadmap, in addition to an 'enhanced manufacturing' stream to support growth of traditional manufacturing and new industries. Within each sector, funding would be allocated to align with sectoral decarbonisation pathway goals, while also incorporating COVID recovery goals and geographic investment priorities. Proposals would be called for to meet those goals.

- This model would collectively leverage a greater amount of overall private sector capital, delivering bigger economic and employment impacts, lowering economy-wide emissions and leading to greater resilience of the Australian economy.

Introduction

The opportunity to capture investment from fragmented sources yet with shared ambitious goals

The Australian Government is committed to accelerating new and emerging low-emissions technologies and building on areas of comparative advantage in agriculture, industry, mining and energy-intensive exports. The CEFC and ARENA are national institutions with years of experience in investing in technology and leveraging private sector capital. At the same time, States and Territory Governments have their own programs for emissions reductions investment and technology support. And in parallel, all Australian Governments are preparing to invest substantially to support their economies to recover from the COVID-19 pandemic.

While immediate actions taken by Australian governments in the midst of the COVID-19 pandemic will naturally focus on minimising the severity of ongoing short term health and economic shocks, parallel medium to long-term actions can lay the foundation for long term growth and employment. Investments made by Australian governments in the wake of the crisis will shape Australia's economy for decades to come. In building back the economy post-pandemic, Australia is presented with a large opportunity to align its investments with the global trends towards zero emissions technologies. Doing so will result in better economic growth and employment outcomes, especially over the medium and longer term (Hepburn et al., 2020; McKinsey, 2020), while also helping to achieve long-term low-emissions reductions.

All Australian states and territories have made net zero emissions commitments and many of Australia's largest investors, companies and industry bodies are also already committed to achieving net zero emissions by or before 2050. ClimateWorks Australia's recent analysis with CSIRO demonstrates that reaching net zero by 2050 is achievable for Australia (ClimateWorks Australia, 2020), and other research has shown the same globally (Energy Transition Commission, 2018; IEA, 2020; Monteith and Menon, 2020). For some key sectors of the Australian economy, such as buildings and electricity, emerging solutions could decrease the cost, and aid deployment, of already demonstrated and mature solutions to decarbonise these sectors. Decarbonising harder-to-abate sectors such as transport, industry and agriculture, will require additional support for emerging solutions through R&D and investment in commercialisation. For Australia to be on a net zero trajectory (consistent with limiting global temperature rise to well below 2 degrees Celsius), the implementation of these solutions will need to scale up and accelerate. And by doing so, Australia can harness significant competitive advantage in a decarbonising global economy.

To achieve the scale and rate of implementation required, market support is needed for technological development, deployment and integration. A well-designed increase in public and private investment can enable activities, through providing investor certainty and reducing barriers to their adoption, that are at the demonstration, commercialisation and deployment stages of innovation and drive down emissions across Australia's supply chains. A considerable amount of private sector capital is available to finance such activities (Australian Sustainable Finance Initiative, 2019). Analysis of patents filed in Australia highlights the opportunity low carbon investment presents. Patents have been filed across all

of the sectors of the economy that require decarbonising (Oxford University, 2020, unpublished). Australia also punches above its weight globally when it comes to green patents filed. This means Australian businesses and the Australian economy are not only ready but can leverage increased low carbon investment to deliver significant economic benefit for the country. The challenge is in covering the breadth of the economy — across all sectors and jurisdictions — in the effort to increase flows of finance for decarbonisation.

How a mission-oriented Australian Clean Technology Market-creation Co-Investment Partnership could help

Support for zero emissions technologies should include both 'push' and 'pull' support measures. Technology push mechanisms are those that support the upfront investment and development of a technology (e.g. grants for research and pilot demonstrations). Technology 'pull' mechanisms are those that create market-scale signals and incentives for supply chain responses based on expectations of widespread deployment potential of the final product (e.g. direct procurement, reverse auctions, policies and targets).

By investing in demonstration, commercialisation and deployment stages of technology innovation, the Clean Energy Finance Corporation (CEFC) uses a 'push' mechanism to catalyse private investment in Australia's clean energy sector. It is effectively meeting this establishment mandate. In 2018–19, more than $3 in private finance was leveraged for every dollar invested by the CEFC. This was an increase from each CEFC dollar being matched by $1.80 in private finance in 2017–18 (CEFC, 2019). In the year to 30 June 2020, new CEFC investment commitments of more than $1 billion, supporting 23 clean energy investments, leveraged $3.2 billion for a total project value of $4.2 billion (CEFC, 2020a). State and territory government procurement and grant schemes offer the 'pull' that's needed to complement the CEFC's investment mandate.

While the CEFC has a broad mandate that covers all decarbonisation sectors, and there are state government processes and programs aimed at decarbonisation, the scale of the decarbonisation required is now larger and not being fully addressed by existing processes. Existing government funding is not deployed across all of the sectors required for states and territories to meet their net zero by 2050 commitments. For example, CEFC and ARENA investment in housing is far more prevalent in NSW and Victoria than in other Australian states and territories. In addition, state and territory governments' individual programs lack the scale that the CEFC can provide, and require significant finance capabilities to deliver on their net zero commitments. Building on the successful CEFC financing model, there is scope for a large-scale CIP to accelerate strategic investment in the decarbonisation of the Australian economy. This CIP could support the scale of investment needed. There is great potential to unlock increased volumes of private capital if greater public support is made available and coordinated in a goal-oriented way. This paper describes a model that can do this using existing mechanisms that can be scaled up.

Outline of Australian Clean Technology Market-creation Co-Investment Partnership (CIP)

CIP model

The CIP would take the form of an Australian Government partnership with state and territory governments, allowing goal-oriented investing in decarbonisation technologies and market solutions that can also incorporate COVID recovery goals and geographic investment priorities. State and territory government program investment, which has traditionally taken the form of grant funding, can leverage significantly more private sector finance when used in ways that are more tailored to meet commercial and private sector needs. Examples of government investment instruments that can enhance the private sector leverage achieved from public investment by incorporating some risk sharing mechanisms include:

- Contract for Differences, and
- First-Loss Protection Mechanism. 'Any instrument designed to ensure the amount of capital which is exposed first should there be a financial loss on a security, including equity, debt, and derivatives instruments' (Climate Policy Initiative, 2013).

Such investment models would enable more projects that are not quite commercially investable right now to become investable with the support of state/territory governments, CEFC financing and leveraged private investment. A mission-oriented approach would be taken to funding allocation, with a quantum of funding provided for defined goals specific to the decarbonisation sectors, most of which are outlined in the Australian Government's Technology Investment Roadmap. Proposals would be called for to meet those goals.

Some examples of government programs that illustrate this goal-oriented and co-investment financing approach are included in Figure 1. States and Territories can adapt to target investment potential in all sectors in their economy to meet their jurisdictions net zero emissions goals.

Figure 1. Examples of government goal-oriented and co-financed programs

Large Scale Solar Program
Through a competitive grant funding round aimed at driving down the cost of delivering large-scale solar projects in Australia, close to $90 million of ARENA grant funding, combined with over $370 million of CEFC finance, unlocked almost $1 billion of private investment in the 12 funded projects, and saw costs of technology and delivery halved during the 18 months allocation period for the program (CEFC, 2020b).

NSW Government Empowering Homes Program
Launched in February 2020, the NSW Government Empowering Homes Program provides Hunter residents access to interest-free loans for home energy storage batteries. The CEFC has committed $7 million in debt finance.

Advancing Hydrogen Fund
Through its Advancing Hydrogen Fund, the CEFC will make available up to $300 million in debt and/or equity to support the growth of a clean, innovative, safe and competitive Australian hydrogen industry. In the first instance, the CEFC will seek to invest in projects included in ARENA's $70 million Renewable Hydrogen Deployment Funding Round. The CEFC's debt will also focus on projects that align with the Australian Government's

National Hydrogen Strategy, including projects which have State or Territory Government financial support (CEFC, 2020c).

NSW Government Emerging Energy Program
This initiative provides grant funding to assist with the development of innovative, large-scale electricity and storage projects in NSW. By reducing barriers to invest in emerging technologies, it supports affordable, reliable and clean energy across the State. The NSW Government is working with ARENA to fund additional projects (NSW Government, 2020).

South Australian (SA) Government Grid Scale Storage Fund
In 2018, the SA Government launched the Grid Scale Storage Fund which contributes state government funding toward energy storage infrastructure capable of addressing intermittency in the South Australian electricity system. ARENA signed a Memorandum of Understanding with the SA Government with a view to coordinating the assessment of projects that may be eligible for joint funding (ARENA, 2018).

The Australian Government, in partnership with state and territory governments would jointly staff a program implementation team with a remit to coordinate the CIP's operations. Each joint-team would draw on expertise from the CEFC, ARENA (where ARENA funding was involved), state/territory government departments responsible for emissions reduction, and treasury department commercial divisions containing skills in leveraging private sector investment. Joint-teams would co-design the program calls for proposals defining the goals in each sector and in each state/territory. The call for proposals could be implemented using a reverse-auction approach, in which the state or territory government with the CEFC invites bids to meet the program goal. Programs would be designed at sufficient scale to support multiple successful bidders each round, to ensure a supply-chain scale response and competition between multiple consortia. Project proponents would then place bids for the minimum funding they need to deploy the clean technologies, with the project proponents with the best value for money (including scores on any other criteria required at bid time) securing contracts to perform the work in exchange for the funding. There would be no need for transfer of allocated state or territory government budget to the CEFC. The program teams would jointly assess the bidders to progress to a preliminary shortlist. State and territory governments would approve grants aligned to a specific program goal, for example, the development of green hydrogen hubs. Once the grants have been approved, the CEFC would then be well-positioned to negotiate an amount to debt to further support the program goal. A strength of building off the CEFC is that it has the staff with capability and capacity to support this approach. Support for this model could be provided by ensuring staff resourcing for the CEFC, ARENA and state and territory governments to resource these joint program teams.

Type and size of investment opportunities
The CIP would facilitate large scale asset and infrastructure investments across all sectors of the Australian economy, to reach the level of decarbonisation needed for Australia to align with the Paris Agreement. Key opportunity areas would include key technologies identified via the Australian Government's Technology Investment Roadmap Discussion Paper (Australian Government, 2020) which are largely aligned with those in ClimateWorks

Australia's Decarbonisation Futures report (ClimateWorks Australia, 2020). Examples include green hydrogen (including production and use, transport and green certification), batteries (including lithium and other raw material components), transmission infrastructure, and farm and buildings enhancements that reduce emissions (see **Appendix A** for illustrative examples). The CIP would offer a menu of investment areas that governments may address through forthcoming Commonwealth-State Deals and any budget expenditure aimed at supporting clean technologies.

The size of program investment opportunities can vary depending on the need, the jurisdiction and the sector. Using a matrix model, the CIP will help make visible to investors the current and future opportunities in all states and territories and across each sector. Sectors could correspond with those covered in the Australian Government's Technology Investment Roadmap, in addition to an 'enhanced manufacturing' stream to support growth of traditional manufacturing and new industries.

This multi-sector goal-oriented approach will allow state and territory governments to coordinate their current financial contributions with national funding agencies such as the CEFC and other federal funding programs and leverage co-financing contributions from both the Australian government and private sector. This would result in collectively leveraging a greater amount of overall private sector capital, delivering bigger economic and employment impacts, lowering economy-wide emissions and leading to greater resilience of the Australian economy. It would also provide the required capability by building on existing frameworks and financial mechanisms.

The CEFC currently has a $10bn allocation as a revolving fund (meaning when it is repaid it can re-invest the same capital). The experience of the CEFC shows that private sector investment can be leveraged at substantial scale for targeted clean technology outcomes. For example, in 2018-19 the CEFC achieved leverage on average around three times as much private investment as public investment, while the Clean Energy Innovation Fund within the CEFC has leveraged eight dollars of private investment for each dollar of CEFC investment (CEFC, 2019). This can be achieved for more sector coverage and geographical coverage with additional coordinated State government contributions in all sectors and further ARENA capacity.

To illustrate indicative CIP investment figures, the **Appendix B** shows the CEFC's existing $10bn allocation applied with equal distribution of investment across all sectors and shared equally across states and territories based on share of population as at 31 Dec 2019. It is assumed the total investment amount would be shared between the CEFC (70 per cent), ARENA (20 per cent) and states/territories (10 per cent). This breakdown roughly emulates the CEFC-ARENA large scale solar funding allocation (CEFC, 2017). Indicative investment figures are at **Appendix B** with private sector leverage at the CEFC-average of 2.3 times.

Illustrative goal-oriented program areas

Decarbonisation opportunities are ample in each sector of the Australian economy. **Appendix A** presents illustrative goal-oriented programs for each sector and technology

type, which form a 'menu' from which the Australian Government and state and territory governments could collectively draw to catalyse market-scale supply chain responses to accelerate decarbonisation technologies and improve Australia's competitive advantage.

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APPENDIX A

For Illustration Only

Clean Technology Market-creation Co-Investment Partnership: illustrative investment program design examples[1], covering all sectors and States/Territories

State-Federal Co-Investment programs supporting multiple projects to stimulate supply-chain scale and competition, through 'reverse auction' style programs leveraging private funding by inviting bidders to craft the most efficient, minimum level of funding needed via combining some grant funds with CEFC-style financing and/or contracts for difference or other risk-sharing terms.

Green hydrogen	Buildings	Manufacturing	Transport	Industry	Electricity	Agriculture and land
Local renewable hydrogen hubs: matching supply with demand - for local consortia who combine a minimum scale of hydrogen demand and a renewable hydrogen production source that can supply the demand. **Hydrogen Haulage - Clean Trucking program** for renewable hydrogen powered mining truck and on-road truck demonstration projects over two years. **Renewable Hydrogen Export readiness program -** to secure the support for ~ three +300MW scale green hydrogen/ Ammonia facilities around Australia.	**Renovation Refresh -** supporting new business models for delivery of up to 600,000 residential energy efficiency upgrades per year for three years **Low bill low carbon homes -** development of XX new energy efficient social housing dwellings per year for three years, including minimum content for low emissions cement and other building materials. **Precinct Power Providers -** development of XX integrated energy systems with demand response (including microgrids for precincts).	**Battery processing and manufacturing program -** support at least one new lithium battery refinery and two new large-scale lithium battery plants, and new battery recycling infrastructure that recycles 5,000 tonnes (25% of annual battery waste) within 5 years. **Modernising critical manufacturing program -** support manufacturers to purchase energy modernisation equipment, for example, energy productivity measures, electrical heating technologies like industrial heat pumps, solar panels and battery storage. **Technology grants -** to support commercialised research and development activities in technologies related to sustainable manufacturing. **Local manufacturing of EV components or assembly of vehicles**	**Clean Bus Program -** to support public transport authorities to support the uptake of up to 500 electric buses. Funding can be used to support bus procurement, depot upgrades and charging equipment. **Development of integrated zero-emissions transport systems** (infrastructure+technology) for XX regional towns or suburban hubs **Freight Fleet Futures program** - seek the level and type of support required to establish a clean fleet solution for five long-haul vehicles or more. This support could be in the form of a loan/ grant or residual price guarantee for the vehicles and refuelling infrastructure at the end of the contract term. Providers would source vehicle supply and clean fuel supply, the compressions and refuelling systems in addition to scaling up maintenance and engineering support. **Electric vehicle program -** to support uptake via infrastructure readiness or vehicle fleets (after further consultation with industry)	**Low-carbon supply chain procurement -** support XX buyers to embed low-carbon materials and products in procurement supply chains larger than $XX million **Biofuel production support** (TBC explore options to support local usage for energy security or export potential for commercial opportunity) *Feedstocks/industrial processes* - Materials designed for circularity - Materials collection, sorting and recycling technologies - Biomaterials for construction - Shift to green ammonia in production of fertilisers and explosives *Process heating* - Heat pumps and other electric technologies - Bioenergy - Renewable heat from concentrated solar thermal to replace gas use in alumina *Other* Development of new catalysts for abatement of nitrous oxide emissions from nitric acid production	**Transmission -** funding/underwriting for 3-5 new transmission connections **Storage:** **Home and small business battery program -** fund 100,000 small battery installations for households and small businesses (under $1 million turnover) over three years (through low-interest CEFC loans and state/territory battery subsidies) **Pumped hydro -** reverse auction for the lowest availability charge for pumped storage projects across Australia	**Farm Carbon Enhancement -** supporting farmers to build and maintain carbon stocks in soils, biodiversity outcomes and farm forestry. **Urban sustainability greening program -** to support XX local governments to upgrade urban landscapes to promote resilience to heatwaves; support urban agriculture and water-sensitive urban design.

[1] Can be tailored to suit the size of the market in each jurisdiction and technology

APPENDIX B

For Illustration Only

Clean Technology Market-creation Co-Investment Partnership: illustrative investment contributions based on a $10bn allocation to the CEFC shared equally across 7 sectors, matched by 20% ARENA and 10% State grants

		Sectors						
		Green hydrogen ($m)	**Buildings ($m)**	**Manufacturing ($m)**	**Transport ($m)**	**Industry ($m)**	**Electricity ($m)**	**Agriculture and land ($m)**
Jurisdiction (illustrative pro-rata allocation based on population size)	**NSW**	65	65	65	65	65	65	65
	Vic	53	53	53	53	53	53	53
	QLD	41	41	41	41	41	41	41
	WA	21	21	21	21	21	21	21
	SA	14	14	14	14	14	14	14
	Tas	4	4	4	4	4	4	4
	ACT	3	3	3	3	3	3	3
	NT	2	2	2	2	2	2	2
	10%	204	204	204	204	204	204	204
	20% (ARENA)	409	409	409	409	409	409	409
	70% (CEFC)	1430	1430	1430	1430	1430	1430	1430
(at CEFC's average private leverage ratio)	**Private capital unlocked**	4700	4700	4700	4700	4700	4700	4700

Briefings and analysis to inform discussion

i. Concept note: New process on climate risk and resilience to inform the National Cabinet

ii. Concept note: Australian Clean Technology Market-Creation Co-Investment Partnership (CIP)

iii. Analysis: Creating jobs in high-priority employment regions via decarbonisation-aligned stimulus

CENTRE FOR POLICY DEVELOPMENT

Creating jobs in high-priority employment regions via decarbonisation-aligned stimulus

Briefing prepared for the Second Roundtable of the Climate & Recovery Initiative — September 2020

Prepared by Centre for Policy Development with assistance from Boston Consulting Group

Overview: Context and purpose

In designing COVID-19 economic recovery packages, special attention must be paid to high risk regions.

Australia as a whole faces a daunting jobs crisis, but some regions have been especially hard hit. In the worst-affected employment regions, jobactive caseloads have increased by 2-3 times as much as the least-affected regions.* Uneven impacts risk exacerbating underlying disadvantages, inhibiting recovery in high risk regions.

Many groups have argued for stimulus measures that align COVID-19 recovery with a transition to a low carbon economy.

Australian business, social, environmental and energy groups (including Ai Group, ACTU and BCA) have jointly called on governments to prioritise a transition-aligned recovery.

Internationally, the EU, World Bank, IMF and International Energy Agency each support calls for a transition-aligned recovery. The EU's recovery deal allocates €550 billion to climate-aligned investments by 2027 - the largest single climate pledge ever made.

Participants at the first Climate and Recovery Initiative Roundtable in June, 2020 recognised **a need to develop and assess specific, transition-aligned job creation opportunities in employment regions hardest hit by COVID-19.**

This briefing demonstrates an approach to creating transition-aligned jobs in employment regions of highest need.

The briefing does three things:

1. **Identifies high-priority employment regions for targeted stimulus,** based on historic jobactive caseloads and the effects of COVID-19 on local labour markets.

2. **Assesses transition-aligned stimulus program types frequently recommended in the literature,** based on economic impact, timeliness and ease of implementation, and alignment with energy transition.

3. **Presents four transition-aligned job creation opportunities targeted at high-priority employment regions.** Proposals were developed based on regional characteristics and needs, existing initiatives and proposals, capacity for timely delivery, and feasible scale.

This place-based approach could be scaled up when developing larger-scale stimulus packages, creating large numbers of good quality jobs while supporting timely, cost-effective worker transitions.

The four regional initiatives presented in this briefing would on average directly create **8 jobs per $1 million of public investment**. This is similar to or better than "colourless" direct expenditure stimulus programs, and is in line with findings from other research.

* As measured by increase in jobactive caseload per 100 people from Dec 19 to Jun 20

Overview: Policy assessments

We assessed four frequently recommended policy types based on economic impact, timeliness and ease of implementation, and alignment with energy transition. Each can contribute to efficient job creation in high-risk regions if suitably designed and targeted.

Program type assessed	Economic impact	Timeliness and ease of implementation	Alignment with energy transition	Jobs per $1 million of public investment	Comments
Renewable energy infrastructure				**6-12**	• Transmission upgrades are needed to support well-scoped pipeline of large-scale projects (11 GW) • Smaller-scale projects are more timely to implement • 80% of jobs occur in construction phase, less ongoing jobs
Building efficiency retrofits				**5-8**	• Energy efficiency retrofits could halve typical home energy consumption, saving households $1200 p.a. • Many public buildings are suitable for retrofits • Worker safety must be prioritised, with suitable accreditation and oversight arrangements
Ecosystem improvement				**6.7**	• Suitable for rapid job creation; relatively low skill and capital requirements • Local organisations can accelerate planned work. • Co-benefits for regional tourism and agriculture • Can provide training and long-term career opportunities
Sustainable transport infrastructure				**6.0**	• Governments can accelerate planned spending on public and active transport infrastructure • Opportunity to shift mobility patterns to low-emissions modes. Complementary investments can encourage adoption (e.g. education campaigns)

Overview: Proposed regional initiatives

The following priority initiatives are identified to address employment needs in regions especially hard hit by COVID-19. Initiatives were selected based on regional needs and characteristics, existing initiatives and proposals, capacity for timely delivery, and feasible scale.

Program type	Priority regional initiative	Three-year ambition	Direct jobs created	Public investment	Private investment	Potential direct job creation if scaled nationally*
Renewable energy infrastructure	Distributed solar, North Coast of NSW	140 MW installed	1000	$80m	$170m	17,000
Building efficiency retrofits	Residential building retrofits, Western Melbourne	60,000 homes retrofitted	3100	$400m	$500m	15,000
Ecosystem improvement	Ecosystem restoration in South West WA	55,000 hectares restored	500	$75m	$7.5m	12,000
Sustainable transport infrastructure	Active transport infrastructure in Cairns, QLD	50% of planned corridors built	400	$65m	-	12,000

Key insights

- **Many regions hardest hit by COVID-19 coincide with areas of long-term high unemployment**, creating double disadvantage and a risk of prolonged economic stagnation. These regions can be prioritised for targeted, transition-aligned stimulus projects.
- **The proposed regional initiatives would on average directly create 8 jobs per $1 million of public investment**. This estimate accounts for estimated private co-investment but does not include additional indirect jobs created in supply chains and induced jobs created through broader economic multiplier effects. Our estimates are broadly in line with other research in Australia, US and UK, which finds that similar types of initiatives can create 5-15 jobs per $1 million of public investment (see Appendix).
- **Regional proposals can be tailored to local conditions – aided by Local Jobs and Skills Taskforces – to support rapid job creation and low-cost employment transitions.** Short courses, apprenticeships and on-the-job training can support timely and cost-effective transitions for workers displaced by COVID-19.

* National job creation estimates are based on research by AlphaBeta published in the Climate Council's Clean Jobs Plan. They consider the potential of these program types broadly, beyond the specific applications included in our regional proposals.

Overview: Regional collaborations can support transition-aligned stimulus

There is growing appetite and momentum for tailored, place-based strategies to support job creation and economic development as part of COVID-19 recovery.

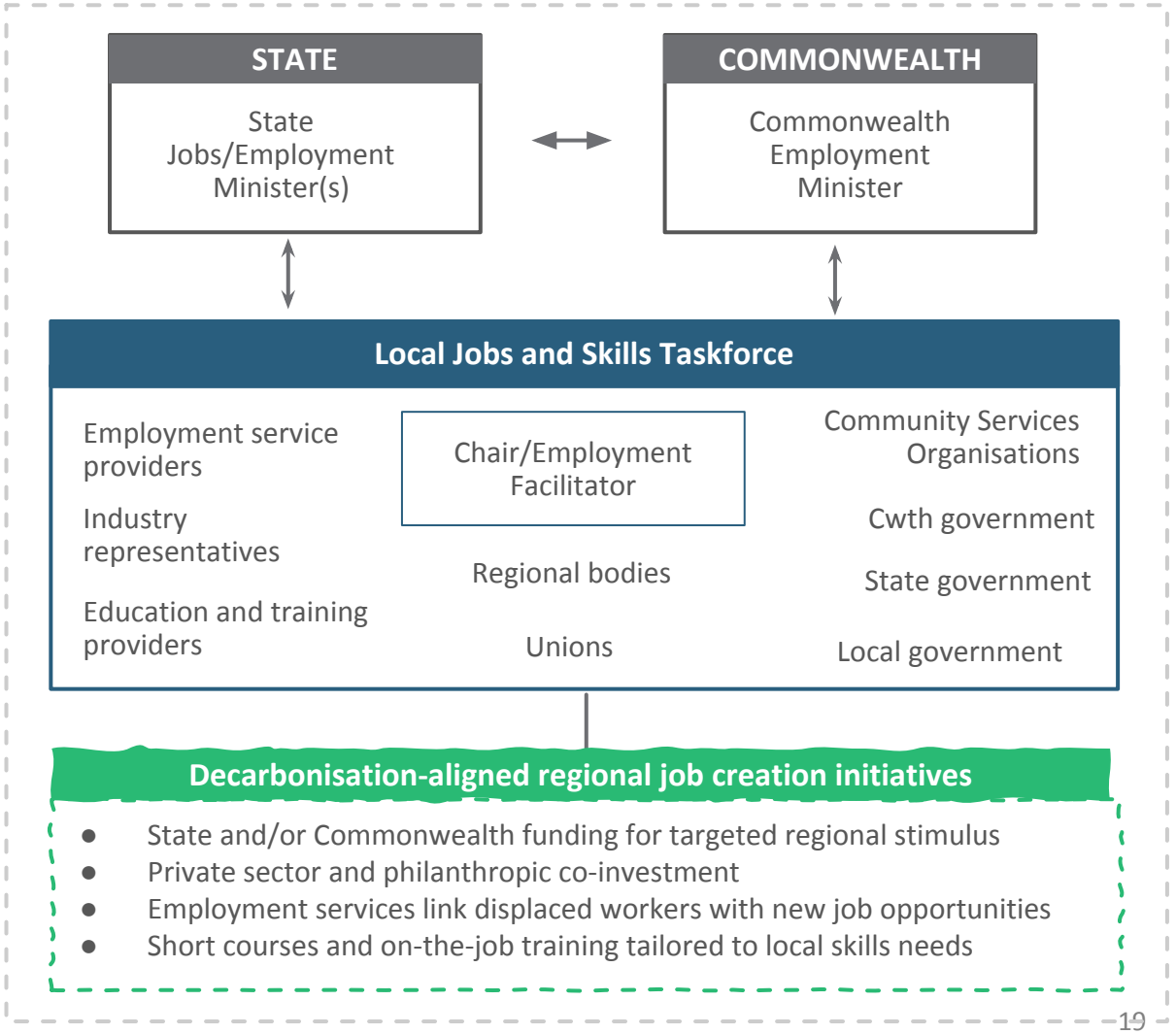
The Commonwealth Government's recently announced $62.8 million Local Jobs Program will establish 25 Local Jobs and Skills Taskforces targeting employment regions most impacted by COVID-19 and facing ongoing disadvantage. State governments and regional organisations are also exploring place-based responses.

Place-based responses should incorporate the best ideas and evidence on decarbonisation-aligned job creation opportunities.

Effective delivery of transition-aligned regional initiatives will require collaboration between governments (local, state and federal), employers, employment service and training providers, and community organisations. Local Jobs and Skills Taskforces have the potential to support this collaboration.

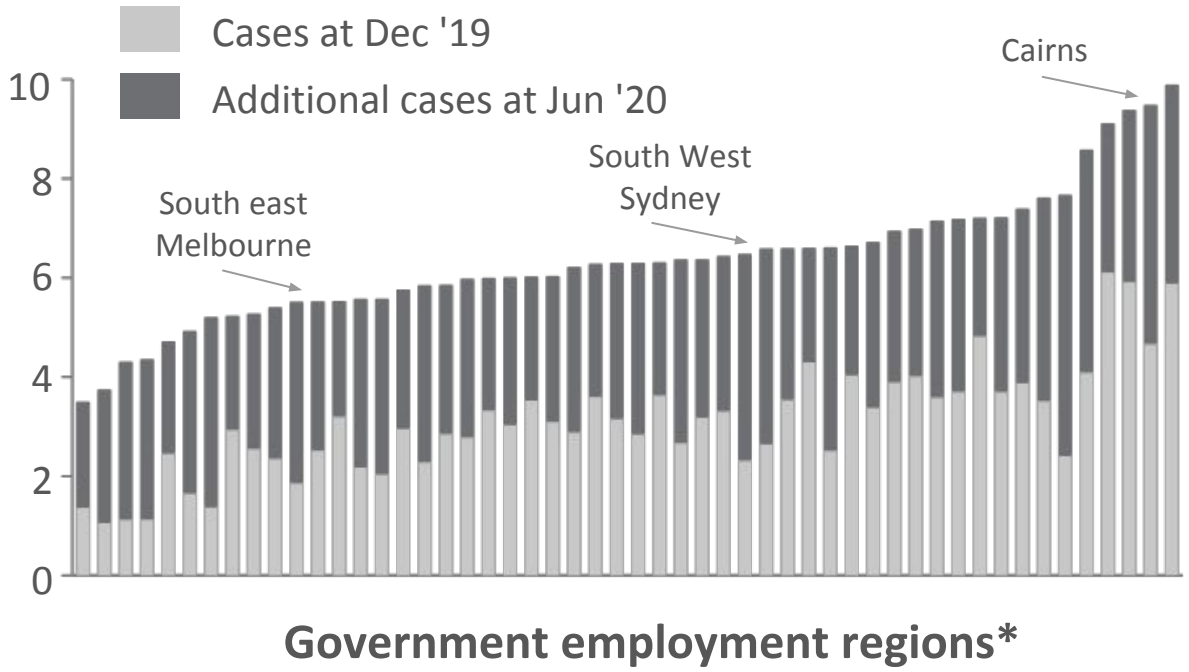
Once established, taskforces should ensure that Local Jobs Plans consider opportunities to efficiently create jobs through decarbonisation-aligned investments. The approach and proposals outlined in this report can be adapted to a wide range of regions and tailored to local needs and opportunities.

Potential model



Australia as a whole faces a daunting jobs crisis, but some regions have been especially hard hit.

Jobactive caseload per 100 people as at June 30 2020



134%

Increase in jobactive caseload across Australia

+828k

Additional jobactive cases between Dec '19 – Jun '20

5.8%

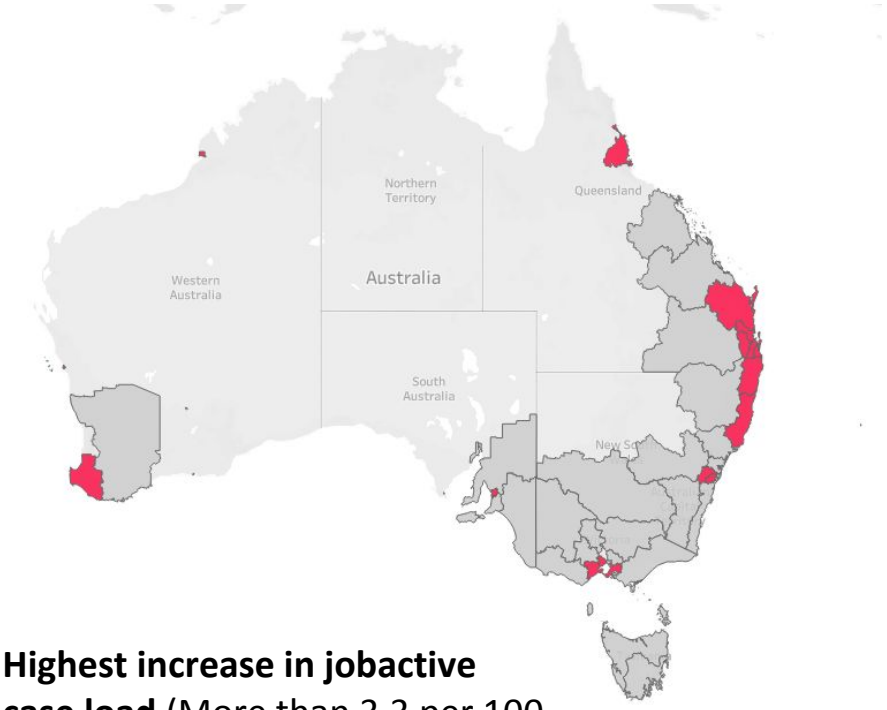
Of Australians are on jobactive (up from 3.3% Dec '19)

***** The federal government defines 52 employment regions based on natural labour markets. These regions govern the delivery of employment services to people on jobactive. We use jobactive caseload per 100 people as a measure of the severity of the job creation challenge in each region.

Source: Australian Government Labour Market Information Portal, "jobactive Caseload Data - September 2015 to June 2020"

Many of the worst-hit regions coincide with areas of long-term high unemployment.

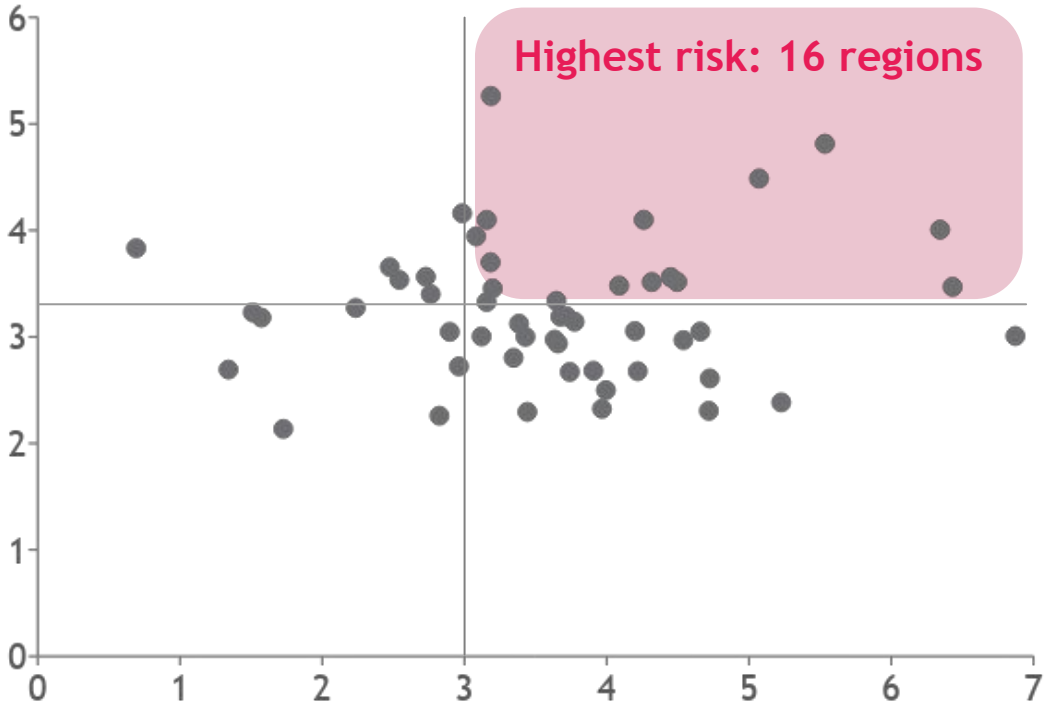
Impact of jobactive increases has been felt across Australia



Highest increase in jobactive case load (More than 3.3 per 100 people, Dec ‘19 - Jun ‘20)

16 regions have double disadvantage of high increase in cases and high historic caseload

Increase in jobactive caseload / 100 people Dec ‘19 - June ‘20



Average jobactive caseload / 100 people, 2015-2020

Source: Australian Government Labour Market Information Portal, “jobactive Caseload Data - September 2015 to June 2020”

These areas of “double disadvantage” can be prioritised for targeted stimulus projects to boost jobs and support economic growth.

Employment Region	State	Population	Jobactive caseload (Jun 20)	Increase in cases / 100 Dec 19- Jun 20	Average cases / 100 2015 - 2020	Above average baseline & increase	Included in Local Jobs Program
Gold Coast	QLD	684,700	52,514	5.3	3.2	✓	✓
Cairns	QLD	244,500	23,185	4.8	5.5	✓	✓
North Coast	NSW	239,500	20,552	4.5	5.1	✓	✓
NW Melbourne	VIC	406,300	26,324	4.2	3.0	✓	✓
Wide Bay & Sunshine Coast	QLD	672,100	51,190	4.1	4.3	✓	✓
Western Melbourne	VIC	819,000	54,164	4.1	3.2	✓	✓
Broome	WA	14,800	1,464	4.0	6.3	✓	
Sydney SW	NSW	912,800	60,143	3.9	3.1	✓	✓
Brisbane SE	QLD	949,500	60,490	3.7	3.2	✓	
Adelaide North	SA	675,500	48,306	3.6	4.4	✓	✓
Mid North Coast	NSW	310,500	22,956	3.5	4.5	✓	✓
Esperance	WA	10,100	729	3.5	4.3	✓	
South West WA	WA	178,400	12,819	3.5	4.1	✓	✓
Geraldton	WA	36,400	3,415	3.5	6.4	✓	
Wivenhoe	QLD	489,500	30,833	3.5	3.2	✓	✓
Perth - South	WA	1,045,100	70,236	3.3	3.6	✓	✓
AUSTRALIA				**3.3**	**3.0**		

Source: Australian Government Labour Market Information Portal, “jobactive Caseload Data - September 2015 to June 2020”

Research in Australia and internationally has identified leading stimulus program types that create jobs, support economic growth and support the energy transition.

	Renewable energy infrastructure	Building efficiency retrofits	Sustainable transport infrastructure	Ecosystem improvement	Industrial energy efficiency	Clean R&D	Education and training
Oxford Smith School (Hepburn et al)[1]	*	*		*		*	*
International Energy Agency[2]	*	*	*		*		
ANU Crawford School (Jotzo et al)[3]	*	*	*	*			
Climate Council & Alpha Beta[4]	*	*	*	*		*	*
Beyond Zero Emissions[5]	*	*	*	*		*	*
Boston Consulting Group[6]	*	*	*		*		

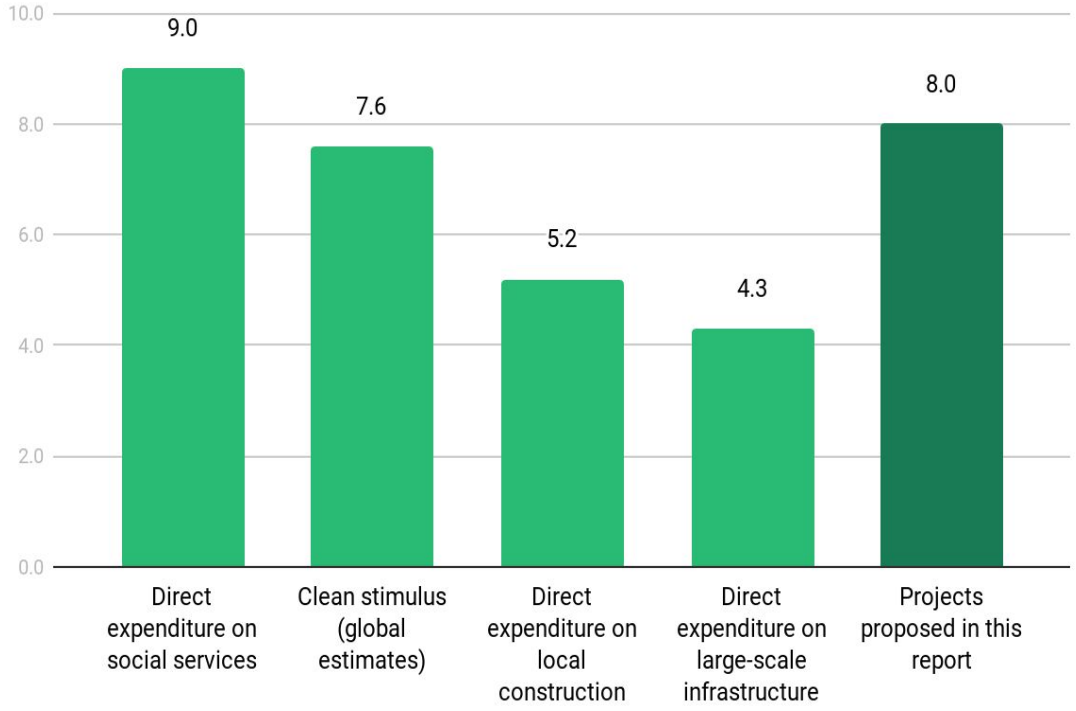
Program types assessed in this report

* identified as a leading or recommended stimulus option. See Appendix for further detail on each of these studies. This list of program types is not exhaustive; it captures those most regularly recommended in the literature.

[1] Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?, Smith School Working Paper 20-02, 2020. [2] Sustainable Recovery, IEA, 2020 [3] Fiscal stimulus for low-carbon compatible COVID-19 recovery: criteria for infrastructure investment, CCEP Working Paper 2005, 2020. [4] Clean Jobs Plan, 2020. [5] Million Jobs Plan, 2020. [6] Climate Should Not Be the Virus' Next Victim, 2020.

The jobs payoff from transition-aligned stimulus is similar to or better than other direct expenditure programs.

Estimated direct jobs created per $1m of public spending for select direct public expenditure programs[1]



Research by AlphaBeta (published in the Climate Council's *Clean Jobs Plan*) finds that transition-aligned stimulus programs create jobs as efficiently as other Australian direct expenditure programs.

This view is supported by a recent large-scale survey of global economic policymakers.[2] Oxford Professor Cameron Hepburn and colleagues surveyed 231 central bank officials, finance ministry officials, and other economic experts from G20 countries on the relative performance of 25 major fiscal recovery archetypes. Five policies were identified with high potential on both economic multiplier and climate impact metrics: clean physical infrastructure, building efficiency retrofits, investment in education and training, natural capital investment, and clean R&D.

The four regional projects proposed in this briefing are estimated to create 8 direct jobs per $1 million in public spending, on average.* This is in line with global estimates of direct job creation from clean stimulus programs.

*The jobs estimates in this report incorporate only jobs directly created by the stimulus projects and linked private investment. Indirect job creation (i.e. via industry supply chains) and induced job creation (through broader economic multiplier effects) have not been estimated. The overall job impacts would therefore potentially be larger than reported here.

[1] Based on analysis by AlphaBeta of job creation impacts of the National Disability Insurance Scheme, Building the Education Revolution, and planned state infrastructure projects. See Clean Jobs Plan, Climate Council and AlphaBeta, 2020. [2] 'Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?', Smith School Working Paper 20-02, Hepburn, O'Callaghan, Stern, Stiglitz, and Zenghelis, 2020

We identified priority projects that match high-impact, transition-aligned stimulus programs with the needs of employment regions hit hardest by COVID-19

Methodology

1. We identified 16 employment regions with high need for job-creating investments, based on historic jobactive caseloads and increases due to COVID-19.

2. We selected four leading transition-aligned stimulus program types, based on existing literature. These are renewable energy infrastructure, building efficiency retrofits, ecosystem improvements and sustainable transport.

3. For each of the four program types, we:
   a. Assessed it based on economic impact; timeliness and ease of implementation; and alignment with energy transition.
   b. Identified a high-priority region that is well suited to this program type, based on regional characteristics such as location, natural resources, infrastructure, COVID-19 impacts and existing initiatives.
   c. Developed a proposed stimulus project, estimating feasible scale of investment (public and private) and expected jobs impact. We discuss support for worker transitions, including skill and training requirements.

Assessing stimulus program types

Economic impact

- Does it maximise the jobs created per $1m of public investment?
- Does it create good quality jobs with long-term employment prospects?
- Does it generate private investment or spending?
- Does it contribute to regional economic development?
- Does it lead to efficiency or cost savings?

Timeliness and ease of implementation

- Does the program enable rapid job creation?
- Could existing programs be accelerated or scaled up?
- Would workers require retraining?
- Does the program require complex policy changes?
- Are there notable implementation risks?

Alignment with energy transition

- How much greenhouse gas would be abated per $1m of public spending?
- Would the program unlock bottlenecks or accelerate decarbonisation in other ways?

Policy opportunity: Renewable energy infrastructure

Policy description

Governments provide grants, low-cost loans and/or other incentives for renewable energy infrastructure ranging from small- to utility-scale. This includes wind, solar, battery storage, and transmission upgrades.

Where is it effective?

- Regions with strong renewable resources.
- Community support for and experience with renewable energy installations.
- Grid connections are critical for large-scale projects. Smaller scale projects are less inhibited by transmission bottlenecks.

What is good practice?

- Renewable Energy Zones coordinate generation and transmission investments.
- Auction schemes for utility-scale projects harness competition, control financial commitments and reduce financing costs.[1]
- Incentivise self-consumption of small-scale solar and appropriately reflect the value to the system.[1]
- Ensure installers are trained and qualified.

How does this option compare with alternatives?

Economic impact		• **6-12 jobs per $1m** of public investment, with greater labour intensity for smaller scale installations. Each dollar of public investment can unlock $2-3 of private investment.[2] • Reduce wholesale electricity costs, thereby improving the cost base of Australian industry.[3] • Employment peaks sharply in construction phase: one in five jobs are in ongoing operations and maintenance.[4]
Timeliness and ease of implementation		• Well-scoped pipeline of large-scale projects (11 GW nationally)[2], but many cannot proceed due to transmission constraints. Smaller scale projects are more timely to implement. • Transmission upgrades require complex planning and regulatory processes. Construction for the first REZ (Central-West Orana in NSW) will commence in late 2022.
Alignment with energy transition		• Delivers emissions reductions in the electricity sector. Creates long-term energy infrastructure which provides a viable alternative as coal-fired power stations are decommissioned.[2]

[1] Sustainable Recovery, International Energy Agency, 2020. [2]Clean Jobs Plan, Climate Council and AlphaBeta, 2020. [3]Jotzo et al, Fiscal stimulus for low-carbon compatible COVID-19 recovery: criteria for infrastructure investment, 2020.
[4] Clean Energy at Work, Clean Energy Council, 2020

Priority initiative: Distributed solar on the North Coast, NSW

1000	140 MW	$80m	$170
jobs created over three years	of new renewable power	of public investment	of private co-investment

The opportunity

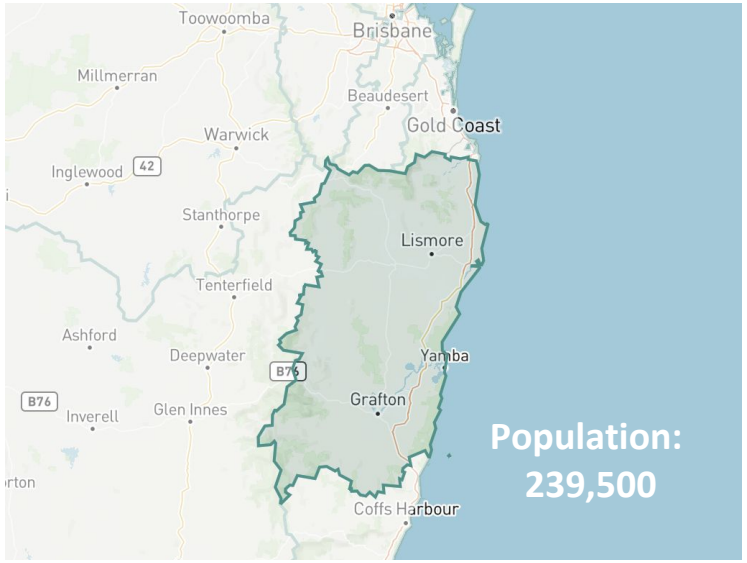
- **Install 140 MW of small and medium-scale solar PV systems (≤ 5 MW)** and accompanying battery storage units across the NSW North Coast over the next three years. In doing so, the region would increase installation by twice the national rate per capita achieved in 2019[1], driven by:

1. **Targeted grants for medium-scale solar and storage projects** (1-5 MW), similar to the NSW Regional Community Energy Fund. Grants could attract private co-investment at a ratio of around 1:2.5.

2. **Install rooftop solar on public buildings**, including schools, hospitals and public housing. An ARENA-funded pilot found that investment in rooftop solar and lighting upgrades at NSW schools could reduce electricity costs by 60%, with a 22.1% IRR.[2]

3. **Subsidies for rooftop solar on private homes**. The NSW Government estimates that a 4 kW solar system saves up to $900 per year for the average house in Sydney (where solar resources are inferior to the North Coast).[3]

North Coast Employment Region



Why North Coast?

- Highest jobactive case rate in NSW (8.6 per 100 at June 30) [4]
- Tourism-dependent region hit hard by COVID-19 travel restrictions, with third highest increase in jobactive case rate nationally since Dec 2019;
- Strongest solar resource potential in coastal NSW.[5]
- Build on community experience of solar and battery storage in Lismore and Byron Bay.

Job creation and investment estimates are derived Climate Council and Alpha Beta's Clean Jobs Plan and CPD analysis. [1] Solar, Clean Energy Council, 2020 [2] NSW Schools Energy Productivity Program Project Results, ERM Power, 2019 [3] Solar Panels and Systems, NSW Government, 2020 [4] jobactive Caseload Data - September 2015 to June 2020, Australian Government Labour Market Information Portal. [5] 2020 Integrated System Plan visualisation map, AEMO

Creating jobs: Distributed solar on the North Coast, NSW

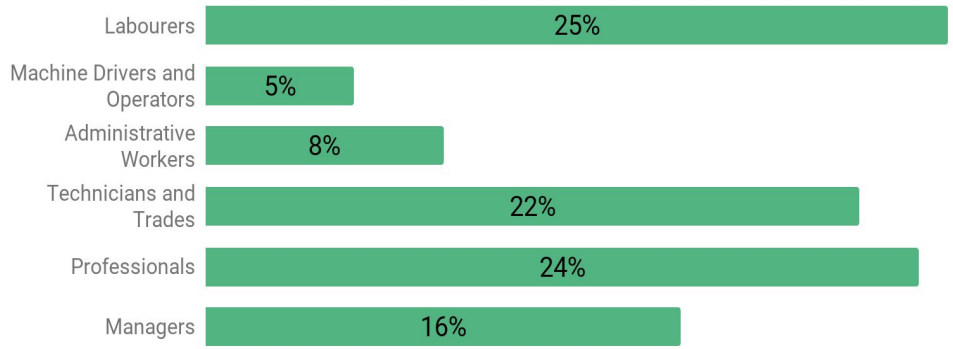
What types of jobs would be created?

2 in 3 Jobs created would be in the local region.[1]

40% Of jobs would be electricians, electrical trade assistants and solar roofers. Short courses are needed to upskill transitioning workers.[1]

80% Of jobs would be in design and installation phase, with operations and maintenance jobs growing over time.[2]

Occupational Composition (%) for Distributed Solar PV[1]



Short courses can transition labourers into semi-skilled solar PV roles

- One in six North Coast workers is a labourer (compared with one in ten for NSW overall).[3]
- 250 jobs created by this project would go to labourers, predominantly electrical trade assistants and solar roofers.
- Short courses (3-6 months) in electrician assistance and solar roofing could help to transition labourers into these positions. These workers would up-skill in a growing industry: small-scale solar is the biggest contributor to jobs in the renewable energy sector in each AEMO scenario modelled by UTS researchers to 2040.[1]

Work transfer arrangements and apprenticeships could address shortage of skilled workers[1]

- Industry surveys highlight recruitment difficulties for electricians and accredited PV designers in regional areas. This could be addressed through:
  - Electrician apprenticeships that incorporate solar training
  - Work transfer arrangements between companies including portable entitlements.
- Some displaced administrative workers from tourism and hospitality can transition to administrative work supporting new solar PV (approximately 80 new administrative jobs created).

[1] Briggs et al, UTS, Renewable Energy Jobs in Australia: Stage One, 2020 [2] Clean Energy at Work, Clean Energy Council, 2020 [3] Australian Government Labour Market Information Portal, Employment Distribution by Industry vs State, Richmond-Tweed SA4.

Policy opportunity: Building efficiency retrofits

Policy description

Governments subsidise households and businesses to retrofit homes and commercial properties, including via insulation, draught sealing, ducted heating, water heating, and energy efficient appliances. Retrofits can also be applied to public housing and buildings.

Where is it effective?

- Regions with a large stock of older, inefficient buildings.
- Relatively concentrated population (urban or suburban).
- Underutilised labour in electricity supply, building construction and administration.

What is good practice?

- Build on existing energy efficiency programs and standards.
- Ensure appropriate accreditation of service providers, including worker training requirements.
- Develop specific measures to ensure participation of low-income and vulnerable households.

How does this option compare with alternatives?

Economic impact		• Generate **5-8 jobs per $1m** in public investment, due to the labour-intensity of retrofitting and the potential to use government subsidies to induce private spending.[1] • Unlock ongoing energy savings – approx. $1,200 per household per year for a $15,000 retrofit.[2] • Develop labour force and supply chains in comprehensive home energy efficiency installations.
Timeliness and ease of implementation		• Existing policy initiatives can be scaled up, though some workers will require training as they move into energy efficiency retrofits.[1] • Worker safety must be prioritised, with suitable accreditation and oversight arrangements.
Alignment with energy transition		• $15,000 home retrofits could reduce GHG emissions by 41% per household, per year (3.4 tonnes of $CO_{2\text{-}e}$ abatement).[2] • 510 tonnes of $CO_{2\text{-}e}$ abated per $1m of public investment.[1] [2]

[1] Clean Jobs Plan, Climate Council and AlphaBeta, 2020. [2] Comprehensive Energy Efficiency Upgrades to Existing Victorian Houses, Sustainability Victoria, 2019

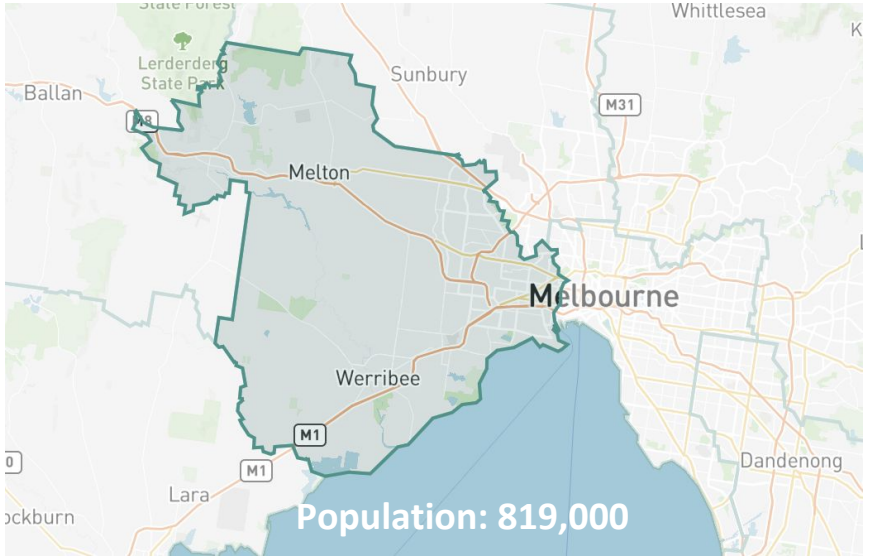
Priority initiative: Residential housing retrofits in Western Melbourne

3,100	$70m	$400m	$500m
jobs created	home energy savings per year	of public investment	of private co-investment

The opportunity

- **Retrofit 60,000 homes** in Western Melbourne over three years to increase energy efficiency and reduce household energy bills. A suite of efficiency upgrades endorsed by Sustainability Victoria could be implemented at an average cost of $15,000 per home.[1]
- **Save $70m on home energy bills and 205,000 tonnes $CO_{2\text{-}e}$ per year.** Modelling by Sustainability Victoria found that energy consumption in a typical pre-2005 Victorian house could be reduced by 52%, saving $1,190 per year.
- **Potential to directly create 3,100 jobs**, predominantly in construction, electricity services, and administration.
- **Government subsidies could incentivise co-investment** from households, using a subsidy rate in the range of 30-50%. The program could build on and complement Victoria's market-based Victorian Energy Upgrades program. Targeted extra support could be directed to low-income households, for example building on Victoria's Energy Savvy Upgrades program.

Western Melbourne Employment Region



Why Western Melbourne?

- Highest jobactive case rate in Victoria (6.6 per 100 people at June 30). Further deterioration with prolonged COVID-19 restrictions.[1]
- Large stock of inefficient suburban housing. Sustainability Victoria found an average Home Energy Rating of only 1.8 stars for typical pre-2005 Victorian houses.[2]
- Build on state government programs such as Victorian Energy Upgrades and Home Energy Assist

Job creation and investment estimates are derived Climate Council and Alpha Beta's Clean Jobs Plan and CPD analysis. [1] Australian Government Labour Market Information Portal, "jobactive Caseload Data - September 2015 to June 2020". [2] Comprehensive Energy Efficiency Upgrades to Existing Victorian Houses, Sustainability Victoria, 2019

Creating jobs: Residential housing retrofits in Western Melbourne

Western Melbourne has experienced disproportionate impacts of COVID-19, with risk of further deterioration due to Stage 4 restrictions

163% Increase in jobactive caseload due to COVID-19 to June 30 (compared with 134% national average).[1]

1 in 4 Of Australia's confirmed COVID-19 cases

Construction is a significant local industry with many workers at risk

36,800 Construction workers (pre-COVID) (#4 industry)[2]

9% Of workforce employed in construction[2]

>2000 Jobs lost in construction since March, 2020[3]

Jobs will be created in construction, electricity services and administration[4]

- **Building construction workers** for the renovation of residential building stock and installation of building materials, e.g. insulation, windows, draught seals.
- **Electricity supply workers** for the replacement and installation of electrical equipment; e.g. heating, ventilation and air-conditioning systems, lighting, meters.
- **Administrative workers** for management of projects; e.g. register accredited service providers, monitor and collect data, and budget funds.

Local and regional organisations can partner to match job seekers with opportunities

- Partnerships between local employers, training institutes, employment service providers, and regional bodies (e.g. Lead West, West of Melbourne Economic Development Alliance) can help facilitate the placement of displaced workers into roles in the residential retrofit industry.
- Program design must ensure all workers are appropriately trained and licensed. Accessible VET courses and on-the-job training will be required to re-skill some workers and train young people entering the workforce.

[1] Australian Government Labour Market Information Portal, "jobactive Caseload Data - September 2015 to June 2020". [2] Australian Government Labour Market Information Portal, Western Melbourne. [3]ABS Weekly Payroll and Wages Data - State and Territory, August 11; we assume that construction job losses in Western Melbourne are proportional with greater Victoria. [4] Clean Jobs Plan, Climate Council and AlphaBeta, 2020

Policy opportunity: Ecosystem improvement

Policy description

Governments can fund conservation projects to restore and revegetate forest and wetland ecosystems in order to enlarge carbon sinks, protect biodiversity and support local industries.

Where is it effective?

- Degraded ecosystems in areas of otherwise high biodiversity and significant carbon sinks, such as Australia's old-growth forests and mangroves.[1]
- Regions with established initiatives that have potential to scale up
- Opportunities for local industry co-benefits, e.g. in tourism or agriculture.

What is good practice?

- Build on existing local models for fast implementation.
- Target displaced workers from other sectors for rapid re-employment.
- Deliver on-the-job training in both specific and transferable skills.

How does this option compare with alternatives?

Economic impact		• **6.7 jobs per $1m** of public investment due to high labour-intensity; little expected private sector co-financing (perhaps 10c per dollar).[1] • Two-thirds of jobs require no previous experience; low barriers to recruiting unemployed workers.[2] • Can complement regional tourism, agriculture and carbon farming.[2]
Timeliness and ease of implementation		• Relatively low skill and capital requirements mean programs could be rapidly implemented and scaled. • Local networks of conservation organisations can accelerate planned work and leverage local expertise.
Alignment with energy transition		• Each hectare of revegetated land sequesters 4 tonnes of CO2 equivalent per year.[3] • 2,900 tonnes of GHG abated per $1m of public investment.

[1] Clean Jobs Plan, Climate Council and AlphaBeta, 2020. [2] Delivering economic stimulus through the conservation and land management sector, EY, 2020. [3] Based on Greening Australia's Great Southern Landscapes initiative

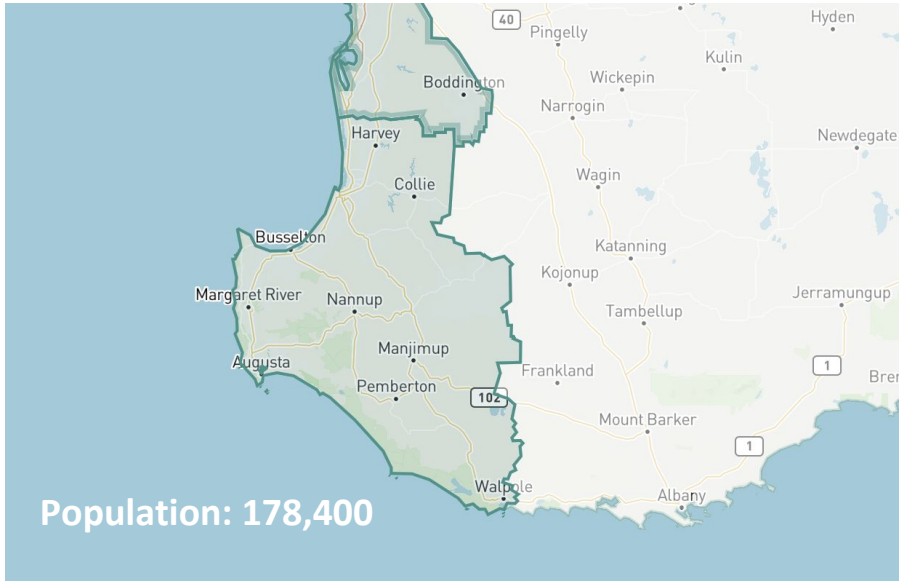
Priority initiative: Ecosystem restoration in South West WA

500	55k	$75m	$7.5m
jobs created over three years	hectares of forest, wetland restored	of public investment	of private co-investment

The opportunity

- **Restore 55,000 hectares of native forests and wetlands** across South West WA over three years by providing grants for native revegetation and assisted regeneration, weed control, invasive animal control, fencing and erosion control.
- **Fund local organisations to scale up existing programs** such as Greening Australia's Great Southern Landscapes, South West Catchments Council's Wetlands of International Significance, and Gondwana Link.
- **Low-skilled unemployed workers from tourism and other sectors hit hard by COVID-19 can be rapidly deployed and trained on the job**. Western Australia has lost 30,000 jobs in tourism due to COVID-19 (nearly one third of the industry).[1]
- A coordinated multi-year grant program can combine funding from federal, state and local government and the private sector, and build on the $23m for native ecosystem rehabilitation announced in Western Australia's Green Jobs Plan.

South West WA Employment Region



Why South West WA?

- Regional jobactive caseload is 7.2 per 100 (11th highest in Australia as at June 30).[2] Chance to employ displaced workers in the short term and improve tourism assets in the longer term.
- Internationally recognised biodiversity hotspot; over 50% of native vegetation has been lost.[3]
- Opportunity to scale up existing restoration programs run by local organisations.

Job creation and investment estimates are derived Climate Council and Alpha Beta's Clean Jobs Plan and CPD analysis. [1] Low Carbon Local Tourism Stimulus Package, Clean State, 2020. [2] Australian Government Labour Market Information Portal, "jobactive Caseload Data - September 2015 to June 2020" [3] South West Environmental Snapshot, South West Catchments Council, 2020.

Creating jobs: Ecosystem restoration in South West WA

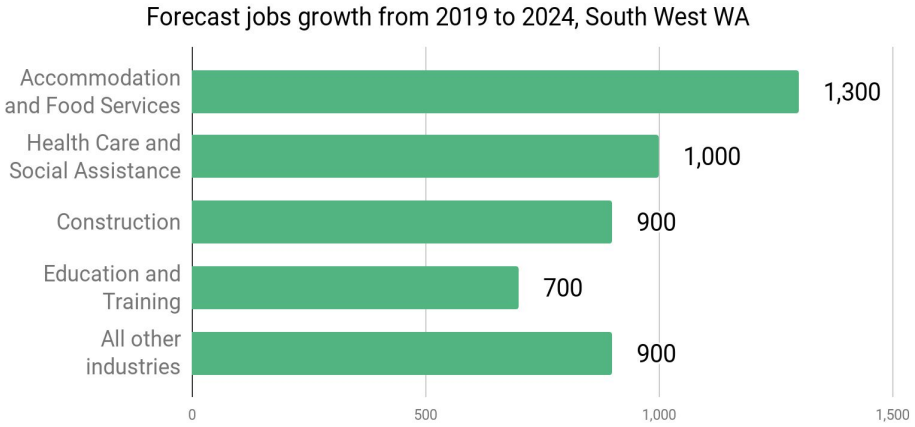
South West WA is highly exposed to COVID-19 border closures

#1 Most visited region in regional WA[1]

$1.6b Spent by overnight visitors in 2019[2]

28% Of tourism jobs have been lost across WA[3]

Four industries comprise 80% of forecast jobs growth in South West WA, led by tourism-dependent Accommodation and Food Services[4]



Ecosystem restoration can rapidly employ displaced low-skilled workers and provide on-the-job training[5]

- 67% of jobs require no formal qualifications or prior experience.
- Jobs can occur in a COVID-safe environment, maintaining social distancing.
- Programs can be designed to build practical skills such as surveying, fencing, seeding and planting as well as transferable skills such as teamwork, communication, job readiness and program management.

Workers can return to growing industries as regional economy recovers

- The largest medium-term job growth in South West WA is expected in Accommodation and Food Services, Healthcare and Social Assistance, Construction, and Education and Training. Upskilled workers can transfer into these higher-growth sectors as the economy recovers over several years.
- Restoration projects can be designed to enhance regional tourism. For example, the Great Southern Biodiversity Link Trail in Southern WA attracts visitors to Gondwana Link restoration areas for digitally-assisted eco-tourism experiences.

[1] Local Government and Tourism Discussion Paper, WALGA [2] Overnight Visitor Fact Sheet 2019 - Australia's South West, Tourism WA [3] Low Carbon Local Tourism Stimulus Package, Clean State, 2020. [4] Employment Projections by Industry, Australian Government Labour Market Information Portal. [5] Delivering economic stimulus through the conservation and land management sector, EY, 2020.

Policy opportunity: Sustainable transport infrastructure

Policy description

- Governments can accelerate planned spending on public and active transport infrastructure (e.g. the Australian Government has announced a $1.5 billion infrastructure investment in response to COVID-19).
- Given the increase in bicycle use during COVID-19, there are further opportunities to accelerate investment in active transport to secure more jobs.[1]

Where is it effective?

- Metropolitan areas where existing transport infrastructure projects have been identified and are 'shovel ready' (e.g. Victoria's Suburban Rail Loop)
- Option to scale up smaller scale grant-based local transport programs in areas with higher unemployment.

What is good practice?

- Projects should only be selected if the required corridors are secured.
- Investment in complementary programs to ensure adoption of infrastructure (e.g. educational campaigns about the benefits of active transport)

How does this option compare with alternatives?

Economic impact		• **6.0 jobs created per $1m** of public investment. Each dollar of public investment can unlock ~$0.5 of private funding, for example through public-private partnerships.[2] • Active transport projects have health and auxiliary benefits. For example, every $1 invested in cycling infrastructure in Queensland returned almost $5 in health benefits, reduced traffic congestion and other benefits.[3]
Timeliness and ease of implementation		• Very timely for smaller projects or larger projects where corridors have been approved. • Larger infrastructure projects risk delays and cost overruns if not well-planned and managed
Alignment with energy transition		• Sustainable transport systems can lower greenhouse gas emissions by shifting mobility patterns to low-emissions modes (e.g. cycling, walking, public transport, electric vehicles). • Additional benefits include reduced air & noise pollution and traffic congestion.[4]

[1] Pedalling to a better normal, Bicycle Network 2020, [2] Clean Jobs Plan, Climate Council and AlphaBeta, 2020 [3]Queensland Cycling Strategy 2017-2027 [4] Green Transport Creates Jobs, Bicycle Network 2020

Priority Initiative: Active transport infrastructure in Cairns, QLD

400	5 to 1	50k	$65m
jobs created over three years	benefit to cost ratio for cycling infrastructure [1]	people living within range of active transport routes	of public investment

The opportunity

Accelerate development of Cairns' active transport network to enable a safer, healthier, lower-emitting community where more people walk and cycle.[2]

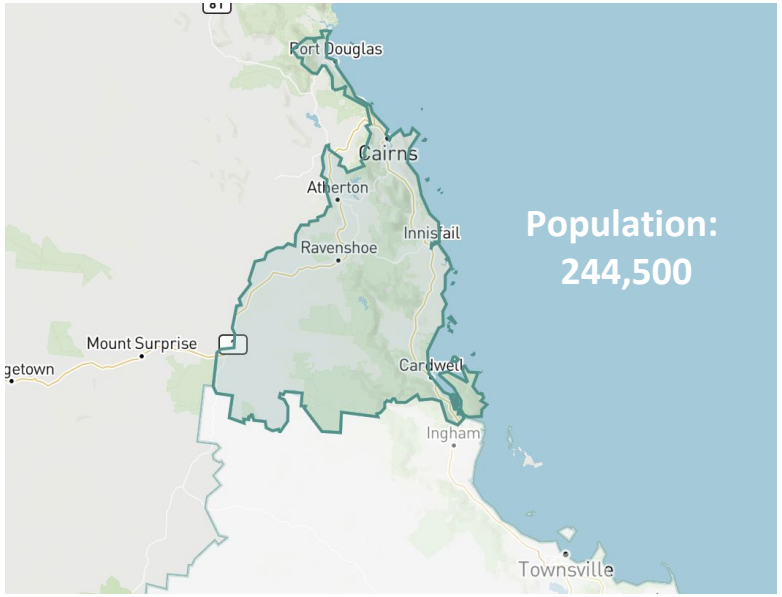
1. **Develop a safe and connected network**: bring forward a prioritised program of works to complete 50% of the $130m of investments identified in the Cairns Cycling and Walking Strategy (2018) within three years. Prioritise safe routes within 3km of schools.

2. **Provide supporting infrastructure**: provide wayfinding signage in major active transport corridors, after auditing the network to identify priority locations.

3. **Encourage and promote use:** deliver targeted programs to support and encourage active travel to schools, coordinating with delivery of infrastructure.

4. **Plan walk and cycle friendly communities**: apply best practice design principles and incorporate revised active transport network plans into broader local government planning instruments.

Cairns Employment Region



Why Cairns?

- Highest jobactive case rate in Queensland and second highest in Australia (9.5 per 100 people at June 30).[3]
- Less resilient to job losses given distance from other employment hubs.
- Short trips are suitable for walking and cycling (62% of population live within 10km of Cairns CBD, 40-70% of students live within walking/cycling distance of school).
- Above average recreational cycling & walking levels with suitable topography.

Job creation and investment estimates are derived Climate Council and Alpha Beta's Clean Jobs Plan and CPD analysis. [1] Queensland Cycling Strategy 2017-2027 [2] Cairns Cycling and Walking Strategy, Cairns Regional Council. [3] Australian Government Labour Market Information Portal, "jobactive Caseload Data - September 2015 to June 2020"

Creating jobs: Active transport infrastructure in Cairns, QLD

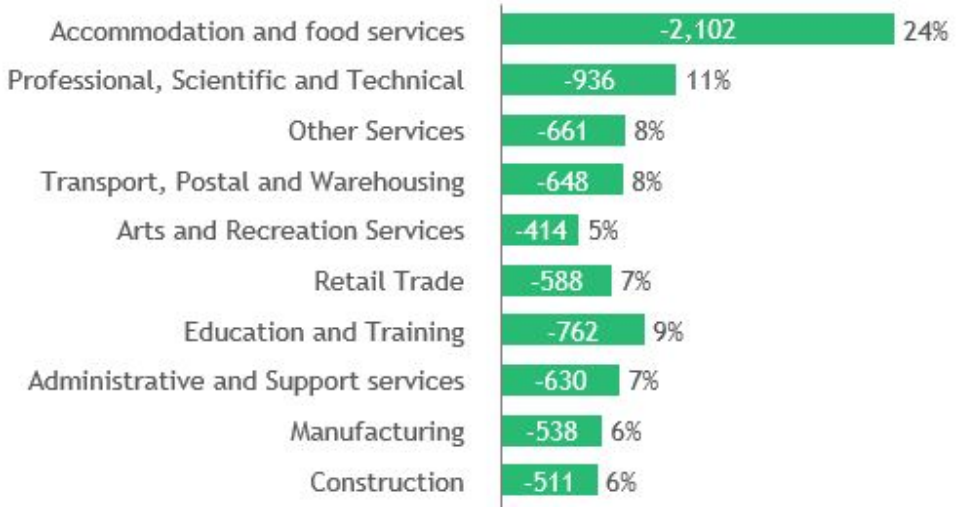
Cairns has up to 28k jobs at risk and relies heavily on tourism and construction industries[1]

21k Jobs covered by JobKeeper payments in addition to ~8k job losses

15% Workforce employed in tourism industry pre-COVID (#1 industry)

12% Workforce employed in construction industry pre-COVID (#3 industry)

Job losses during COVID-19 in Cairns (June Quarter 2020 vs 2019)[1]



Jobs can be targeted towards disadvantaged job seekers within the context of QLD's social procurement framework

- **Construction industry particularly influenced by social procurement frameworks:** Social procurement targets were reported by employers in the construction industry as being particularly effective at creating scalable employment opportunities for refugees and other disadvantaged groups.[2]
- **Can be tailored for specific needs of Cairns populations:** Employment targets can be designed in response to the needs of specific places, communities and projects, such as young people who might otherwise take longer to leave the jobactive system
- **Has been demonstrated in practice:** CPBJH[3] secured a West Gate Tunnel Project contract with employment targets including women, retrenched automotive workers, Aboriginal people, migrants, people with a disability, young people and the mature-aged.

Cycling and walking infrastructure produces additional employment outcomes vs other infrastructure

- Cycling and walking infrastructure projects create more jobs per dollar than other transport projects (up to 50% more).[4]
- Cycling improves community connections, increasing participation in social activities and employment, and patronage of local shops and cafes.[5]

[1] Cairns Regional Council, Cairns Economy Impacts from COVID-19 [2] CPD research on engaging business in refugee employment. [3] Joint venture between JPB partners and John Holland. [4] Garrett-Peltier, Pedestrian and bicycle infrastructure: A national study of employment impacts (USA), 2011. [5] Victorian Cycling Strategy 2018-28

Appendix (1/2): How we estimated employment impacts

Estimating the scale of proposed regional initiatives

We estimated a feasible and effective scale for each of the four regional stimulus proposals by reviewing existing and proposed programs for similar policy types and considering the region's size, economic and labour market characteristics, and capacity for delivery.

For example, the active transport initiative in Cairns proposes to accelerate the construction of new walking and cycling corridors identified in the Cairns Walking and Cycling Strategy. The proposed $65m of works over three years would equate to a 12% increase in Cairns Regional Council's annual capital works program. We judge this to be feasible based on existing planning, Cairns' spare workforce capacity in the construction industry, and conversations with local stakeholders.

Estimating direct jobs impact

Our jobs estimates build on the findings of AlphaBeta in estimating the direct job creation impact of transition-aligned stimulus policies.[1] Using this method, direct jobs impact is estimated based on:

a. Scale of investment, including both public investment and private sector co-investment;
b. Labour intensity of the sub-industries involved in delivering the stimulus policy, weighted according to their contribution to the required output.

We adopted Alpha Beta's estimates of job-creation efficiency of particular stimulus policy types (e.g. residential building retrofits) and applied them to the scale of investment identified in our regional proposals.

Initiatives that involve more labour intensive industries and can attract a higher ratio of private sector co-investment can generate more jobs per $1 million of public investment.

Direct jobs versus indirect and induced jobs

Economic evaluations often differentiate between direct, indirect and induced job impacts. This report estimates only direct impacts: the jobs created by the agencies and firms directly involved in delivering the goods and services required for the stimulus measures.

Indirect jobs are those created in the supply chains that serve the industries involved in directly delivering the goods and services required for the stimulus programs. Induced jobs are created by a general rise in consumption linked with the stimulus policy, for example when a worker employed to deliver a stimulus initiative spends her income in the local economy.

The equilibrium impacts of policy measures are difficult to estimate accurately, especially when the economic context is rapidly changing. This report therefore focuses on direct jobs only.

As demonstrated by table on the following slide, the job creation estimates in this report are broadly in line with other estimates from Australia, the UK and US, some of which incorporate indirect and induced job impacts.

[1] See Clean Jobs Plan, Climate Council and AlphaBeta, 2020.

Appendix (2/2): Comparing job creation estimates with other research findings

Job creation estimates used in this report are broadly in line with the findings of other studies in Australia, the US and UK.

	Job creation estimates per AUD 1 million of public investment*					
	This report[1]	**Briggs et al, UTS (2020, AU)[2]**	**EY (2020, AU)[3]**	**Krebel et al (2020, UK)[4]**	**Garrett-Peltier (2017, US)[5]**	**Garrett-Peltier (2011, US)[6]**
Renewable energy infrastructure	6.7 (utility scale) 12 .4 (small scale)	5.0-6.8 (utility scale) 10.8 (rooftop PV)		9.0	5.5	
Building efficiency retrofits	5.3 (public buildings) 7.9 (residential)			9.0 (residential)	5.6	
Ecosystem improvement	6.7		13.4	15.2		
Sustainable transport infrastructure	6.0			8.9 (walking and cycling)	6.5 (mass transit and freight rail)	8.3 (cycling) 7.3 (pedestrian)

* The estimates shown in this table have been converted into a common measure and currency (jobs created per AUD 1 million of public investment) for ease of comparison.

[1] Estimates used in this report are derived from analysis published in the Clean Jobs Plan, Climate Council and Alpha Beta. [2] Briggs et al, UTS Renewable Energy Jobs in Australia – Stage 1, prepared for the Clean Energy Council. Note: Briggs et al estimate jobs per MW; we converted these into jobs per $1m based on CPD analysis. [3] Delivering economic stimulus through the conservation and land management sector, EY, 2020. [4] Krebel et al, Building a Green Stimulus for COVID-19, New Economics Foundation. [5] Garrett-Peltier, Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model, Economic Modelling (61). [6] Garrett-Peltier, Pedestrian and Cycling Infrastructure: A National Study of Employment Impacts, University of Massachusetts.