

RESEARCH BRIEF

15 February 2016

52,000 new jobs for WA: how strong climate policies create jobs and cut pollution

Research commissioned by the Australian Conservation Foundation and the Australian Council of Trade Unions indicates that strong policies on climate change and energy would generate an additional 52,700 additional jobs in Western Australia by 2030, and 126,100 jobs by 2040. Many of these new jobs would be in regional areas.

The research is based on comprehensive modelling undertaken by the National Institute of Economic and Industry Research.

Cutting pollution and powering WA with clean energy would help create a fairer, better WA in which communities and all living things can thrive. The Western Australian Government needs to take steps to capitalise on the opportunities presented by renewable energy now, especially in the absence of clear, long-term national targets and strong federal climate and energy policies.

Project type	Description	Area	Total Investment
Renewable energy	Cunderdin Solar Farm (100MW)	Cunderdin	\$160 million 634 jobs
	Emu Downs Solar Farm (20MW)	Cervantes	\$47.2 million 100 jobs
Public transport	Aubin Grove Station - Bus station with passenger and bike facilities	Perth	\$125 million
	Charles Street Bus Bridge - New bus bridge with additional bus lanes in Perth	Perth	\$32.1 million
	Ellenbrook Bus Rapid Transit Way - Nine-kilometre continuous connection between Ellenbrook Town Centre and Marshall Road	Perth	\$55 million
	Forrestfield Airport Link - A new train line that will connect Forrestfield to the city, opening up Perth's eastern suburbs to the rail network for the first time	Perth	\$1.86 billion
	Perth Stadium Transport - An integrated train, bus and pedestrian approach for Perth Stadium to reduce reliance on cars	Perth	\$298 million

Table 1: Examples of current West Australian projects that are consistent with strong action on climate change.

Global warming has real potential to damage the communities and the natural heritage of Western Australia.

This is a fact exacerbated by fossil fuel and coal-fired generation companies that continue to extract fuels that should be left in the ground. Only 13 per cent of Western Australia's electricity comes from renewable sources. Western Australia has no policy beyond a vague alignment to the national carbon pollution reduction and renewable energy targets.¹

The good news is that research indicates that strong national action on climate, through supporting renewable energy, energy efficiency and public transport would not only help curb global warming, it could generate 52,700 more jobs in Western Australia by 2030 than the current climate policy settings, a figure that would climb to 126,100 by 2040.

This report shows how the next West Australian Government, by setting strong climate and energy policies, can make decisions that support life in Western Australia, not damage it.

The global challenge

Under the Paris Agreement 195 nations agreed to work towards limiting the world's temperature rise to well below 2 degrees and to continue to pursue efforts to limit the temperature rise to 1.5 degrees.²

In the last few years there has been a massive shift towards investment in new renewable energy and energy efficiency. More than 70 per cent of investment in new power plants – more than \$290 billion – went towards renewable energy projects in 2015. The price of renewables continues to plummet (for example, since 2011 the price of installed solar has dived 80 per cent) and 2015 was the first year that investment in new renewables was more than enough to cover rising global electricity demand.³

Unfortunately, Australia isn't pulling its weight in the international effort to address global warming. As part of the Paris Agreement, the Australian federal government committed to reduce Australia's emissions by 26–28 per cent on 2005 levels by 2030. This is much lower than the Climate Change Authority's recommendation of 40–60 per cent on 2000 levels by 2030.⁴ Even this figure only offers a 67 per cent chance of keeping global warming below 2 degrees,⁵ an even stronger target of 80 per cent would be needed to provide certainty.

Since coming to office in September 2013 the Coalition has made no progress in reducing Australia's overall levels of climate pollution. In fact, there is an upward trend. In its first

¹ Clean Energy Council, [Clean Energy Australia Report 2015](#), June 2016, p.4

² UNFCC, [Historic Paris Agreement on Climate Change](#), December 2015

³ ReNewEconomy, [Seven charts show new renewables outpacing rising demand for first time](#), September 2016

⁴ CCA, [Final report on Australia's future emissions reduction targets](#), July 2015, p.1

⁵ CCA, [Special Review Draft Report](#), April 2015, p.20

June quarter in Government (June 2014) emissions were at 131.5 million metric tonnes of carbon dioxide equivalent (Mt CO₂-e). In the June 2016 quarter, they were at 134.4 (Mt CO₂-e), an increase of 2.2 per cent.⁶

A report by RepuTex shows existing policies, instead of achieving a 26–28 per cent decrease in carbon emissions, would in fact make Australia’s climate pollution increase between now and 2030.⁷

Australia’s failure to take effective action has frustrated the international community. Prior to the recent UN climate summit in Marrakech, the Australian Government received more than 30 questions from key trading partners, asking why a downwards trend had become an upward one and how Australia plans to meet its 2030 targets.⁸

This failure to take effective action is unacceptable given the scale of the threat, one that is already becoming a reality, with 2016 officially the hottest year on record, surpassing 2015, which itself topped the previous hottest year, 2014.⁹

Global warming is making bushfires more frequent, droughts more devastating and natural wonders like the Great Barrier Reef – which sustained the largest die-off in 2016, due to recent coral bleaching¹⁰ – more vulnerable to future damage. While WA’s world-famous Ningaloo Reef was largely spared the mass bleaching event in 2016, coral reefs further north were not so fortunate, with marine scientists reporting up to 80 per cent of some coral reefs off the Kimberley were “bleached a ghostly white”.¹¹ The impact on livelihoods from loss of coral reefs has the potential to be catastrophic and global.

To add to this, Australia is falling behind in the renewable energy race. The world is set to invest US\$28 *trillion* in renewable energy and energy efficiency by 2035 – more than coal, oil and gas combined.¹²

Australia should be a renewable energy superpower. Instead we are missing the chance to create thousands of jobs in Western Australia and many more across the nation.

The jobs potential of strong climate and energy policies

ACF’s report [Jobs in a clean energy future](#), delivered in collaboration with the Australian Council of Trade Unions (ACTU), using research by the National Institute of Economic and

⁶ Department of the Environment, [Quarterly Update of Australia’s National Greenhouse Gas Inventory: June 2016](#), p.29, December 2016

⁷ Reputex, [Framing Australia’s 2030 Energy and Climate Policy Mix](#), September 2016, p.4

⁸ UNFCCC, [Session SB145 \(2016\)](#), October 2016

⁹ ‘[Scientists declare 2016 the hottest year on record. That makes three in a row.](#)’ *Washington Post*, January 2017

¹⁰ ARC Coral Reef Studies Centre of Excellence Bleaching Mortality media release, 29 November 2016. <https://www.coralcoe.org.au/media-releases/life-and-death-after-great-barrier-reef-bleaching>

¹¹ ABC News, [Coral bleaching off WA coast confined to Kimberley, Environment Minister says](#), 26 April 2016

¹² BZE, *Renewable Energy Superpower*, October 2015, p.VI

Industry Research (NIEIR), showed how strong energy policies can result in a million new jobs across Australia.

The research employed dynamic integrated economic modelling to show the effect on jobs of two different carbon abatement scenarios and compared these to business as usual (BAU) federal policy.

The results for Western Australia are summarised in the table below.

Scenario	Description	Abatement methods	Additional WA jobs by 2030	Additional WA jobs by 2040
'Business as usual'	Current federal policy without further intervention.	Current	None	None
Medium policy response	CO ₂ abatement budget of \$10 billion per annum in real terms funded by the revenue from a modest carbon price.	Increased renewable energy generation and battery storage, expanded public transport, reduced traffic congestion through strategic road investments and carbon pricing	27,800	49,700
Strong policy response	80% reduction on 2005 carbon emission levels by 2040.	As above with additional investment in general energy efficiency and the development of biofuel or biodiesel.	52,700	126,100

Table 2: Additional jobs created in Western Australia by stronger climate change energy policies

The report shows strong climate and energy policies decouple climate pollution from economic growth, dramatically reduce emissions, create new high-quality jobs and improve industry efficiency.

Many of these jobs would be in regional areas and could provide employment opportunities needed to keep regional communities alive.

Western Australia energy and pollution reduction objectives

The Western Australian Government has little in the way of specific climate action or renewable energy objectives, stating only that it will “contribute to the national renewable energy target of 20 per cent renewable generation by 2020”.¹³

This places Western Australia behind several other states and in a poor position to make the most of the wealth of opportunities strong climate and energy policies have to offer.

¹³ Government of Western Australia, [Renewable Energy](#)

However, with the state election looming the different parties have issued statements that suggest this could change.

The different policies of the parties which might help tap into the wealth of job opportunities that strong action on climate change provides are outlined in the table below.

Party	Commitments
Liberals	No new carbon reduction or renewable energy targets. There are several public transport pledges however including the expansion of Perth’s ferry networks and a new rail line in Southern Perth. ¹⁴
Labor	No specific targets aside from a commitment to: <ul style="list-style-type: none"> ● Promote local and overseas investment into renewable technology manufacturing. ● Encourage research intensive programs into renewable energy and battery technology in local universities. ● Encourage the development of off-the-grid solutions and technologies. ● Work with technology companies, universities, TAFE and electricity utilities in a precinct to provide opportunities for emerging battery technologies.¹⁵ ● Launch a feasibility study for a 115 MW solar thermal plant in the Goldfields, Kalgoorlie, a \$600 million project that is projected to generate 1,500 jobs in the area.¹⁶ ● Invest in a passenger train network for Perth - Metronet. ● Support the establishment of a wave energy plant in Albany.¹⁷ ● \$30 million to support the establishment of a solar farm in Collie.¹⁸
Nationals	No specific climate action policy announcements.
Greens	<ul style="list-style-type: none"> ● Recently released a roadmap for transitioning Western Australia’s South-West grid to 100% renewable energy by 2030, creating 12,000 jobs a year.¹⁹ ● Have a policy to fund the expansion and improvement of the public transport system, including an urban light rail system for Perth.²⁰ ● Several measures to raise energy efficiency standards of new builds and community engagement with energy efficiency measures.
One Nation	There is no human-induced climate change. ²¹

¹⁴ ABC, [Public transport, health, education main topics on day three of WA election campaign](#),

February 2017

¹⁵ WA Labor, [Plan for Jobs](#), 2017

¹⁶ The West Australian, [Labor promises solar plant study](#), February 2017

¹⁷ <https://www.markmcgowan.com.au/albany>

¹⁸ <https://www.markmcgowan.com.au/collie>

¹⁹ WA Greens, [Energy 2030: Making WA 100% renewable by 2030](#), February 2017

²⁰ Greens WA, [Climate Change and Energy](#), 2017

²¹ Pauline Hanson’s One Nation, [Affordable Energy - Climate Science](#)

Table 3: Broader policies of the different political parties which are consistent with strong action on climate change, based on information available on 7th February.

Modest foundations: Spruiking the past, squandering the future

Western Australia generates 13.3 per cent of its electricity from renewable sources. The growth of renewables in the state has been held back by years of backwards climate policy at the national government level. The lowering of the national Renewable Energy Target (RET) caused national investment levels in renewables in 2014–15 to fall to nearly half the average annual investment seen in the years 2010–13, with \$5–6 billion of foregone investments in total.²²

The lack of ambition in Western Australia is also an issue. The state has some of the best solar and wind potential in Australia, not to mention some of the best wave and tidal resources. In the north of the state, the solar resource is so great that an area the size of a cattle station near lake Argyle could provide enough solar power to meet all of Australia's energy needs and have a surplus for a healthy export industry to Asia.²³

However, though WA has benefitted from the RET historically with the establishment of some wind farms, it has done little to independently stimulate the growth of the renewable energy industry in the state to capitalise on this huge potential. Instead the government's position has been to reach the RET by buying certificates generated in eastern states.²⁴ So the jobs and economic benefits for regional Western Australia that would have flowed from fostering a local renewable energy industry have been snapped up by other states.

In February 2017 the Clean Energy Council noted that there are more than 20 large-scale renewable energy projects in Australia currently under development. This represents \$5 billion of investment, creating 3000 jobs in regional areas.²⁵ However only one of these projects, the Emu Downs Solar Farm (which will create 100 jobs), is being built in Western Australia. Western Australians are missing out because of the state government's decision to subsidise the growth of this key industry in other states.

Instead the WA Government has decided to spruik the regional jobs potential of the controversial uranium industry. The WA Environment Minister recently wildly over-rated the sector's value stating, "The four uranium mines either approved or under consideration in WA could generate royalties of between \$60 million and \$100 million per annum. These mines would create an estimated 1500 jobs and a \$1 billion export industry."²⁶ The reality is somewhat different, as seen this week when Canadian uranium miner Cameco – which

²² Climate Council, [Game On: The Australian Renewable Energy Race Heats Up](#), May 2016, p.6

²³ ReNew Economy, [North Australia's electrifying future: powering Asia with renewables](#), August 2013

²⁴ ReNew Economy, [Synergy tenders for renewable energy projects and certificates](#), November 2015

²⁵ Clean Energy Council, [New renewable energy projects point to biggest year for industry since Snowy Hydro](#), February 2017

²⁶ The West Australian, [Minister calls on Labor to support uranium mining](#), Thursday 2017

owns the two principal uranium deposits in WA – Yeelirrie and Kintyre, wrote down the full value of the Kintyre deposit due to the depressed commodity price.²⁷

“The Saskatoon-based miner took a \$124-million hit after deciding to shut down its Rabbit Lake milling facility in the second quarter last year, and wrote off the full \$238-million value of its Kintyre development project in Australia this past quarter”.

The jobs claim is also a huge overstatement. According to IBISWorld’s March 2015 market report, 987 people are employed in Australia’s uranium industry.²⁸ Thus the uranium industry accounts for less than 0.01 per cent (0.0084 per cent) of jobs in Australia, a tiny amount compared to the jobs potential of strong action on climate change as demonstrated by the 3,000 jobs created by renewable energy in 2017 alone. It also attracts minimal revenue. In the 2013/14 financial year, uranium accounted for 0.19 per cent of national export revenue (\$622 million out of \$332 billion).²⁹ ³⁰ Uranium mining is not and never will be a significant source of employment in Australia. Few jobs and dollars, considerable damage at home and escalating risk abroad.

Similarly, the WA government has been keen to attract investment in a large LNG industry. There are many reasons to cast doubts on the long-term jobs and investment potential of this industry. Bloomberg New Energy Finance are already predicting that the ‘golden age’ of gas will never happen due to the rapid decline in the cost of wind and solar, leading to a low peak for gas consumption in 2025.³¹

Why is the West Australian Government so keen to spruik controversial industries which clearly have a limited value and shelf-life while squandering the genuine long-term job opportunities a thriving renewable energy industry would provide?

In contrast to their government, the people of Western Australia have been quick to realise the potential of renewable energy, with solar PV installed on 22.5 per cent of all rooftops, making rooftop solar the largest ‘power station’ in the state!³² This industry supported nearly 2,000 direct full-time jobs across the state at its height in 2011-12, a number that halved to just over a thousand in 2014-15.³³ Encouragingly the industry has started to pick up again with demand for rooftop solar growing 33 per cent last year as the technology becomes cheaper.³⁴

Recently Renew WA was established, the broadest climate coalition in the state’s history. This alliance is currently calling on the government to establish state specific renewable

²⁷ CTV News Saskatoon, [Cameco swings to \\$62-million loss on write-downs as uranium market drags](#), February 2017

²⁸ IBISWorld, [Uranium Mining in Australia: Market Research Report](#), accessed July 2015

²⁹ World Nuclear, [Australia](#), December 2016

³⁰ Minister for Trade and Investment, [Australia’s exports strong in 2013-14](#), August 2014

³¹ BNEF, [The World Nears Peak Fossil Fuels for Electricity](#), June 2016

³² ReNew Economy, [Western Australia’s rooftop solar now state’s ‘biggest power station’](#), January 2016

³³ ABS, [4631.0 - Employment in Renewable Energy Activities, Australia, 2014-15](#), March 2016

³⁴ ABC, [West Australians embrace solar panels at record rate](#), January 2017

energy targets for 2020 and 2025 to achieve 100 per cent by 2030. These groups are also calling for energy efficiency targets and for the next Government of WA to promote the growth of a local renewable energy industry.³⁵

The state government announced in August 2016 that it will now try to satisfy the RET by buying certificates “produced locally”.³⁶ This is an encouraging if small first step.

The potential

There are several opportunities to expand on these modest beginnings to make Western Australia a centre for renewable energy.

- ARENA is contributing funding to the 20MW Emu Downs Solar Farm, a project worth more than \$47.2 million in investment that will create 100 direct jobs in Cervantes.³⁷
- A 100MW solar farm is expected to be built in Cunderdin, the state’s largest to date, representing a \$160 million investment³⁸ and potentially creating up to 634 jobs in the area.
- There is a ‘huge pipeline’ of proposed wind and solar projects in Western Australia. In total, the Federal Department of Industry, Innovation and Science recorded 285 MW of solar and 1,408MW of wind projects currently at the feasibility stage, worth \$1.2 billion and \$1.6 billion of investment respectively.³⁹ The solar projects alone could generate 1,807 direct jobs in regional areas.⁴⁰
- Beyond Zero Emissions’ and the Energy Research Institute’s Zero Carbon Australia Stationary Energy Plan, released in 2010, shows solar thermal can provide more than 60 per cent of Australia’s energy supply.⁴¹ Two of the sites proposed for 3,500 MW solar thermal plants are near Carnarvon and Kalgoorlie.⁴² If the Stationary Energy Plan were implemented it would create more than 10,832 jobs at peak installation and more than 4,500 ongoing jobs in operations and maintenance for these facilities.⁴³ These facilities would eliminate the need for peaking gas plants which have been causing high price spikes throughout Australia, price spikes that some have wrongly blamed on renewable energy.⁴⁴
- Another Beyond Zero Emissions report released in 2016 found the Pilbara region could be a major producer and exporter of hydrogen fuel cells, created using solar energy. This is due to its land and solar resources, port and LNG pipeline infrastructure that

³⁵ Renew WA, [About](#), January 2017

³⁶ The West Australian, [Green-power surge for WA](#), August 2016

³⁷ Clean Energy Council, New renewable energy projects point to biggest year for industry since Snowy Hydro, February 2017

³⁸ ABC, [Investors keen to back Western Australia’s largest solar farm](#), October 2016

³⁹ DISS, [Electricity Generation Major Projects](#), November 2015, p.27

⁴⁰ See footnote 20

⁴¹ BZE, [Zero Carbon Australia Stationary Energy Plan](#), June 2010, p.45

⁴² BZE, [Zero Carbon Australia Stationary Energy Plan](#), June 2010, p.46

⁴³ BZE, [Zero Carbon Australia Stationary Energy Plan](#), June 2010, p.108-109, total figures divided by six to represent 2 of the 12 proposed plants being centred in Queensland.

⁴⁴ Climate Council, [The Perfect Storm: Analysing the Role of Gas in South Australia’s Power Prices](#), August 2016

can be repurposed for use in the production of hydrogen fuel cells for domestic use and export to Asia.⁴⁵ The jobs potential of such an industry is enormous and, crucially, is sustainable for the long term.

These opportunities relate to large scale renewables which would be centred in regional areas, potentially providing a much-needed boost for regions. In addition, there's huge potential to scale the domestic solar PV industry, especially as battery storage is expected to become more affordable and commonplace by 2020.⁴⁶ Solar PV has the potential to create jobs wherever there are rooftops.

Efficiency

Strong climate and energy policies also lead to significant growth in jobs in energy efficiency and public transport, both of which are key to tackling climate pollution.

The Western Australian government took an encouraging step towards generating these opportunities when it noted in 2010 that energy efficiency would be an important element of its energy vision. That report committed to developing "arrangements (including those relating to national standards) to support energy efficiency improvements among residential and commercial consumers."⁴⁷ As yet there have been few statewide programs designed to support energy efficiency schemes. This is a missed opportunity. Concerted investment in energy efficiency would pay dividends in money saved on electricity bills and could create thousands of jobs across the state.

Public transport driving growth up and emissions down

Building public transport infrastructure minimises car and commercial vehicle use, cuts travel times and associated pollution and helps ease congestion in cities. Public transport infrastructure expenditure also has CO₂ abatement benefits, particularly when it concentrates on public transport powered by renewable energy.

Investing in public transport:

- Minimises car and commercial vehicle travel times and therefore CO₂ emissions per kilometre travelled; and
- Reduces the use of cars and commercial vehicles by changing the structure of travel towards buses, trams and trains.

This is besides the considerable economic and social benefits that flow from public transport services. Encouragingly the Western Australian Public Transport Authority is working on several public transport projects (see table below).

⁴⁵ BZE, [Renewable Energy Superpower](#), October 2015, p.35

⁴⁶ BNEF, [Bloomberg New Energy Outlook 2016: Executive Summary](#), June 2016, p.3

⁴⁷ Government of Western Australia, [Strategic Energy Initiative: Energy 2031](#), August 2012, p.23

Project	Purpose	Stage	Potential cost
Aubin Grove Station	Bus station with passenger and bike facilities	Under construction	\$125 million
Charles Street Bus Bridge	New bus bridge with additional bus lanes in Perth	Under construction	\$32.1 million
Ellenbrook Bus Rapid Transit Way	Nine-kilometre continuous connection between Ellenbrook Town Centre and Marshall Road	Expected to open early 2018	\$55 million
Forrestfield Airport Link	A new train line that will connect Forrestfield to the city, opening up Perth's eastern suburbs to the rail network for the first time	Expected completion in 2020	\$1.86 billion
Perth Stadium Transport	An integrated train, bus and pedestrian approach for Perth Stadium to reduce reliance on cars	Completion initially proposed for January 2017	\$298 million

Table 4: Upcoming public transport projects in Western Australia. Source: Western Australian Public Transport Authority⁴⁸

Projects such as the Forrestfield Airport Link can boost the jobs and economic growth of areas indirectly too by creating economic centres around the new stations. Projects like this could just be the start. If more funding was made available for public transport as part of a federal and state commitment to strong action on climate change, regions and cities would have a further chance to flourish.

Conclusion

Strong climate and energy policies are not a threat to jobs and growth – they present a viable future for communities throughout Western Australia. However, at present the state government has aligned itself with the weak climate and energy policies of the federal government, even though it is uniquely positioned to capitalise on the opportunities renewable energy presents.

Consequently, Western Australians are missing out.

It's not too late. Western Australians have a chance for a better future by demanding stronger climate and energy policies from every candidate contesting March's state election and from the federal government as it reviews its climate policies this year.

⁴⁸ PTA, [Projects](#), 2017