

## **Submission to 2009 Victorian Bushfires Royal Commission**

Submitted by: Darren Lewin-Hill, Northcote, Victoria, Friday 15 May 2009.

Dear Commissioners,

This submission argues that climate change was a demonstrable factor in the Black Saturday bushfires, and that, within its terms of reference, the 2009 Victorian Bushfires Royal Commission (VBRC) has the power to inquire into and make recommendations on climate change that will contribute to future bushfire prevention in the broadest sense.

### **Terms of reference**

In a recent [opinion piece](#) I published on the *ABC Unleashed* website, I argued that the terms of reference for this Royal Commission are largely silent on climate change, but that there is scope within the terms for inquiry into climate change and climate policy, and for consequent recommendations.

In particular, the first term of reference pertains to the 'causes and circumstances of the bushfires', the second term of reference to 'laws', 'policies' and 'strategies for prevention', and the fifth term of reference charges the Commissioners with inquiring into 'Any other matters that you deem appropriate in relation to the 2009 Bushfires'.

The fact that climate change is not explicitly mentioned in the terms of reference – in contrast with other areas that are specifically identified for inquiry – must not prevent its thorough consideration. However, consideration relies on a broad construction of the terms by you, the Commissioners, and the exercise of your discretion to deem climate change an 'appropriate' matter in relation to the fires – a position for which there is strong evidence that I outline below.

It is therefore open to you to find that climate change helped set the conditions for these catastrophic fires and contributed causally to them.

It is further open to you to find that framing appropriate, science-based, climate policy at State, Territory and Federal level to address climate change and global warming might well contribute to Australia's international climate advocacy, to the framing of a more effective international climate agreement at the Copenhagen negotiations in December this year, and therefore contribute significantly to bushfire prevention in Australia over time.

In making your recommendations, there is further relevance to climate change in the sixth term of reference regarding the 'preparation and planning for future bushfire threats and risks', and in the ninth term of reference, regarding 'the emergency response to bushfires' – again providing a sufficiently broad construction of these terms that is at your discretion to adopt.

The recommendations concluding this submission suggest specific areas for inquiry, and specific recommendations that I urge you to carefully consider.

## **The reality of climate change**

The reality of human-induced (or ‘anthropogenic’) climate change is now undisputed among an overwhelming majority of the world’s climate scientists. The Royal Commission will be aware of the work of the [Intergovernmental Panel on Climate Change](#) (IPCC), and of findings from the [International Scientific Congress on Climate Change](#), held in Copenhagen from 10–12 March this year.

Humans have warmed the average global temperature by at least 0.8 degrees Celsius from pre-industrial times, and, in the absence of concerted effort by the world’s nations, warming of the order of 6 degrees Celsius is expected by the end of this century.

Increased wildfire is one of a range of expected consequences of this warming, and is already being seen in many locations around the world, including Greece, the western United States, Nepal, and, of course, Australia. As warming is projected to rise, so too will the impacts of warming increase, even beyond the unprecedented ferocity of the Black Saturday bushfires.

In this regard I note provision B. of the terms of reference, which states that: ‘The State of Victoria is recognised as a region subject to a very high fire risk and has previously experienced extensive bushfires, most notably in 1939, 1944, 1969, 1977, 1983, 2003, 2005 and 2006’.

I urge the Commissioners to read this in the context of provision D., which notes the unprecedented weather conditions of 7 February 2009, and therefore to resist the conclusion that the Black Saturday fires were the next in an expected progression, when in fact they demonstrate part of a new trend of frequency and severity fuelled by climate change, as discussed below.

While it is not the role of this submission to attempt an exhaustive explanation of climate change, I commend to the Commissioners three recent online video presentations that clearly summarise the problem – two at a Victorian climate event on 20 April 2009 by climate campaigner, [David Spratt](#), and by the Federal Labor Member for Wills, the [Hon. Kelvin Thomson MP](#), together with a recent presentation in Sydney by US climate advocate and writer, [Bill McKibben](#).

David Spratt, in particular, offers a survey of the likely impacts for different degrees of warming in reference to the latest science, and questions the [adequacy of current actions by the Australian Government](#) to address climate change through its Carbon Pollution Reduction Scheme (CPRS).

It is a recommendation of this submission that the policies and practices of State, Territory and Australian Governments be openly assessed in terms of future bushfire risk for each additional degree of warming with which they are consistent. This assessment should occur with a view to taking all action necessary for bushfire mitigation.

## **Climate and bushfire risk**

Before the Black Saturday fires, there was already strong evidence that climate-change-induced warming was contributing to the frequency and severity of bushfires in south-eastern Australia.

In particular, a [Bushfire Cooperative Research Centre report](#) (September 2007) commissioned by the Climate Institute found that recent trends in the Forest Fire Danger Index (FFDI) matched or exceeded the significant increases in very high and extreme fire weather days projected under low and high global warming scenarios:

'The strength of this recent jump at most locations *equals or exceeds the changes estimated to occur by 2050 in the different projections.*'

(Emphasis mine. See Executive Summary, pp. 3–4).

In other words, recent trends show fire risk that had been projected for 2050 is, in fact, occurring now. The projections being matched or exceeded by these recent trends had estimated that *very high* fire danger days were expected to increase by 20–100% in 2050 (relative to 1990) under a high global warming scenario (2.9C increase from pre-industrial levels), and that *extreme* fire danger days were expected to increase by 100–300% (relative to 1990) under the same level of 2050 warming.

The research clearly could not include the Black Saturday fires, but I understand that further work by the Bushfire CRC will take these fires into account and better define the link between climate-change-induced warming and the realisation of extreme fire risk far in advance of previous projections.

For purposes of the current inquiry, the February fires must therefore be considered as the potential beginning of a new trend towards even greater frequency and extremity, rather than as an end-point that had been expected as late as mid-century.

On 9 April 2009, ABC Radio National's [The World Today](#) program reported a study using satellite imaging to map rapid changes in bushfire risk due to climate change. The study, undertaken by Professor Max Moritz, a fire researcher from the University of California, Berkeley, featured the Black Saturday bushfires as an example.

Professor Moritz is reported as stating that fire has been left out of global debates about climate change, and that reports by the Intergovernmental Panel on Climate Change do not even have a chapter on fire.

In the same report, Professor Katherine Hayhoe, of Texas Tech University, stated in relation to the Black Saturday fires:

'I don't think anyone expected the type of event that you experienced. As the Bureau of Meteorology said, it is impossible to attribute any one event to climate change but the conditions that were experienced during that time were certainly consistent with what we expect to see from climate change over the coming decades.'

On 24 April 2009, Professor David Bowman of the University of Tasmania commented on a recent paper he published in the journal *Science*, which considered the relationship between fires and climate change. Speaking to ABC Radio National's [The World Today](#) program, Professor Bowman stated:

'We have got to understand increased bushfire activity as a direct consequence of uncontrolled climate change. This is a very good reason for Australia to do everything we possibly can to bring down the global temperature, to control carbon emissions and other gases which are resulting in the warming of the planet.'

## **'Proximate' versus other causes**

There has been much discussion in the media about the sense in which these fires were caused by climate change. There is a perception in some quarters that the attribution of the fires to climate change precludes, or is inconsistent with, the attribution of a range of other causes. This is not the case, and a useful distinction regarding causation was made by the Hon. Kelvin Thomson MP in the question-and-answer session following his presentation on climate change referred to *supra*.

Mr Thomson stated that, whatever the 'proximate' causes, the link between climate change and the fires was, to him, 'blindingly obvious'. By proximate causes he meant potential causes such as arson, powerline faults and other ignition mechanisms that are properly the subject of investigation by this Royal Commission. Yet, whatever the causes ultimately established by your findings, they are entirely consistent with the view that climate change helped set the conditions for the fires, and therefore contributed causally to them – thus falling within the term of reference pertaining to the 'causes and circumstances' of this catastrophe.

This interpretation is consistent with a [recent presentation](#) on the bushfires by [Professor David Karoly](#), chair of the Victorian Government's Climate Change Reference Group, at the University of Melbourne.

Professor Karoly began his presentation by considering the question of whether the bushfires were caused by climate change. He answered 'no' to this question, but went on to show the likely contribution of climate change to the components of the Forest Fire Danger Index (FFDI), which, as the inquiry has already heard, reached unprecedented levels during the Black Saturday bushfires.

From a subsequent personal communication with Professor Karoly, it is clear that the distinction he made between climate change as a simple cause and as a clear contributor to the components of the FFDI was made for purposes of scientific precision rather than to exonerate climate change as a factor in the fires.

Indeed, when I put it to him, he agreed with my views on Kelvin Thomson's distinction regarding proximate causes, and that Australia's climate policy should be seen, in the words of my email to him, 'through the lens of bushfire prevention'.

Professor Karoly also stood by comments he made to ABC Television's [Lateline](#) program on 9 February 2009, where he stated:

'It's very difficult to attribute a single event to climate change or to natural variability. What we have to do is really look at the balance of probabilities or the risk or likelihood of these events. And what we can say is it is possible to get extreme events like this, like the firestorms, just due to natural variability. But what we're seeing now is that the dice have been heavily loaded so that the chances of these sorts of extreme fire weather situations are occurring much more rapidly in the last 10 years due to climate change. So climate change has loaded the dice. And what we're seeing is a much greater occurrence of this extreme fire weather. And certainly in some situations, we're seeing unprecedented extremes. The hot temperatures on Saturday in Melbourne and in many parts in south eastern Australia were unprecedented. The records were broken by large amount and you cannot explain that just by natural variability. And climate change due to increasing

greenhouse gases has been a major factor in increasing the temperatures and likely contributing to the drought in south eastern Australia.’

Again, this submission is not the place to attempt a full explanation of the complexities of climate and the bushfires, but I commend to the Commissioners Professor Karoly’s presentation (*supra*), and that by [Dr Kevin Tolhurst](#) at the same event.

Professor Karoly’s presentation in particular affords the conclusion that action on climate change will address the components of the FFDI, and therefore bear on the mitigation of future bushfire risk. This is also supported by his comments on *Lateline*, where, on the same program, he stated:

‘It’s quite likely that almost nothing could cope with that sort of intense fire. But it is clear that things can be done to slow down climate change, and we certainly know that climate change will bring higher frequencies of the extreme fire weather that was experienced on Saturday.’

### **Bushfire contribution to global warming – a positive feedback**

While there is a strong case for the contribution of climate change to bushfire risk, there is a growing awareness of the contribution to climate change of bushfires themselves via the massive emissions of carbon dioxide they cause. This, too, is of relevance to the present inquiry, as it constitutes what scientists call a positive feedback loop.

As the climate warms due to human greenhouse gas emissions, the frequency and severity of fires increases, releasing massive emissions that, in turn, contribute to further warming still and yet more extreme fires. Positive feedback loops are particularly dangerous because they can reach what is known as a tipping point, past which the warming process is self-sustaining and beyond the powers of human intervention to stop.

This phenomenon, already quite well known in relation to melting Arctic sea ice, is beginning to receive more scientific scrutiny from the perspective of bushfires.

As the University of Tasmania’s Professor David Bowman stated in the same report referenced [supra](#):

‘Now the problem is that we can all understand that climate affects fire. What has been not understood is that fire can affect climate through the feedback mechanisms of releasing atmospheric pollutants, changing the reflectance of the earth’s surface, changing the way ecosystems behave and committing very large quantities of carbon dioxide into the atmosphere.’

### **What can the Royal Commission achieve?**

As I have argued, climate change is demonstrably relevant to, and within the terms of reference of this inquiry, which is geared to future bushfire prevention, improved emergency response, and adaptation.

A finding by the Royal Commission that explicitly acknowledges the role of human-caused climate change and calls for an examination of Australia’s climate policy heading into the international negotiations at Copenhagen ([COP 15](#)) could well have benefits for bushfire prevention in the longer term. For example, a stronger Australian climate policy may well

influence the negotiations to adopt a stronger international agreement, limit carbon emissions to reduce warming, and therefore act against severe climate impacts over time, including extreme bushfires.

Conversely, if the Royal Commission fails to examine and recommend upon measures to address climate change, that might well facilitate a weaker Australian policy and a consequent weaker international agreement, thereby undermining or even nullifying other recommendations the Royal Commission might make with regard to adaptation, warnings and improved emergency response.

Framing recommendations for better warning systems, more effectively coordinated emergency responses, better preparedness, and fire-resistant planning and building provisions, will be of lesser impact if global warming from climate change is not addressed as a basic parameter of fire prevention.

I further argue that the perceived likelihood of Australia achieving a stronger international agreement is not within the inquiry's scope to predict. It is, however, certain that ruling out this possibility through a failure to address climate change in the current investigation would diminish any chance of success we might otherwise have at the Copenhagen talks.

If the Commissioners so choose, the response of the Royal Commission can easily be positioned within the sixth term of reference pertaining to 'The preparation and planning for future bushfire threats and risks, particularly the prevention of loss of life', and the ninth term of reference, comprising 'The emergency response to bushfires'.

It is on the basis of these arguments that I present the following recommendations for your consideration, with the overriding imperative that your findings in this regard be included in your August 2009 interim report, to allow their broader consideration by the Australian Government before Copenhagen.

## **Recommendations**

1. Granting that human-caused climate change falls within an appropriate construction of the terms of reference, I call on the Commissioners to acknowledge its contribution to the 2009 Victorian bushfires, especially with regard to the influence of climate change in pushing the Forest Fire Danger Index (FFDI) to unprecedented levels during Black Saturday.
2. To satisfy themselves of the above, the Commissioners should call such expert scientific witnesses, and avail themselves of such peer-reviewed scientific research as deemed necessary.
3. The Commissioners should call for current State, Territory and Federal climate and energy policies to be assessed as a matter of urgency for their effect on bushfire mitigation in the broadest sense. The timing of such assessment must enable Australia's strengthening of its climate policy leading into international climate talks at Copenhagen in December 2009 ([COP 15](#)).
4. The Commissioners should call on the Australian Government to adopt an *unconditional* emissions target as a parts-per-million measure of atmospheric carbon dioxide that would maximise the chances of bushfire mitigation if adopted universally via the international agreement to be considered at [COP 15](#).

The target set must consider the most recent science indicating a level of the order of 300ppm CO<sub>2</sub> [is now considered necessary](#) to offer a good chance of achieving a safe climate. It should also include the aspiration to achieve a zero carbon emissions economy at the earliest opportunity.

5. The Commissioners should call for the publication by the Australian Government of the target it adopts for the Copenhagen negotiations, explicitly detailing the corresponding level of global warming related to international agreement at that level, together with the consequent reduction or increase in Australian fire danger according to the Forest Fire Danger Index.
6. The Commissioners should acknowledge the Copenhagen negotiations as the key remaining opportunity for Australian action to influence international climate measures before tipping points are crossed, rendering further human intervention ineffective, and entering an inexorable trend of more frequent and extreme bushfires in Australia.

## Conclusion

The 2009 Victorian Bushfires Royal Commission has a vital role in recommending action on bushfire prevention that should be framed in the broadest possible manner. Despite the obvious political sensitivities, such a course would suggest that the clear evidence implicating human-induced climate change in the bushfires would not only be acknowledged and considered, but would result in strong recommendations for change to the policies and practices of our State, Territory and Federal Governments.

The timing of the inquiry in the lead-up to the international climate negotiations in Copenhagen is critical not only because it precedes the meeting at which the world will decide the fate of its climate, but because it also falls within the limited remaining time in which concerted action might prevent the crossing of effectively irreversible climate tipping points.

In evidence heard to-date by the Royal Commission, there has been much discussion of the effectiveness or otherwise of bushfire warnings. I argue that a further vital warning is at hand, that the science of climate change in fact presents governments around the world not only with the clearest possible warning of heatwaves, drought and increasingly prevalent extreme bushfires, but of floods, agricultural and habitat destruction, species loss, sea-level rise and [health impacts](#) including the spread of disease.

In your commitment to the truth about Black Saturday, you can choose to sound this climate warning with the authority of the Royal Commission, and in so doing honour the 173 people who lost their lives in these terrible fires.

Sincerely,

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<http://northcote-independent.blogspot.com>

## References

(Also hyperlinked within the submission text.)

‘Royal commission must face climate change’, *ABC Unleashed*, 18 March 2009  
<http://www.abc.net.au/unleashed/stories/s2519215.htm>

The website of the Intergovernmental Panel on Climate Change (IPCC) is here:

<http://www.ipcc.ch/>

The key messages from the International Scientific Congress on Climate Change, held in Copenhagen from 10–12 March 2009, can be found here:

[http://climatecongress.ku.dk/newsroom/congress\\_key\\_messages/](http://climatecongress.ku.dk/newsroom/congress_key_messages/)

The climate presentations by David Spratt and the Hon. Kelvin Thomson MP took place at the Coburg Concert Hall on Monday 20 April at an event organised by the [Moreland Climate Group](#). Video from the presentations is here:

<http://northcote-independent.blogspot.com/2009/04/video-from-last-nights-moreland-climate.html>

Bill McKibben’s Sydney presentation is available online at ABC Fora TV here:

<http://www.abc.net.au/tv/fora/stories/2009/05/13/2568976.htm>

In addition to his presentation describing the likely impacts of projected warming, David Spratt questions the adequacy of the Australian Government’s response here:

<http://climatecodered.blogspot.com/2009/05/has-kevin-rudd-taken-significant-step.html>

The Bushfire CRC report, ‘Bushfire Weather in Southeast Australia: Recent Trends and Projected Climate Change Impacts’ can be accessed here:

<http://www.climateinstitute.org.au/images/stories/bushfire/fullreport.pdf>

‘Satellites enlisted to track world’s fire hotspots,’ including the transcript of Professor Moritz’s 9 April interview with Radio National’s *The World Today* program can be found here:

<http://www.abc.net.au/worldtoday/content/2008/s2538376.htm>

The transcript of Professor David Bowman’s interview with Radio National’s *The World Today* program on Friday 24 April 2009 can be found here:

<http://www.abc.net.au/worldtoday/content/2008/s2552131.htm>

The personal communication with Professor David Karoly is available to the Royal Commission on request.

Professor Karoly presented at 'The Science of Bushfire and Recovery' event held at the University of Melbourne on 21 April 2009. His presentation is now available online here:

<http://www.themonthly.com.au/node/1644>

The transcript of Professor Karoly's interview with ABC Television's *Lateline* program on 9 February 2009, can be found here:

<http://www.abc.net.au/lateline/content/2008/s2486757.htm>

Dr Kevin Tolhurst's presentation at the same event can be accessed here:

<http://www.themonthly.com.au/node/1643>

COP 15 refers to the 15th Conference of the Parties to the United Nations Framework Convention on Climate Change, the website for which is here:

<http://en.cop15.dk/frontpage>

David Spratt reviews the current findings about what constitutes a climate safe target at his *Climate Code Red* blog, here:

<http://climatecodered.blogspot.com/2009/01/350-is-wrong-target-put-science-first.html>

'Report outlines global warming health impact', ABC News website:

<http://www.abc.net.au/news/stories/2009/05/14/2570833.htm>

Further consideration of issues relevant to the 2009 Victorian bushfires and the Royal Commission is available at my blog, Northcote Independent, here:

<http://northcote-independent.blogspot.com/search/label/2009%20Victorian%20bushfires>