

Senate Finance and Public Administration References Committee

Inquiry on lessons learned in relation to the preparation and planning for, response to and recovery efforts following the 2019-20 Australian bushfire season

Bureau of Meteorology Questions on Notice

Page 34

1. **Senator Rice:** Of the over-100 presentations, how many were to Commonwealth government agencies or ministers?

Dr Johnson: That's a good question. I'd have to take that one on notice if you want the exact number, but a very large number were to Commonwealth agencies, as you would expect, being a Commonwealth agency ourselves.

Bureau Response: Between 1 April 2019 and 30 November 2019, the Bureau delivered 18 presentations to Commonwealth government agencies or ministers, in relation to bushfire risk.

2. **Senator Rice:** If you can take on notice any briefings to ministers, including the Prime Minister, or their offices, particularly in the lead-up to the summer – in your submission you set the date of 30 November – that would be terrific.

Dr Johnson: Certainly. I'm happy to do that.

Bureau Response:

Between 1 April 2019 and 30 November 2019, the Bureau provided the following briefings related to bushfire risk:

- Weekly climate and water outlooks sent by email to the offices of the Prime Minister, Minister for Environment, and Minister for Agriculture, Drought and Emergency Management.
- Briefing with the Minister for Agriculture, Drought and Emergency Management on the current dry conditions and outlook for the months ahead.
- Rainfall deficiency mapping for Victoria provided to the office of the Minister for Agriculture, Drought and Emergency Management.
- Special Climate Statement 71, which provided information about severe weather conditions in Queensland and New South Wales was provided to the office of the Minister for Environment prior to public release.
(<http://www.bom.gov.au/climate/current/statements/scs71.pdf>)
- Two *Australian Seasonal Bushfire Outlook* forecasts for the 2019-20 season that were issued by the Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC) were provided to the office of the Minister for Environment
- A published article, based on Bureau-led research, in the *Journal Natural Geoscience* was provided to the office of the Minister for Environment.
- Routinely, the office of the Minister for Environment is provided with copies of climate outlooks prior to public release.

3. **Senator Rice:** With that work and with those three models, what level of temperature increase is built into that? That is what I'm trying to get at. We heard this morning that we are on track for three degrees of global heating. Is that scenario built into it?....

Dr Braganza: That scenario is built into the models. If you were looking at emissions pathways, you would look at different emissions scenarios from those three models. Our work is more looking at impacts, so we will tend to follow some of the higher-emissions scenarios, purely because they give you more severe impacts to which people can potentially stress test certain systems in the future. The temperature rise in those models will follow typically one of the middle- or high-emissions scenarios going into the future.

Senator RICE: What is that then? I think the paper looks up to 2079. What's the increase in temperature that we're looking at by then?

Dr Braganza: The increase in temperature from those models will be—I would have to take it on notice to go and look in those models. I don't want to just give that answer off the top of my head, but it would be of the order of more than two degrees, I would assume.

Senator Rice: What is that then? I think the paper looks up to 2079. What's the increase in temperature that we're looking at by then?

Bureau Response: [The models referenced during the inquiry are specific to the following publication, which also describes the methods used.](#)

<https://www.nature.com/articles/s41598-019-46362-x>

[Projected temperature changes in Australia corresponding to those emissions pathways, in the global-domain models, are between 2 and 4 degrees warmer in 2079 than the 1961-1990 average.](#)

4. **Senator Rice:** I have a follow-up question about the forest fire danger index and the Haines Index. From your work can you give us some estimates of the increased forest fire danger levels in the coming decades given the current global heating scenario?

Dr Braganza: I'd prefer to take that question on notice. We have an interplay in different parts of the country between changes in seasonality. A lengthened season in some parts of the country makes a really big difference because you have a longer curing period for the fuel, and it might have fires in the landscape earlier that have to be managed for longer. In other parts of the country the factors will be a little bit different. It's difficult to give you an overarching summary for a continent the size of Australia. Queensland has an earlier fire season. So the impact on Queensland will be from the influence of drought and westerly winds during spring, for example. In the south-east of the country and in Victoria it could be the length of the season and what conditions are like, particularly in January and February. So it's difficult to summarise in a way that is very neat. I think the answers we've given already give you the overarching synthesis of the science, but we'd be happy to take on notice any more quantification of those and for different parts of the country. We'd be very happy to supply that to the committee.

Bureau Response: The latest science indicates an approximate 20% increase in the number of days per year with dangerous fire weather conditions, generalised for the whole of Australia, per degree of global warming.