

Submission Number: NND.001.00614

Submission Of: Brian Blackwell

Your Details

Email address:

Phone:

Preferred means of contact: Email

What is your submission based on? I am making this submission based on my professional knowledge, qualifications or experience or on behalf of a group or organisation

What is your area of professional expertise? Engineer, collecting wood and burning it to make power

If you are lodging your submission on behalf of a group or organisation, what is the name of the group or organisation?

Your Submission

In your experience, what areas of the bushfire emergency response worked well?

Volunteer rural firefighters carried the can. But they needed more back-up and bigger budgets.

In your experience, what areas of the bushfire emergency response didn't work well?

As someone on the ground, response was not soon enough, not hard enough. Federal government seemed to be sitting back waiting for the rain to come.

In your experience, what needs to change to improve arrangements for preparation, mitigation, response and recovery coordination for national natural disaster arrangements in Australia?

Need to look at bush fires as a war, like was done successfully with COVID.

Revisit proposal for sharing water bombers with Canada, seems obvious to me. But unlike Malcolm Turnbull, you will have to like Justin Trudeau's socks.

Is there anything else you would like to tell the Royal Commission?

I have just completed a 150-page analysis of information / data on global warming. A chemical engineer's assessment. Backed up by a recent 2nd year university weather course. You are welcome to my document if you want it, just ask. I concluded that global warming is happening, supported by three sets of hard data: temperatures themselves, melting polar land ice and sea level rise. I could not find any hard data to confirm that our climate is "changing" as a result. Nothing stands from from the variability of our natural climate cycles, such as the Indian Ocean Dipole. But the climate "changes" are evolving today, while the climate data we have to look at are mostly 3 to 5 years back, as the most recent. I reckon you can expect more bush fires, more drought in Australia.

I suggest that you get on with proactive measures such as I am proposing. Harvesting 10% of your bush each year and burning it in a wood-fired boiler to make electricity. Eliminating the air pollution and fire hazards from prescribed burns. Getting something back from your money rather than running around desperately throwing a bit of cash at the flames.

Do you agree to your submission being published? Yes I agree to my submission being published in my name

Supporting material provided:

Australia Letter.docx

Bush Fires.docx

[REDACTED]
[REDACTED]
[REDACTED]

January 13, 2020

Minister for Environment, Energy and Science
State of New South Wales
320 Pitt Street
GPO Box 39
Sydney, New South Wales, 2001
Australia
Minister Mathew Kean

Minister for the Environment
Parliament of Australia
PO Box 672
Albury
New South Wales, 2640
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Honourable Sussan Ley, MP

Re: A possible remedy for bush fires, while minimizing prescribed burns

Short proposal attached.

Ministers,

Don't let my postal address fool you. I spend a lot of time in Australia, driving around in an old Toyota Hiace campervan. We returned from Australia recently, after some time plus / minus the fires near Iluka; got out the day before the fire jumped the Pacific Highway. On another trip, we stayed in the campsite at Mallacoota, a unique, special place. I have travelled about 50,000 km on the rural roads of Australia, Brisbane to Geraldton, been through Albury. I get the picture.

You may have thought of / considered the concept I am presenting here. Rather, than prescribed burns, could you do a clear-cut of the same areas and haul the wood to a central wood-fired power plant? Say 50 MW. This would avoid the acrid smoke and fire hazards of prescribed burns. The harvesting could be done irrespective of the limitations of hot and dry weather leading up to the bush fire season, so the cutting would happen as intended. It would minimize the possibility and spread of bush fires. And optically, it's green, the kind of stuff global warming people like to see.

One possible flaw in my proposal is that fire might be needed to allow regenerative growth of the removed trees. This might be covered by tree-planting, as done in North America. A forester would have to weigh in on this.

These types of projects always get killed by the high cost of hauling the wood to a central location. The objective of the study would be to get a feel for the amount of government subsidy needed to make the economics work. The subsidy would come from avoided costs for prescribed burns, avoided costs for fighting bush fires, avoided health care costs from smoke pollution, avoided costs for replacing people's burned homes, global warming credits, and avoided hits on tourism (the fires are going to turn me off certain regions).

I am here to offer to do a small pre-feasibility study on this concept for you. With no payment to me.

It will be my contribution to the magical parts of Australia that I have come to love. I would need some support from one of your foresters.

I am a retired chemical process engineer, having worked most of my life for an engineering consulting company in Canada, doing mainly pulp and paper, energy and environmental work. In that job, I worked on many feasibility studies, small to big. I know my way around the block. One feasibility study looked at gasification of wood waste at Slave Lake Alberta. I have various friends and associates who are also retired who I could contact for quick costs, rules of thumb, etc, including boiler / power / wood handling people.

I would do this pre-feasibility study slowly, as an evening project, while on the road in the southern USA in our motorhome. We are hitting the road January 19 and will return to Vancouver about April 15, 2020. During that time, the only way to communicate with me will be by email or Skype.

If you want to check me out, I can give you people to talk to, some Australians, some Canadians. Over the years, I published over twenty industrially oriented technical papers, in pulp and paper journals.

Most of my calculations would be done in an Excel worksheet, with clear line-by-line descriptions. Rather than burring things in my calculations, I use a lot of clearly identified inputs, so others could take my spreadsheet and do further work with it. I would provide a simple written report.

What I do will be rough and thin, not overly precise, but it will give you a glimpse of what might be possible, a place to start if you want to take it further.

Please contact me by email if you have any interest. I won't be in Vancouver during the next three months to get postal mail. You might phone my daughter [REDACTED] who lives on a farm near [REDACTED] Queensland: [REDACTED]

[REDACTED]

Dr. Brian Blackwell

Please forward this to the governments of other states, as you see appropriate.

BTW, I plan to visit Australia again October 2020, for several weeks.

Possible Partial Remedy for Australian Bush Fires

The Problem

Bush fires, extensive and out of control.

Houses burned.

People killed.

Birds and animals killed.

Acrid smoke from unburned combustion is compromising the health of large number of Australians, both in rural areas and cities.

Iconic tourist areas burned, leaving blackened environment. Yes, it recovers in a few years, but these areas are going to lose their appeal.

International tourists are going to be turned off Australia.

Road transportation disrupted, with commercial and private impacts.

Prescribed Burns

The Royal Commission on the 2009 Victoria bush fires prescribed an annual burn of at least 5% of forested lands as a preventative measure for bush fires.

See ABC Weather, [REDACTED], September 2018. The State of Victoria was able to do only 30% of the 5%. Mainly because hot dry weather came early, so it was often considered unsafe to start preventative fires. An Australian, Dr. Burrows, said a minimum of 8% prescribed annual burn was needed in Western Australia to mitigate the effects of bush fires.

See ABC News RFS Commissioner Shane Fitzsimons, NSW. Hot dry weather came early, so ability to do prescribed burns was restricted. He said the Greens were not pushing back, rather working with him. Nonetheless, they were able to complete most of the prescribed burns they had planned for this year.

Some question the effectiveness of prescribed burns.

Australia's Climate

After a long look at the factual data and the related science, I see now that global warming is happening. If you look at a temperature anomaly map for the world, there is a hot spot in the eastern side of Australia, where most of Australia's bush fires are happening. Indeed, 2019 / 2020 is very hot, with temperature records being broken, in their late spring.

Australia straddles 30 degrees latitude, The Horse Latitudes, a global belt of inherently high atmospheric pressure. It's a place where winds go out from. Trade winds originate there and go north to

the equator. Westerlies originate there and flow southeast to 60 degrees latitude. There are no prevailing winds which come to 30 degrees latitude. You need winds to bring rain. So, it's no surprise that Australia is desert-like, hot and dry.

I see hotter weather and more, deeper droughts for Australia, under global warming.

The hotter, drier weather is going to enhance the tendency for forest fires as global warming proceeds. There will be more of them and the forest fire season will be extended, as is happening in California. In North America, the winter eventually comes, bringing lots of rain and snow, and cold temperatures. This extinguishes that year's forest fires. Most of Australia does not get this. Bush fires just keep on burning, season to season (I expect).

The hotter, drier weather is coming earlier to Australia, compromising the ability to do prescribed burns.

A Possible Remedy

Crazy times can motivate people to do the unthinkable.

Let's think about the prescribed burn concept, but twist it.

My proposal is to clear-cut 10% of the forested land each year. Remove all the trees and underbrush and take it to a wood-fired electrical power plant. Salvageable logs might be segregated and milled into timber, or chipped and exported.

Burning (fully incinerating) the wood in a properly designed boiler would eliminate the air pollution associated with prescribed burning. It would also eliminate the possibility of starting bush fires by prescribed burns.

In Canada, we have a 50 MW wood fired power plant in Williams Lake, British Columbia. It burns bark removed from logs in the town's saw mills. It is a successful operation, which might be used as a model.

In Canada, wood-burning power plants mostly make no economic sense because the cost of hauling the wood to the plant kills the economics. This will be the same in Australia. But how about governments subsidizing the cost of bring the wood to the power plant? Using proactive money with the objective of avoiding fire-fighting costs, avoiding the associated personal health costs, avoiding killing people, avoiding the costs of rebuilding their burned houses, maintaining the attractiveness of tourist areas and reduced costs for prescribed burns. I have no idea about the amount of subsidy required, but a small preview feasibility study would give a ball-park for the subsidy requirement.

Downsides ?

Some may think that clear-cutting 10% of the forest each year is going to look like hell. We log mainly by clear-cut in North America and it is barely visible to me on the highways.

A wood-fired power plant needs water. A bit of good clean water to top up boiler feed-water and cooling water to condense the steam in the power circuit. With more capital expense, air coolers could

be used to condense most (or all) of the steam. Ideally, such a plant would be located by a good water source. For example, there is a big sugar mill operating on the Clarence River, which has steam driven evaporators. Various coal-fired power plants operate inland, with no big water sources nearby. So, the water part could be made to work.

Fire may be seen to be needed to regenerate the removed trees. This might be covered by tree-planting, as done in North America.

Comparison to Another Recent Proposal

██████████, a Canadian who now lives in Australia, has estimated that the wood burning in the fires, if gasified, could supply 32% of Australia's energy needs. He is discussing gasification of sawdust at timber mills. **His 32% is an interesting number.**

While working as an engineer, I did an extensive feasibility study of gasifying wood waste. Compared to just burning the wood completely in a wood-fired boiler (as I am proposing here), gasification is more demanding, in many ways. The process is much more complicated, the equipment more sophisticated, and it is less efficient thermodynamically. Worldwide, people have poked away at gasification over the years, but there are few hard-core fully proven installations. Physically, gasifiers cannot be built today on the scale of traditional fully-incinerating boilers. At the feasible size for a gasifier, gasification has a much higher capital cost, maybe twice as much as a traditional boiler.

I see incineration in a wood-fired boiler a better option.

Discussion

Why not trade in some of the reactive (clean-up) costs, for some preventative pro-action?

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