

The War Effort – What Australia must do to stop catastrophic climate change

An analysis by Rising Tide Newcastle.
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Summary

Australian governments, State and Federal, must lead a national public mobilisation on the scale of the war effort in order to avert dangerous climate change. Governments must:

- Immediately stabilise greenhouse pollution levels. This must include a ban on new coal-fired power stations.
- Stop the expansion of coal exports. This must include a ban on new coal mines and new coal export facilities.
- Immediately stabilise growth in demand for stationary and transport energy.
- Commit to reducing greenhouse emissions by 95% by 2030, with an interim target of 80% by 2020.
- Commit to reducing coal exports by the same amount: 95% by 2030 and 80% by 2020.
- Take action to immediately halt growth in energy demand, and emplace mechanisms to achieve yearly reductions in energy demand.

Introduction

The launch of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change has refocused the world's attention on the frightening consequences that await us if we fail to adequately face up to climate change. The release of the IPCC's latest report is bound to elicit much discussion on just what action needs to be taken to avert the most catastrophic potential impacts of climate change.

This analysis – conducted by grassroots climate action group Rising Tide Newcastle – seeks to answer that question, with specific reference to the actions that must be taken here, in Australia – the world's largest exporter of coal, with one of the highest per capita rates of greenhouse pollution.

We find that the scale of action required is almost unprecedented. To play our part in the urgent global fight against dangerous climate change, Australia must commit to reductions in both domestic greenhouse emissions, and exported coal, of 95% by 2030, with the majority of these reductions taking place in the first part of the period. This commitment, required by both Federal and State Governments in Australia, must be accompanied by strong actions to curb rising energy demand in Australia. It must also be accompanied by a ban on new coal-fired power stations and coal-exporting infrastructure.

Such dramatic reductions in greenhouse pollution have not yet been discussed by Australians, but it is time for that situation to change. Meeting a 95% by 2030 target may seem to many people to be next to impossible, at first glance. But while it will be anything but easy, it is entirely achievable, requiring yearly reductions on average of about 4% (although they will be significantly greater than that at first).

To borrow an analogy from English climate activist George Monbiot, defeating dangerous climate

change will require a war effort. Not since the 1940s have governments and the public at large united on the scale that is needed now. All other concerns must be made secondary to the cause of defeating dangerous climate change. To respond in any other way would place unacceptable risks on the future of our species and others.

What, when, and where is dangerous climate change?

It is too late to stop anthropogenic climate change. A century and a half of industrialisation has transferred enough fossilised carbon into the atmosphere to warm the planet by over 0.8 degrees Celsius. This global warming is already having major impacts on both human and non-human species and their environments. At least another 0.6 degrees of global average temperature increase, and quite possibly more, are deemed unavoidable due to the greenhouse pollution that has already been produced.

Since preventing climate change from happening has long ceased to be an option, the global debate over greenhouse gas emissions has focussed on the concept of “dangerous climate change”, and how to avoid it. This concept was enshrined in the very first international climate covenant – the United Nations Framework Convention on Climate Change, to which Australia is a signatory. The question must be asked: what level of climate change can be considered to be dangerous?

The answer to that question largely depends on who you are. If, for example, you are a resident of any low-lying island nation, such as Kiribati or Tuvalu in the Pacific, climate change has long-since crossed the threshold into the “dangerous” category. Residents of Pacific Island nations are already witnessing the inundation and salination of their fields, and indeed their living rooms, by the rising and surging ocean. Many islands have been evacuated, and for many more there are evacuation plans in place. In late 2006, it was reported that for the first time, an inhabited island – India's Lohachara – had disappeared beneath the sea. For the 10,000 former residents of Lohachara Island, climate change is already very dangerous.

Suppose again that you are, or rather were, the Golden Toad species of Central America, which is now extinct due to anthropogenic climate change. It is hard to imagine a more reliable indicator of “danger” than extinction.

Other documented and dangerous impacts of the already experienced 0.6 degree average global warming include:

- Increases in frequency and/or intensity of extreme weather events, including floods, cyclones, and drought.
- Plankton population shift in the North Sea, with knock-on effects including breeding failure for seabirds, and starvation of porpoises.
- The European heatwave of 2003, which killed about 25,000 people.

Any discussion relating to the avoidance of dangerous climate change presumes that the climate change that has already occurred is safe. Clearly, this is a highly contestable presumption.

But “danger” is a comparative and subjective term, and while it is certain that the global warming already experienced has been very dangerous for some species, and for some human populations and individuals, it is equally certain that if the global average temperature continues to rise the impacts could endanger every living organism on the planet. So, while researchers now acknowledge the inherent value judgements that are being made, the global quest for the definition of “dangerous” climate change has continued.

For some, dangerous climate change begins at 1.5 degrees. This is the point when the Greenland Ice Sheet begins to melt, raising the global sea level by 7 metres over several centuries. Importantly, while we may be able to bring it back down below this level later on, the global average

temperature is now likely to exceed a 1.5 degree increase, at least temporarily, regardless of what actions are taken.

The debate over dangerous climate change has, in the last few years, come to focus on the figure of 2 degrees Celsius. This has become the benchmark for dangerous climate change according to many researchers, commentators, and political players. The European Union has adopted the 2 degree target for avoiding dangerous climate change, and recently, the NSW Government has also acknowledged it.

The projected impacts of climate increase dramatically with a 2 degree warming.. 2 degrees is the point, for example, where agricultural yields begin to fall in the developed world. With 2 degrees warming, up to 2.8 billion people would be experiencing water stress, and up to a quarter of a billion could be displaced by rising sea levels and cyclones. Millions more people would be exposed to malaria, including a 50% increase in risk of the disease in North America, but particularly in Asia and Africa, where massive reductions in rainfall and subsequent food and water stresses would force large-scale displacement of people. Some estimates are that the thermohaline current – the warm waters that currently maintain the enjoyable climate of Europe, is at a 50% chance of complete collapse with a 2 degree average global warming. This would send Europe into an ice age.

Predictions for other species and ecosystems are just as frightening. 97% of the world's coral reefs would die. Many species would be driven to extinction, and many others would suffer major contractions. 50% of the Chinese boreal forest, 50% of the Sunderbans wetlands in Bangladesh, and 50% of Australia's World Heritage Listed Kakadu Wetlands would be lost forever.

The most frightening scenarios of dangerous climate change involve what has become known as the “tipping point.” At the tipping point, rising global temperatures would trigger a runaway, self-reinforcing greenhouse effect, unbalancing the global atmospheric system irreversibly and causing the world to become warmer and warmer. Forests and oceans that currently absorb carbon dioxide would begin to emit instead. If the tipping point is reached, there will be little that humans could do to reverse the damage and prevent much of the planet from becoming uninhabitable.

Jim Hansen, Director of NASA's Goddard Institute for Space Studies, and one of the most respected climate scientists in the world, says that "we must close that gap [between the action that is needed and the policies that are in place] and begin to move our energy systems in a fundamentally different direction within about a decade, or we will have pushed the planet past a tipping point beyond which it will be impossible to avoid far-ranging undesirable consequences".

Hansen warns of a planet without Arctic sea ice, locked in to a catastrophic 25 metre sea level rise, with a super-drought in the American west, southern Europe, the Middle East and parts of Africa.

"Such a scenario threatens even greater calamity, because it could unleash positive feedbacks such as melting of frozen methane in the Arctic, as occurred 55 million years ago, when more than ninety per cent of species on Earth went extinct."

This vision may be realised, according to Hansen, with a global warming of just 2 to 3 degrees.

Any responsible approach to climate change must have the explicit intention of avoiding 2 degrees global warming, and then bringing the global average temperature down to pre-industrial levels as soon as possible. The plan to achieve this target must be robust and based on up-to-date science. It is simply not good enough for governments to make vague statements asserting the importance of climate change and greenhouse pollution cuts, without a corresponding plan to limit global warming to less than 2 degree Celsius.

What must be done to avoid 2 degree warming?

The more research that is done to plan the escape route from 2 degrees global warming, the clearer it becomes that avoiding dangerous climate change requires nothing less than a war effort.

While European Governments were the first to really take up the cause of avoiding dangerous climate change and commit, at least rhetorically, to limiting warming to less than 2 degrees, they have been less than enthusiastic to embrace the conclusions of a thickening stream of reports indicating that we are closer than we think to locking in dangerous climate change, and that the scale of action required is almost unprecedented.

Governments in Europe have committed themselves to cut greenhouse emissions by 60% by 2050. Not long before retiring from politics, the former NSW Premier Bob Carr announced an unlegislated policy for NSW to cut greenhouse emissions by the same amount. This policy has been carried on by the Lemma Government, who have augmented it with an intermediate target, also unlegislated, to have greenhouse emissions at 2000 levels in the year 2025.

The 60% reduction by 2050 policy is, unfortunately, hopelessly inadequate, for several reasons.

Firstly, it is not enough to merely set a target for cutting greenhouse pollution that is nearly half a century away, without putting in place strong reductions in the interim period. Obviously, if global greenhouse emissions are allowed to continue to expand until December 2049, and then suddenly plummet by 60%, indeed even by 100%, then the world will still be catapulted into catastrophic climate change due to the emissions that take place in the intervening period. The only way that disaster can be avoided is for the *cumulative* amount of greenhouse emissions over the coming decades to be kept within tolerable limits. What this means in practice is that although strong longer term targets are important, it is the shorter term targets that will make or break efforts to avoid dangerous climate change. In fact, the bulk of emissions cuts must happen as soon as possible.

The second reason that a 60% target by 2050 cannot hope to stop dangerous climate change is that such a cut would simply be too little, too late. The target is derived from an optimistic reading of outdated science, and the conclusion that a 2 degree average global warming can be avoided by keeping atmospheric equivalent carbon dioxide concentrations to 550 parts per million by volume (ppmv).

This is not the case. We now know that atmospheric concentrations at this level would leave the planet with up to a 99% chance of exceeding 2 degrees warming. In other words, stabilising carbon dioxide concentrations in the atmosphere at 550 ppmv is almost certain to result in dangerous climate change.

So, at what level must atmospheric carbon dioxide concentrations be stabilised, if the future of life on earth as we know it is to be sustained? The answer is now reported at 400 parts per million of equivalent carbon dioxide. This is the highest atmospheric concentration that can be considered “likely” to avoid a 2 degree warming. At 400 ppmv, there is “only” an 8% to 57% chance that 2 degrees will be exceeded.

Now, this is truly sobering news. Current atmospheric carbon dioxide concentration is about 380 ppmv, but this is not the full story. Anthropogenic global warming is not caused just by one gas, but by about half a dozen. The net global warming effect of all of these gases is translated into a number called carbon dioxide equivalence, the purpose of which is to make the full picture more understandable for those of us who are not climate scientists. So, while actual carbon dioxide concentration currently stands at 380 ppm, *equivalent* carbon dioxide concentration in the atmosphere has already reached 425 ppm.

What this means is that even if equivalent carbon dioxide emissions are stabilised at their current

levels, which would require a massive reduction in greenhouse pollution, there would still be an unacceptable risk that the world would still tip over into dangerous climate change.

While the ramifications of this realisation are enormous, it is not cause to throw up our arms in despair. Equivalent carbon dioxide concentrations in the atmosphere can actually be reduced, by cutting emissions to such a point that more greenhouse gases are absorbed by the world's oceans and land ecosystems than are put into the atmosphere by human activity. Currently, about 5GtC of the annual 9GtC that is emitted by humans is absorbed by the biosphere. However, since many of the world's carbon "sinks" may soon become carbon "sources" as temperatures rise, greenhouse pollution cuts need to be made fast.

In order to avoid dangerous climate change, equivalent carbon dioxide concentrations in the atmosphere must stabilised at no more that 400 ppm.

What must Australia do?

What must Australia do to contribute to the urgent global quest to reduce equivalent carbon dioxide concentrations to 400ppm? Let us take a look at two recent studies, to get some idea.

In November 2006, the London based Institute for Public Policy Research published a report which sought to quantify the global emissions reductions that must take place in order to stabilise carbon concentrations at a level that would avoid 2 degrees average global warming. The report ignored non-carbon dioxide greenhouse gases. It found that *global* greenhouse emissions must peak between 2010 and 2013, followed by annual declines in emissions of up to 5%, reaching a 70 to 80 percent cut in emissions by 2050, compared to 1990 levels. Compared to today's levels, this cut is even deeper.

Such dramatic reductions in greenhouse pollution would require a phenomenal effort on behalf of the world, with a mass mobilisation of people and resources. It is not, however, good enough for Australia, who as a high-emitting industrialised country, must make much faster emissions cuts than the world as a whole. The requirement for more industrialised countries to make the biggest cuts to greenhouse pollution has been acknowledged by the international community, and is reflected in the (otherwise fairly unremarkable) Kyoto Protocol.

If the world is to cut carbon emissions by 90% by 2050, then industrialised nations such as Australia must do it even sooner.

The second recent study was conducted by Manchester University's Tyndal Centre for Climate Change Research, and published in July 2006. The purpose of the report was to lay out a plan for the UK to make its share of global carbon dioxide emission cuts, with a target of 450 parts per million of actual (not equivalent) carbon dioxide concentration in the atmosphere. The fact that this target is not low enough to avert dangerous climate change was freely acknowledged by the scientists who authored the report, who were merely acting as instructed (by an environment group!) by going with the 450ppm target. As you read through the following figures, keep the inadequacy of this target in mind.

The Tyndal Centre reported that the United Kingdom's share of global allowable cumulative carbon dioxide emissions from now until 2050 was 4.6 gigatonnes of carbon (GtC). This figure was arrived at based on a per capita allocation using the principle of Contraction and Convergence (C&C). Essentially, what C&C does is set an allowable global per capita emissions allowance for some point in the future, and allow currently low per capita greenhouse polluting nations to increase their emissions, while requiring high-emitting nations to reduce (contract). The end-point is a convergence of global per capita emissions at a sustainable level.

Based on this cumulative UK allowance of 4.6 GtC, the Tyndal Centre came up with a plan that requires the UK to cut its carbon dioxide emissions by 90%, from 2004 levels, by 2050. To keep cumulative emissions down, the bulk of these cuts must be made soon, and the report assigned a target of 70% reductions by 2030.

The following table attempts to apply figures from the Tyndal Centre report to Australia, making adjustments to reflect differences in population and per capita consumption.

	<i>UK</i>	<i>Australia</i>
Current CO ₂ emissions from energy (MtCpa)	168	94.7
Current population (millions)	59	20
Per capita emissions (tCpa)	2.8	4.7
Allowable cumulative emissions to 2050 (MtC)	4600	1560
Target annual emissions in 2050 (MtCpa)	16	5.42
Percentage cut by 2050	90.48%	94.3%
Target annual emissions in 2030 (MtCpa)	50	17
Percentage cut by 2030	70.24%	82%

So, by the methods used in this report on the necessary emissions cuts for the UK, Australia would have to cut its emissions by approximately 80% from today's levels by 2030, and 95% by 2050.

But even this is not enough, as the report itself acknowledges. This is what is required merely to stabilise actual carbon dioxide concentrations at 450ppm, which is up to 500ppm in equivalent carbon dioxide concentrations. This would still leave the world with a 30 to 40% chance of slipping into dangerous climate change.

This is too great a risk. The only responsible plan of attack for the UK is to cut its emissions by 90%, not by 2050, but by 2030, the plan laid out recently by UK activist George Monbiot.

Australia, which is obliged to make even swifter cuts to greenhouse pollution, must set itself to the task of cutting our current emissions levels by 95% by 2030. The bulk of this cut must happen soon, with a target set for 80% greenhouse emissions reductions by 2020.

Is a 95% cut by 2030 even possible?

The prospect of a 95% by 2030 reduction in greenhouse pollution for Australia sounds, at first, almost impossible, which is presumably why the target is yet to be embraced in, if even the alternative is to endanger life on earth.

And this is the point. While making such a massive and swift reduction in greenhouse pollution is certainly not going to be easy, we really do not have the choice. If Australia goes for any other target, we are gambling with the future of all species, including our own.

Achieving a 95% reduction in Australia's greenhouse gas emissions by 2030 is entirely possible. It will take a mass mobilisation of resources, and will require public involvement and participation on a scale that has not been seen in Australia since the war effort in the 1940s.

As occurred for the war effort, consumption of energy – both coal for stationary energy and oil for transport – will need to be rationed. While developing alternative technologies is a vital part of

plans to cut greenhouse emissions, the rate at which emissions must fall is such that uptake of renewable is unlikely to occur fast enough. The hard truth must now be faced: energy consumption cannot be allowed to continue growing, and in fact, that growth must be reversed.

During the war effort, society, led by governments, pulled together for a common purpose, eschewing luxuries and distractions and taking part in a sustained campaign for the good of the community. The majority of the public were behind the effort, and were quite happy to make major personal sacrifices for the greater public good. People's lives were turned on their heads, but it was worth it, for without the war effort, the future seemed unthinkable. The attitude of the times are summed up the then Liberal Prime Minister Robert Menzies, hero of the current Australian Prime Minister John Howard. Howard is famous for his vision of a “relaxed and comfortable” Australia, but Menzies knew that difficulty could draw people together. Menzies called for a cessation of “business-as-usual” (a phrase he coined and which sums up the current attitude to greenhouse emissions of most businesses and governments), and said that it was time for an “unlimited war effort,” saying that “We have in fact reached a point where your alleged rights and mine don't matter.” Such leadership and personal sacrifice are sorely needed today, as climate change threatens the social and environmental foundations of our community.

While analogies to war are certainly undesirable, the virtues of those who contributed to the war effort are unquestionable. Once again, we face a challenge that requires mass public mobilisation and support.

It has happened before, and it must happen again. The citizens and governments of Australia need to come to the realisation that all other concerns are secondary to the goal of saving ourselves and the world from the onset of dangerous climate change.

Fighting climate change, at home and abroad.

Australia's contribution to climate change is far from limited to the greenhouse pollution generated within its borders. Australia exports more coal than any other nation on earth – 233 million tonnes in the 2005/06 financial year. When combusted, this amount of coal produces approximately 560 megatonnes of carbon dioxide. This exceeds Australia's current annual emissions of 550 Mt of equivalent carbon dioxide from all sources. Through our coal exports, Australia's contribution to global climate change is doubled.

Also, Australia's coal exports are rising far more rapidly than our domestic emissions. At the time of writing, coal companies were seeking approval to massively expand the export capacity of Newcastle Harbour – the world's biggest coal port. Under the industry's plans, the capacity of the port would expand from it's present 89 million tonnes per year to an incredible 211 million tonnes per annum. At this level, the exports of coal from just one Australian port would rival the nation's domestic emissions from all sources, which, let us remember, are among the highest per capita in the world.

It would make no sense, therefore, to institute a program to cut Australia's domestic greenhouse emissions that did not make commensurate reductions in our exports of coal. As well as cutting domestic greenhouse emissions by 95%, we must set a target of cutting Australia's coal exports at the same rate: 95% by 2030. In order to achieve this, there is an urgent need for a ban on new coal mines and new coal exporting infrastructure in Australia. As with our domestic emissions, the first step in reducing coal exports is to stop them from increasing.

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