

NSW Independent Bushfire Inquiry
GPO Box 5341
Sydney NSW 2001

Dear Sir/Madam

SUBMISSION BY BARRY HADAWAY – [REDACTED]

INTRODUCTORY REMARKS

Thank you for the opportunity to make this submission to the Commission. It is important that a wide range of views be canvassed to distil the actions necessary to prevent, as far as possible, a repetition of the 2019/2020 bushfire crisis. It is equally important that adequate feedback be given to all participants in the inquiry process as to why the ultimate actions to be adopted have been chosen and why other suggestions have not been adopted. Such feedback is essential to build trust and to garner community support for the final recommendations and subsequent action plans. It is equally essential that the chosen course of action is based on proven facts and science and not on anecdotal evidence or any party-political biases.

PERSONAL BACKGROUND

My wife and I live on a small property approximately 10km north of Mudgee. I am an active member of the Cooyal Bush Fire Brigade and spent time on the fire-grounds of the Meads Creek, Kerry Ridge and Palmers Oakey fires as well as attending other call outs in December and January. Accordingly, I do have first-hand experience of these fires and of conditions on the land over the past several years leading up to the crisis.

CAUSES - Drought and Fuel Loads

I have absolutely no doubt the primary cause of the bush fire catastrophe of summer 2019/20 was the extremely dry, desiccated state of our forests and grasslands both in national parks and on private properties. Fuel on the ground burnt ferociously and was ignited very readily by embers or sparks. I believe this situation was the reason the RFS, National Parks and Wildlife and other agencies were unable to contain the fires.

A lot of commentators have suggested the reason the fires were as bad as they were was excess fuel loads and a lack of hazard reduction burning. My observations during the time I spent on the fire-grounds and from observation of timbered areas on my own property, was that fuel loads were not the primary problem. There will always be fuel build-ups in gullies and on the high side of rock outcrops, etc, but generally the fire areas I operated in had a moderate amount of fuel on the ground. My contention that fuel on the ground was, in the main, moderate is supported by the fact that there little 'crowning' of the fires over vast areas burnt. On my own property, albeit a tiny sample, ground cover plants have greatly diminished during the 3 drought years of 2017, 2018 and 2019.

Leaf litter reduced during this time through natural breakdown and the fact that trees were struggling to produce any new growth. These observations should be checked with forestry experts as part of the process of determining whether, or not, there is any truth in the “excess fuel load” argument. The final conclusions should be based on science and not be influenced by commentators whose views may be driven by agendas unrelated to bushfire hazard reduction. In considering what should be done in future as regards hazard reduction burns two issues need to be considered.

Firstly, the Inquiry should look-into the merits of traditional aboriginal land management through the use of ‘**mosaic burning**’. These practices may reduce fuel loads in a way that limits the negative impacts on native wildlife. I understand the **Australian Wildlife Conservancy** organisation has had considerable success in adopting mosaic burning, guided by indigenous rangers, in their sanctuaries and on private land in the Northern Territory. **AWC** should be consulted and asked to provide scientific data as to the outcomes achieved.

Secondly, opportunities to conduct hazard reduction burns in recent years have been limited by the drought, increasing temperatures and the desiccated state of grasslands and forests. I know my local RFS brigade stopped issuing fire permits, as there could be no guarantee that any fire once lit could be contained.

CAUSES - Climate Change

There have been many warnings from scientists to political & business leaders as to the potentially catastrophic impacts of severe climate change. These warnings started long ago. In 1959 Edward Teller (Manhattan Project) told the American Petroleum Institute, **“It has been calculated that a temperature rise corresponding to a 10 per cent increase in carbon dioxide will be sufficient to melt the icecap and submerge New York. All the coastal cities would be covered, and since a considerable percentage of the human race lives in coastal regions, I think that this chemical contamination is more serious than most people tend to believe.”** <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2018/jan/01/on-its-hundredth-birthday-in-1959-edward-teller-warned-the-oil-industry-about-global-warming>

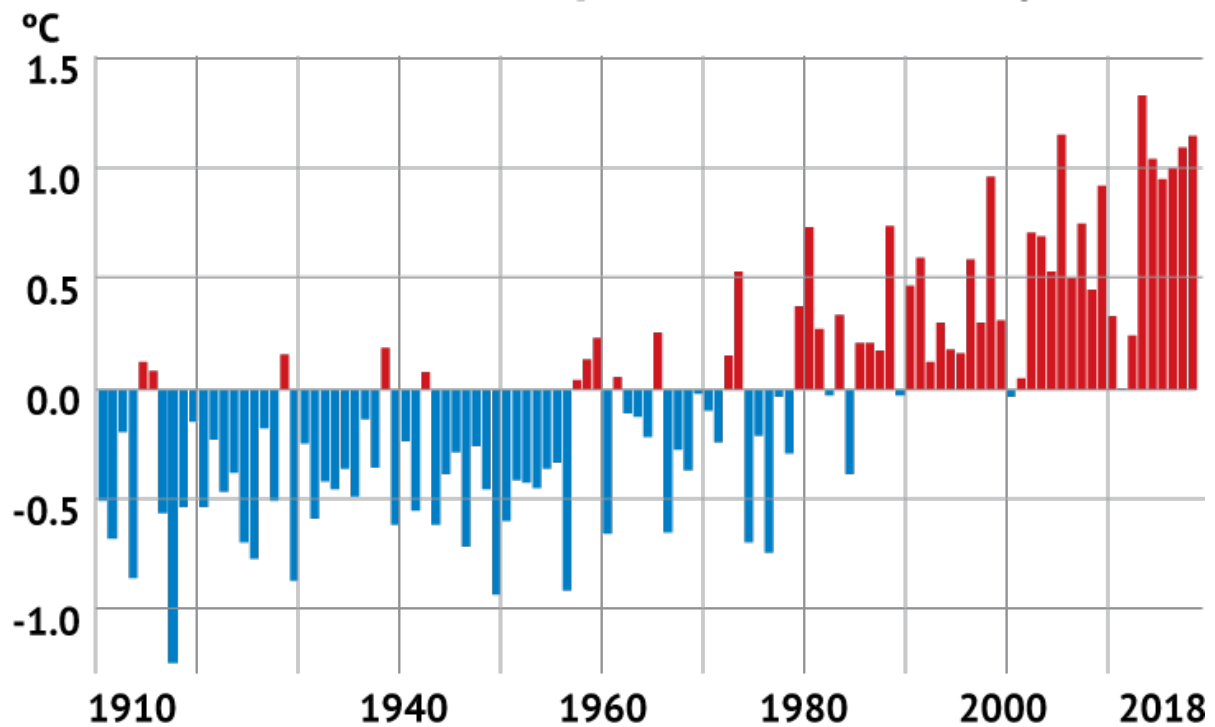
In 1959 atmospheric CO₂ was 316ppm (*National Oceanic and Atmospheric Administration USA*) – now it is nearly 412ppm – a 30% increase and CO₂ levels are still rising rapidly!

The mechanism for Climate Change is the greenhouse effect whereby CO₂ & other greenhouse gases, mainly water vapour, methane and nitrous oxide, retain heat at the earth’s surface by blocking re-radiation of infrared energy.

In Australia the effect of Climate Change has been dramatic. We have experienced an increase in average temperatures of approximately 1.0°C over the past 120 years. Rainfall has declined, evaporation rates have increased, droughts have become longer and more intense, and severe weather events have become more frequent and more damaging.

The graph on the next page illustrates how average temperatures have risen in Australia.

Australian Mean Temperature Anomaly (Based on the average for 1961-90. Source: BOM)



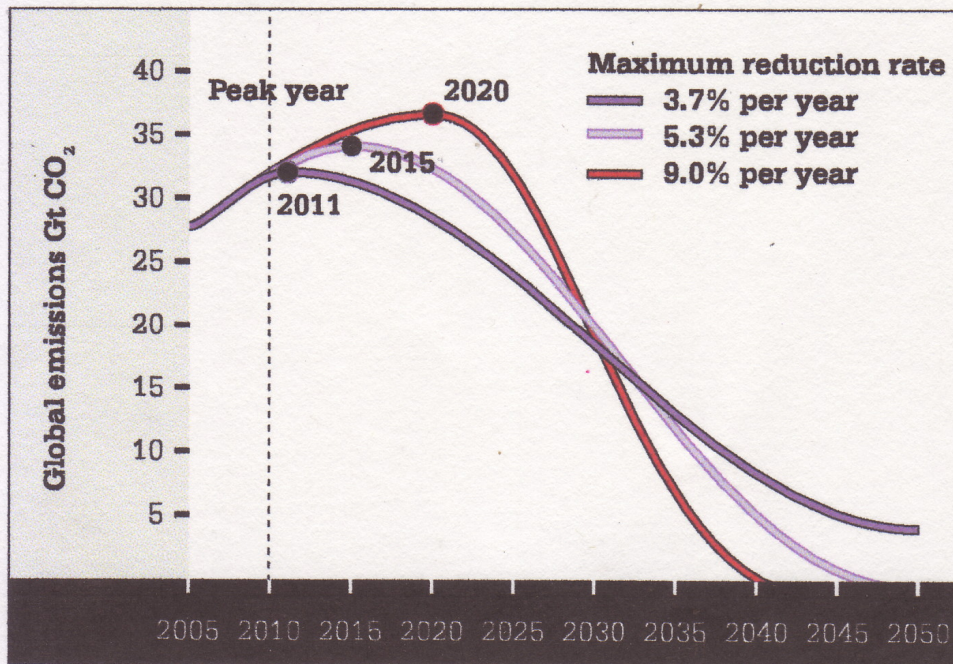
There can be absolutely no doubt that Climate Change was the major cause of the severity & extent of the Bush Fire Crisis. It is a tragedy for future generations of Australians that, vested interests in the mining industry and areas of the media have promoted denial and obfuscation of the connection. Unprincipled politicians have followed the money and kowtowed to the media barons.

The Inquiry must determine what action should now be taken, to ameliorate Climate Change risk, and in what timeframe?

Because Australia has endured many decades of denial & inaction, and because dangerous Climate Change is already upon us, our available time to act is now limited.

The following graph is taken from the Climate Commission Report, *The Critical Decade – Climate Science, Risks and Responses (May 2011)*.

Figure 37. Three emission trajectories based on the budget approach and giving a 67% probability of meeting the 2 °C guardrail.



Source: WBGU (2009).

The report stated, *“Figure 37 also shows that the peaking year for emissions is especially important for the rate of reduction thereafter. For example, delaying the peaking year by only nine years, from 2011 to 2020, changes the maximum rate of emission reduction from 3.7% per annum, which is very challenging but perhaps achievable to 9% per annum, which is impossible on anything but a wartime footing.”* (Page 55)

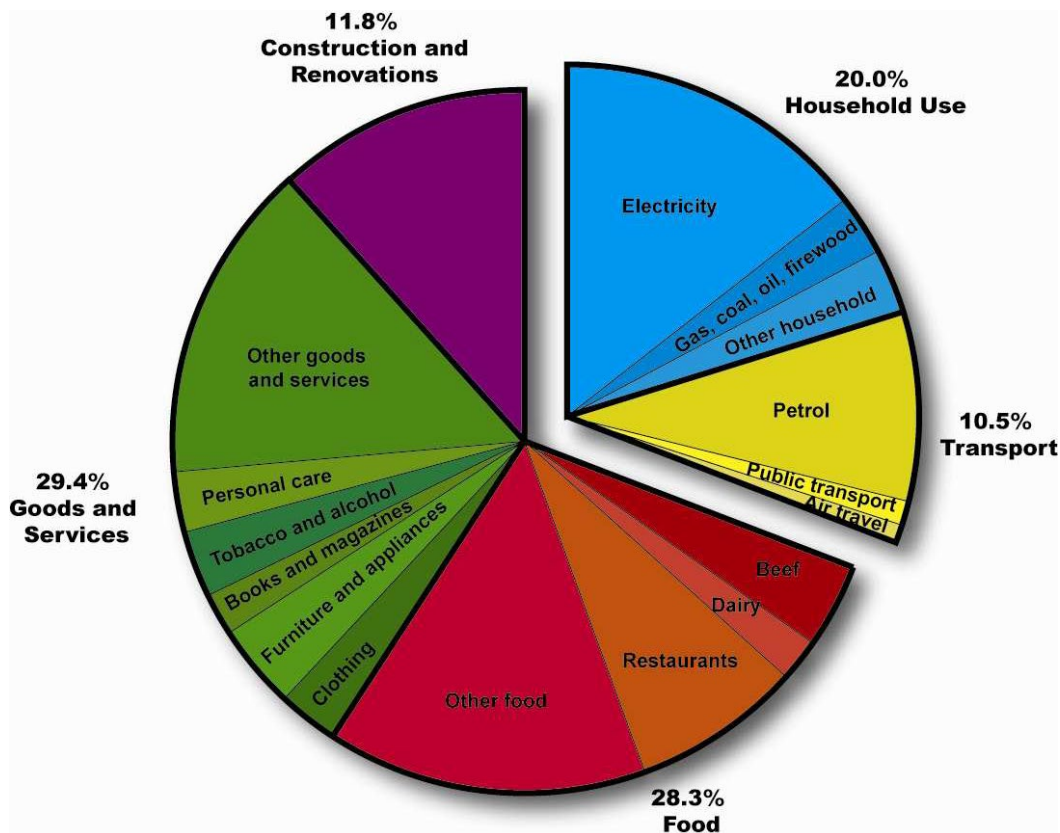
Critically, because action to reduce emissions has been delayed for so long, we need to achieve zero net emissions by 2040.

This will not be possible without absolute commitment and determination on the part of both State and Commonwealth Governments.

The Inquiry should be aware of the fact that emission reduction applies not only to electricity generation but also to: the building and construction industry; to agriculture; to transport; and to all manner of industrial manufacturing processes that use process heating, or use oil or gas as inputs, or produce emissions from chemical processes.

The following chart illustrates the ‘drivers’ of Australia’s greenhouse gas emissions.

Australian Consumption Atlas (%’s are of Australia’s Total Greenhouse Gas Emissions)



(from *Consuming Australia* a report prepared collaboratively by the Australian Conservation Foundation (ACF), University of Sydney – Integrated Sustainability Analysis Unit and the NSW Environmental Trust)

Action to reduce emissions should initially focus on areas where reductions in emissions can be achieved quickly. Priority should be given to:

- **Electricity Generation**
It is appropriate that action should focus on electricity generation because it is the easiest way to reduce emissions. Broad plans already exist to convert Australia to 100% renewable energy by 2030. One such plan has been prepared by the Renew organisation based on research by the ANU – see https://renew.org.au/wp-content/uploads/2018/08/Renewable_Grid_by_2030.pdf
- **Transport**
There needs to be concerted action to reduce transport emissions by converting Australia’s vehicle fleet to electric vehicles and by moving heavy transport back to the rail network.
- **Transitioning Away from Coal, Oil and Gas**
Plans need to be developed to transition away from coal mining and oil and gas extraction. No new mines, oil or gas projects or extensions to existing mines should be approved. All fossil fuel extraction, excepting metallurgical coal, should be terminated by 2030. Plans need to be put in place to transition workers to alternate jobs. Offsets will need to be found for metallurgical coal emissions.

Please do not reject these ideas out of hand because they sound ‘radical’.

Radical action is required because there is little time left. There is no alternative if we are to avoid severe climate change. We are already experiencing dangerous climate change.

Achieving zero net emissions by 2040 only gives us 2 chances out of 3 of avoiding severe Climate Change. These are very poor odds when the future of our children is at stake. Additionally, the economic cost of inaction will be incalculably higher than the cost of the most concerted action.

One issue the Inquiry should highlight is the fact that most of the policy levers available to government, to reduce emissions in Australia, are controlled by State Governments. The Commonwealth government has available to it Taxation and Population policy. State governments on the other hand crucially control:

- Mining
- Land Use and Development
- Agriculture
- Forestry
- Transport
- Building Codes

Much of the battle to reduce emissions to net zero will have to be led by the States.

Amazingly, while NSW was burning, the State Government introduced the ***Environmental Planning and Assessment Amendment (Territorial Limits) Bill 2019*** into the NSW Parliament. This legislation seeks to prohibit the Independent Planning Commission from considering Scope 3 (downstream) emissions in deciding whether, or not, new coal and gas projects should be approved. By attempting to make it easier for new mines and mine extensions to gain approval the State Government is deliberately working to make climate change worse. This will inevitably make droughts and future fire seasons worse.

The Inquiry should:

- 1. Highlight State responsibility for greenhouse gas emission reduction.**
- 2. Highlight the fact that State Government policy is currently driving increases, not reductions, in greenhouse gas emissions**

While the Inquiry cannot be expected to articulate specific actions it should identify necessary action in broad terms and clear timelines and targets.

PROPERTY PREPAREDNESS

One observation, from experience on the fire-ground, is that some property owners make absolutely no attempt to prepare their properties for bush fire risk. One property I was involved in protecting was a timber home that:

- had wood stores piled against the external walls,
- numerous gas bottles scattered around in the vicinity of the house, and,
- years of leaf litter and sticks 'drifted' into piles around the building and the yard.

There is a community expectation that the RFS will defend property. However, it is not acceptable that some property owners through laziness and negligence put fire fighters at risk. The Inquiry should consider some form of rolling property inspections, by full time fire safety inspectors, and penalties to enforce clean-ups and bush fire preparedness. It is clear education does not work on some people.

OTHER MATTERS

Volunteers and Payments

The Rural Fire Service is a volunteer organisation. Too much reliance is being placed on too few active volunteers. Paying people directly is not the answer. I do not know of a single person in my brigade who wants to be paid to fight bush fires. Many RFS volunteers in country areas are either retired or are working properties and somehow manage to keep things running while spending time on fire grounds. However, there should be prompt financial support given to businesses to allow them to continue paying workers who take leave to fight fires and, if need be, financial support to employ temporary replacement workers. The arrangements implemented by government during the bushfire crisis, i.e. requiring self employed RFS volunteers to apply personally for payments after an onerous 'qualifying period' of fire fighting were insulting and restrictive. A compensation process for self employed fire fighters could be managed through the RFS, as part of its normal operations, and the RFS could collect the data needed to give such a scheme immediate effect in times of crisis.

Health Impacts

The Inquiry should take evidence on the long-term health implications of smoke exposure and worsening heat waves. The medical cost of inaction on climate change and worsening health outcomes alone would justify drastic action to reduce greenhouse gas emissions.

Catastrophe Risk Analysts would confirm that the one form of natural disaster that causes greatest loss of life, by far, in Australia is heat waves. Without action on Climate Change heat wave related deaths will spiral. People will be particularly at risk in areas where there is high humidity.

"A sustained wet-bulb temperature exceeding 35 °C (95 °F) is likely to be fatal even to fit and healthy people, unclothed in the shade next to a fan; at this temperature our bodies switch from shedding heat to the environment, to gaining heat from it. Thus 35 °C (95 °F) is the threshold beyond which the body is no longer able to adequately cool itself."

https://en.wikipedia.org/wiki/Wet-bulb_temperature

Safety

The conduct of future fire fighting operations should provide for reasonable hours for fire fighter 'shifts'. For volunteers in my brigade a typical day was a good 15 hours:

- Leave home around 6.30am to travel to the Fire Shed & prepare for departure by 7am
- Travel to Rylestone (or Bylong) approximately one hour – refuel truck & attend briefing
- Travel to fire ground and work until around 8pm
- Resupply truck with water and fuel and travel back to Fire Shed arriving around 9pm
- Give truck basic safety check and clean-up and secure shed
- Get home around 9.30pm

On some days volunteers worked considerably more than 15 hours. Some volunteers did this day after day after day. Given the physical demands, the smoke and the heat 15 hour plus days are too long safety wise. Procedures should be instituted to ensure no volunteers are asked to work more than 12 hours per day on an ongoing basis.

Another safety concern involves the nature of the main fire fighting vehicles. Our brigade operates one Category 1 vehicle, which is a large truck that can carry a maximum of 5 crew (normally 4) and 3,300 litres of water. We also, operate two Category 7, light trucks that carry between 1,300 and 1,500 litres of water and a maximum of 3 crew (normally 2).

My concern is that the cabin of Category 1 vehicles is quite high and it is not easy to climb in and out, which may be required dozens of times during a typical day on the fire ground. As a consequence shoulder and arm injuries/strains are not uncommon. I believe most members of my brigade would be happy to be rid of our Category 1 vehicle, if it could be replaced with another Category 7 truck. Please do not dismiss this concern lightly and remember that many RFS volunteers are seniors.

Communications

Many of the major fires were in rugged country where radio communications were unreliable. This made it difficult for incident controllers to effectively direct operations and compromised the safety of fire crews. This issue needs to be studied carefully before people rush out and start spending money on new dedicated fire fighting radio systems.

It may be that at least part of the answer could be to upgrade the mobile telephone network so there is coverage in hilly terrain. Governments would need to provide funding for such a program but the benefits to the general public, people living in remote localities and people using national parks, as well as to the RFS, would be considerable.

Equipping the RFS for Future Emergencies

I have already commented on truck types and communications equipment. As far as other equipment is concerned the RFS cannot have too many water bombing aircraft, whether they be helicopters or planes. In the terrain in which we have been operating, aircraft are the only way of reaching many fires, short of sending in Remote Area Fire Crews, which is a high-risk activity. Whether more trucks or new trucks would help is problematic unless more volunteers can be recruited. Vehicles need crews. However, consideration should be given to supplying country brigades with more Category 9 vehicles that can be geographically dispersed to allow a rapid response to incidents.

Schemes to boost RFS volunteer numbers will be required if fire fighting capacity is to be increased. Perhaps consideration could be given to recruiting in metropolitan areas on the understanding that such volunteers may be deployed elsewhere in NSW.

Incident Controllers

There needs to be special training and selection processes for Incident controllers. My experience with Incident Controllers was very mixed. Some conducted thorough briefings and controlled operations effectively throughout the day. One such gentleman I encountered was from the US Forestry Service and was thoroughly professional. Unfortunately, other incident controllers conducted little or no briefings and were largely invisible/silent during the day, leaving crews to work out themselves how they could be effective.

Potential Incident Controllers should be assessed against an appropriate psychological profile and should be thoroughly trained. Several years of experience as a competent local brigade Captain isn't adequate preparation nor does it guarantee a person will have the necessary psychological qualities and disposition. Unfortunately, if we have another fire season like the last, we will need large numbers of good Incident Controllers.

SUMMARY

Primary Cause

Drought exacerbated by Climate Change

Suggested Action

1. Investigate 'traditional mosaic burning' as a means of hazard reduction.
2. State government acceptance of the need to achieve zero net greenhouse gas emissions by 2040.
3. A plan to transition to 100% renewable energy by 2030.
4. A plan to achieve zero net emissions in agriculture by 2040. Investigate reform of agricultural practices so agriculture can start to sequester carbon in soils and forests rather than being an emitter of greenhouse gasses.
5. A plan to achieve zero net emissions in the building & construction industries by 2040.
6. A plan to phase out coal mining, excepting metallurgical coal, by 2030 and to transition all mine workers to other jobs.
7. An immediate ban on all new coal mines and mine extensions.
8. A immediate ban on all new coal seam gas projects.
9. A immediate ban on all new natural gas and oil projects.
10. A plan to transition the NSW vehicle fleet to 100% electric vehicles as soon as possible and to move heavy transport back to the rail network.
11. Investigate safety issues identified – excessive hours on fire grounds, vehicle ergonomics, smoke exposure.

12. Investigate future equipment improvements – communications, possible wider deployment of light rapid response Category 9 vehicles.
13. Investigate personnel issues identified – securing more active RFS volunteers, standing compensation schemes for employers whose employees are volunteer fire fighters and self-employed volunteers, training of Incident Controllers.
14. Investigate upgrade of mobile network as one possible solution to improve fireground communications.

Yours sincerely

Barry Hadaway