



LIVING WITH GLOBAL WARMING

Backing firefighters and communities

Preparing for fires, droughts, rising seas, extreme weather

Ours is the driest inhabited continent on earth with huge coastal cities. We must urgently cut climate pollution, but some dangers are now inevitable. The Greens will double the number of firefighters and protect our communities, funded by a levy on the thermal coal exports fuelling global warming.

We are already feeling the impacts of global warming. This year, 2016, is set to be the hottest on record, breaking the records set in 2014 and again in 2015. With just 1 degree of warming, we already have mass bleaching on the Great Barrier Reef, and swathes of Tasmania's ancient wilderness have burned out of control. Global warming is also increasing the likelihood of catastrophic bushfires like the Black Saturday fires in Victoria in 2009 which killed 173 people.ⁱ

Dangerous global warming driven by pollution from burning fossil fuels represents a direct threat to Australia, already the driest inhabited continent on earth, and one with many millions of people living in coastal cities. We have the tools to fix this crisis and there are immense opportunities in jobs-rich clean energy, but some impacts are already unavoidable. The Greens have a plan to adapt to the impacts which are already "locked in", including working to double paid (career) firefighters by 2030.

> Key points

To better protect and prepare the Australian community, the Australian Greens will provide \$370 million over four years to:

- **Double the number of paid firefighters by 2030** with an initial \$120 million over the first four years of a 10 year plan.
- **Fund natural disaster preparedness** such as disaster proofing infrastructure, building resilience and supporting the SES, with \$200 million over four years by replacing the lapsed National Disaster Resilience Program with a new National Partnership Agreement for Climate Adaptation between federal, State and Territory governments.
- **Fund adaptation research** by keeping the National Climate Change Adaptation Research Facility and triple current funding which is due to expire in 2017 with funding of \$10 million per year.
- **Plan for rising seas**, with \$5 million in funding per year to support State and Local governments to plan for the already inevitable sea level rise.

- **A thermal coal export levy** of \$3 per tonne, raising \$650 million per year, will help to pay for these initiatives to account for damage caused by the burning of coal.

> Backing our emergency workers - doubling paid firefighters by 2030

Global warming is already increasing extreme fire weather and making fire seasons longer in eastern Australia.ⁱⁱ As a result of currently projected global warming, the Climate Council and the National Institute of Economic and Industry Research have warned that Australia will need to double the number of paid firefighters by 2030 compared with numbers in 2010 in order to deal with the additional impacts of extreme weather, bushfires, cyclones and floods.ⁱⁱⁱ This would mean an increase from 11,000 firefighters in 2010 to 16,000 by 2020 and 22,000 by 2030.

By 2050, the number of extreme fire weather days is projected to grow in southern and eastern Australia by 10-50% compared to the period 1980 to 1999, even with global pollution cuts.^{iv} Without pollution cuts, extreme fire days could treble. For example, in Victoria instead of a "catastrophic" blaze every 30 years or so, on average, we could face the prospect of a 'Black Saturday' level event every two or three years.^v

Our fire services - both rural and urban, volunteer and paid - are coming under increasing pressure with longer, hotter fire seasons and harsher extreme weather events. The "all hazards, all agencies" approach has seen emergency services no longer restricted to responding to one type of hazard. Fire services' expanding role as first responders in emergencies, and in building community resilience means that they are increasingly stretched.

In Queensland, increasingly dangerous cyclones and floods driven by global warming are already endangering our communities and vital infrastructure, and such extreme weather is projected to increase even with pollution cuts. For example, Cyclone Yasi and the 2011 Queensland floods delivered a \$6 billion hit to the state's economy.^{vi}

Currently, fire and emergency services are overwhelmingly funded by States governments, with different funding models around the country. The federal government only funds about 1% of fire services. In fact, since 2010-11, federal funding for firefighting has actually fallen by 40% from \$28 million to \$18 million.^{vii}

The Greens support the call from the Climate Council for a doubling of the number of paid firefighters by 2030. As the impacts of global warming intensify, the federal government must increase its contribution.

The Greens would make a **federal contribution towards this goal, of \$120 million over the first four years**, ramping up over the next 10 years from an additional \$25 million per year in 2016-17 to \$200 million per year by 2025-26, with further increases to 2030. In the first year, **the Greens' plan would more than double** the current federal contribution to firefighting resources to \$43 million per year in total. The federal contribution is just \$18 million as of 2014-15.^{viii}

Already, firefighters and firefighting equipment like specialised helicopters and planes are shared between States and even between Australia and other countries like the USA at times of high demand. Extra funding would go towards relieving the pressures on both personnel and equipment.

The funding would be delivered under a new National Partnership Agreement on Climate Adaptation and Disaster Preparedness, which would also deliver the Greens' commitments on natural disaster preparedness.

> Saving lives and saving money - preparing for natural disasters

Even if the world makes rapid cuts in pollution, extreme weather, floods, fires and other natural disasters are projected to increase with global warming. In Australia, only a tiny proportion of natural disaster funding is spent on preparedness. According to the Insurance Australia Group, emergency management experts generally accept that one dollar spent on risk mitigation can save at least two dollars in recovery costs.

Extra spending on disaster-proofing our infrastructure and building resilience in our communities will pay off in the long term.

Existing federal, State and local government bodies will continue to make decisions about infrastructure. These bodies will be better supported to make appropriate and informed decisions by the Greens' plan to extend funding for National Climate Change Adaptation Research Facility and create the Office for Climate Adaptation and Sea Level Rise.

The Productivity Commission has found that federal spending on disaster mitigation is inadequate and must be increased gradually to \$200 million per year,^{ix} but instead a crucial national funding program has been allowed to expire in July 2015. Previous funding has been woefully inadequate:

- The lapsed Natural Disaster Resilience program had \$26 million per year in federal funding.^x
- The National Bushfire Mitigation Program has only \$9 million per year in federal funding.^{xi}

The Greens will provide for an increase of \$200 million in federal funding over four years a new National Partnership Agreement on Climate Adaptation and Disaster Preparedness: Funding for the first four years would be \$50 million per year, gradually ramping up over time to \$200 million per year, meeting the Productivity Commission's recommendation.

This represents an increase on the current funding of \$9 million per year by **more than fivefold** the first year, along with an expanded scope.

Under the new National Partnership Agreement, funding would flow from the federal government to State, Territory and local governments to be spent on:

- Disaster preparedness works including barrages for unusual tides, levee banks, properly maintained fire breaks and access trails and improved flood drainage.
- Better supporting emergency services including the State Emergency Services (SES) to respond to and build community preparedness for natural disasters like floods, cyclones and bushfires.

> Research on climate adaptation

The role of the National Climate Change Adaptation Research Facility (NCCARF) has been to lead the national research community in generating the information needed by decision-makers in government and in vulnerable sectors and communities to manage the risks of global warming's impacts. Funding currently runs out in July 2017.

There have been 144 research projects involving several hundred researchers around the nation. Outputs from these studies are now feeding into decision-making in the public and private spheres. For example, the NCCARF assists local communities in interpreting the results of complex climate models, to help them make effective, science based decision about land-use planning. NCCARF's work has been especially important for coastal communities facing sea level rise, and rural communities facing increased bushfire risks.

Instead of allowing NCCARF's funding to expire in 2017, the Greens would **secure the future of NCCARF with a 5 year, \$50 million commitment**, at \$10 million per year, to allow it to continue work including:

- Continuing to work with rural and regional communities on issues such as water security and bushfire risk.
- Improving and trialing the decision-support tool *CoastAdapt* to improve local planning.
- Helping Australia's Asia Pacific neighbors like Indonesia and PNG who are exposed to sea level rise to make good planning decisions, reducing the risk of severe displacement and disruption in the future.

Funding NCCARF at \$10 million per year would more than triple current funding levels, and would restore NCCARF to its former level of funding before the Labor party cut funding in 2013.^{xii}

The Greens would also reverse the \$300 million in savage cuts to the CSIRO which has recently sacked some of its top climate scientists, including renowned experts on sea level rise and other issues relevant to climate adaptation. Read more about our separately costed plan to boost science and development to 4% of GDP [here](#).

> Planning for rising seas

Sea level rise threatens our Pacific island neighbours with the complete destruction of their homes, but many Australians are also at risk. Coastal areas in Brisbane, Byron Bay, Sydney and Melbourne face inundation and dangerous tides, storm surges and coastal erosion as sea levels rise. Low-lying areas of the Torres Strait Islands already experience flooding and extreme tidal surges.

The IPCC currently predicts that even with steep pollution cuts, seas will rise an average of up to 61cm. Without pollution cuts, seas could rise by 1.1 metre, while some scientists have raised the possibility of much larger rises.

Australia has \$226 billion worth of coastal infrastructure and homes at risk from coastal flooding, including railways, roads, houses, factories and offices. With just a 0.5m rise in sea levels, a “1-in-100-year” flood could occur every few months by 2100.^{xiii} Rising saline water also threatens national parks, wetlands and farmland.

Over half of Australia’s coastline, or 31,000 kms is at risk of coastal recession. Even with just a 0.5 metres rise, sandy shorelines could retreat by 25 to 50 metres.

Current approaches to planning for sea level rise are patchy and ad hoc, with some local governments making sensible long term plans, while others have not adequately addressed the threat of sea level rise.

The Greens would establish a national coordinating body, the Office for Climate Adaptation and Sea Level Rise with a budget of \$5 million per year to support State, Territory and local governments to plan for rising seas. The office would also lead ongoing assessments of the long-term implications of larger-than-expected sea level rise, including the concept of “planned retreat”.

> Paying for the damage – a coal export levy

Our plan to back our firefighters and adapt to global warming would be funded by an export levy on thermal coal.

The mining and burning of coal, including from Australian coal exports, is driving dangerous global warming which threatens to rob our children of their future. Transitioning our domestic energy supply away from coal fired power is crucial, but not sufficient, since about 90% of all coal we dig up is exported,

creating 1 billion tonnes of pollution per year. Even though thermal coal is in structural decline, coal mining companies can export coal without having to pay for the damage caused when that coal is burned.

The Greens have announced a thermal coal export levy of \$3 per tonne as part of [our plan to save the Great Barrier Reef from global warming](#). The Parliamentary Budget Office estimates that the levy will raise \$650 million a year from 2017, or \$2.4 billion over the next 4 years.

A levy will reduce incentives for coal companies to ship as much coal as they can, at whatever price they can get. It would not apply to destination countries with an effective price on pollution. The revenue raised by the levy would also help fund Australia’s transition to clean energy and climate finance for developing nations.

Costs table:

Measure (\$m)	16-17	17-18	18-19	19-20	Total 4 years
Doubling firefighters (under the new NPA)	25	25	30	40	120
Disaster Preparedness (under the new NPA)	50	50	50	50	200
Continue NCCARF funding	-	10	10	10	30
Planning for Rising Seas	5	5	5	5	20
Total	90	90	95	105	370

ⁱ Climate Council (2013) *Be Prepared: Climate Change and the Australian Bushfire Risk* <http://www.climatecouncil.org.au/uploads/c597d19c0ab18366cfbf7b9f6235ef7c.pdf> and Climate Council (2015) *The Burning Issue: Climate Change and the Australia Bushfire Threat* <https://www.climatecouncil.org.au/uploads/e18fc6f305c206bdafdc394c2e48d4a.pdf>

ⁱⁱ CSIRO and The Bureau of Meteorology, 2014, *State of the Climate 2014*, page 3. See also Climate Commission (February 2016) *True or False? Facts and myths about bushfires and climate change* [http://www.climateinstitute.org.au/verve/resources/2016_Bushfire_Factsheet - FINAL.pdf](http://www.climateinstitute.org.au/verve/resources/2016_Bushfire_Factsheet_FINAL.pdf)

ⁱⁱⁱ Climate Council (2015) *The Burning Issue: Climate Change and the Australia Bushfire Threat* <https://www.climatecouncil.org.au/uploads/e18fc6f305c206bdafdc394c2e48d4a.pdf>, page 16. National Institute of Economic and Industry Research (2103) *Firefighters and climate change: The human resources dimension of adapting to climate change Final and consolidated report* http://www.ufug.com.au/files/6613/6572/2205/NIEIR_Firefighters_and_Climate_Change_Final_and_Consolidated_report.pdf

^{iv} CSIRO and The Bureau of Meteorology (2014) *State of the Climate* 2014, page 15.

^v C. Lucas, K. Hennessy, G. Mills and J. Bathols (2007) *Bushfire Weather in Southeast Australia: Recent Trends and Projected Climate Change Impacts*, Consultancy Report prepared for The Climate Institute by Bushfire CRC, Bureau of Meteorology, CSIRO Marine & Atmospheric Research, page 3.

^{vi} Queensland Government (2011) State Budget 2011–12: budget strategy outlook. <http://www.budget.qld.gov.au/budget-papers/2011-12/bp2-2011-12.pdf>

^{vii} Productivity Commission (2016) *Report on Government Services 2016, Volume D: Emergency management* <http://www.pc.gov.au/research/ongoing/report-on-government-services/2016/emergency-management/rogs-2016-volumed-emergency-management.pdf>

^{viii} Productivity Commission (2016) *Report on Government Services 2016, Volume D: Emergency management* <http://www.pc.gov.au/research/ongoing/report-on-government-services/2016/emergency-management/rogs-2016-volumed-emergency-management.pdf>

^{ix} Productivity Commission (2015) *Report on Natural Disaster Funding Arrangements* <http://www.pc.gov.au/inquiries/completed/disaster-funding/report>, page 35.

^x *National Partnership Agreement on Natural Disaster Resilience* http://www.federalfinancialrelations.gov.au/content/npa/environment/natural_disaster_resilience/national_partnership_2014-3.pdf

^{xi} *Project Agreement for National Bushfire Mitigation* – Available on the Council for Federal Financial Relations website: http://www.federalfinancialrelations.gov.au/content/npa/environment/national_bushfire_mitigation/Project-Agreement-National-Bushfire-Mitigation.pdf

^{xii} NCCARF, *History of NCCARF* <https://www.nccarf.edu.au/content/short-history-nccarf>

^{xiii} Climate Council (2014) *Counting the Costs: Climate Change and Coastal Flooding* <http://www.climatecouncil.org.au/uploads/coastalflooding.pdf>