Wind Turbines and Aerial Firefighting

Background Brief

1. Wind project proponents universally discount the negative effect on aerial firefighting and quote AFAC (National Council for Fire and Emergency Services - how did they get the AFAC acronym?) or Aerial Agriculture Association of Australia (AAAA).

2. AFAC doctrine is detailed in:

https://www.afac.com.au/docs/default-source/doctrine/afac_doctrine_windfarmsbushfiresoperations_position_2019-08_04-v1-0.pdf

Amongst the word salad is one example, not even a case study, of aerial firefighting near turbines. This is the Waterloo Wind plantation fire in January of 2017.

3. Waterloo Wind plantation consist of 43 3MW Vestas turbines for an installed capacity of 130MW. These turbines are about 125m (412ft) tall, so not very large compared to the latest projects planned of 250m-300m (825-990ft).

4. The Waterloo fire burned 60Ha, so a relatively small grassland fire compared to the Sir Ivan Fire near Uarbry in Feb 2017 which burned 55,000Ha, and the fires that followed in the 2019-2020 fire season.

5. Propititously for the Waterloo fire, the local CFS Captain was the one who started the fire upwind of the turbines, and coordination with the turbine operator and other agencies went smoothly and rapidly. There was a turbine ground crew onsite and could attend. The turbines were shut down and blades parked in the 'bunny ears' positon. Aerial assets were involved and the whole thing was over in a few hours.

5a. Photos from the event show Small Air Tankers ('croppies') at work flying below hub height between the turbines and sometimes within the turbine disc area, with the blades feathered (from WF employee affadavit).

6. This event seems almost too good to be true - a perfect deployment, and IMO most unlikely to ever occur in real life with extensive turbine projects all over the State (eg. over 1000 turbines listed for the CWOREZ alone). The fact the turbine operator had a crew on-site at the time is incredibly lucky. For a descripton of the successful live exercise, the Clean Energy Council covers it here:

https://www.cleanenergycouncil.org.au/news/in-case-of-fire-a-real-life-experience-at-a-wind-farm-site

7. AFAC and this fire is cited in all proponent EIS-related literature to quash adverse points of view, no matter how well informed those adverse views are.

8. Liaising with local 'agencies' means reporting the fire via '000' who then have the regional RFS Fire Control Office call out nearby Brigades via text message. The local RFS Brigades are made up of volunteer members who are usually farmers/landowners themselves, and there is no guarantee they get the message or are available to go to the fire. Our most recent fire near Uarbry in early March 2024 had me receiving a text as I was going in to a legal meeting in Sydney, and the local Captain was 140km away in Dubbo.

9. During a high fire danger period landowners would not deploy far to as they would be worried about protecting their own land and assets, not a foreign-owned multi-billion dollar wind plantation. Of course, if any fire is upwind of a landowner they would be compelled to go fight it to protect their own property. RFS is not a mythical force that appears from the ether, it is us, and capacity to respond is limited.

10. Similarly, small towns like Coolah have a town Fire and Rescue Brigade, but it is wholly made up of volunteers - not a single permanent uniformed Fireman is employed there! This begs the question why residents pay a Fire Services Levy on their insurance bills?

11. Wind plantation owners should budget to permanently station firefighters and equipment in their projects to respond quickly to any threat from fire, and not sponge off limited local volunteers.

12. Excerpt from the AFAC doctrine document above:

Firefighting limitations in and around the wind farm facilities

Wind farms may result in aerial firefighting limitations due to aerial obstacles created by wind turbines and meteorological monitoring towers. The bushfire at the Waterloo wind farm demonstrated that if conditions are clear and wind turbines are turned off, wind turbines are clearly visible from aircraft and are not likely to constrain aerial firefighting operations (Clean Energy Council 2017). However, during this event transmission infrastructure, meteorological towers and guy-ropes were difficult to see (Clean Energy Council 2017); this infrastructure does have potential to limit the effectiveness of aerial firefighting operations. Access and egress challenges on the ground as well as water supply issues can also create firefighting limitations, if not planned for appropriately. Wind farms can also impact response operations by interfering with local and regional radio transmissions (Australian Wind Energy Association 2004a).

Hazards for emergency responders, including aerial personnel

Turbine towers, meteorological monitoring towers and power transmission infrastructure pose risks for aerial firefighting operations. Meteorological monitoring towers and power transmission infrastructure are generally difficult for aerial personnel to see, if they are not marked appropriately. If wind turbines were not shut down, moving blades and wake turbulence would create significant hazards for low flying aircraft, thus the shutting down of wind turbines, in an emergency situation, is defined in wind farm emergency procedures. A wind farm facility's power lines may pose electrocution risks, that are exacerbated due to smoke during a bushfire.

13. The Aerial Agriculture Association of Australia (AAAA) has documents relating to Tall Structures, Wind Farms and Powerlines. These were produced between 2011 and 2014. I have written to them asking if they have any amendments from experience gained over the last decade and given the much larger turbines now being installed.

14. Their policy in summary is:

AAAA Windfarm Policy

As a result of the overwhelming safety and economic impact of windfarms and supporting infrastructure on the sector, AAAA **opposes all windfarm developments** in areas of agricultural production or elevated bushfire risk.

In other areas, AAAA is also opposed to windfarm developments unless the developer is able to clearly demonstrate they have:

1. consulted honestly and in detail with local aerial application operators

2. sought and received an independent aerial application expert opinion on the safety and economic impacts of the proposed development

3. clearly and fairly identified that there will be no short or long term impact on the aerial application industry from either safety or economic perspectives and

4. if there is an identified impact on local aerial application operators, provided a legally binding agreement for compensation over a fair period of years for loss of income to the aerial operators affected.

5. Adequately marked any wind infrastructure and advised pilots of its presence .

AAAA believes that the above processes should also apply for all windfarms that have already been approved or erected, especially the establishment of long-term (for the life of the windfarm or until it is removed, whichever is the

and:

> However, it is clearly unacceptable that one industry can impose significant safety threats on another, longer established industry with impunity.

15. Clearly the aerial agriculture body is not supportive of windfarms popping up everywhere and displacing other industries, and increasing the risks in their operations. You would never know of this expert opposing viewpoint by reading the wind proponents' documents.

16. The fundamental problem is obvious to anyone - air tankers drop from as low as possible to accurately place the retardant on the fire, the target. If they miss the target the whole effort is ineffective. The currently planned wind turbines are 800-900ft high and the videos below show drops at much lower heights, below 200ft. Dropping from above the turbines will be ineffective due to dispersion of the retardant before it hits the ground. Large air tankers are not going to slalom between turbines as the job is hazardous enough with smoke, turbulence and terrain. A Coulsen C130 tanker crached during the 2019-2020 fires and killed the crew.

17. The RFS is negligent in not acknowledging this problem, and avoids the discussion by stating that the aviators will make their own decisions and do their own risk analysis. This is true, and as the letters attached show, the aviators will avoid the turbine areas and we will lose them as an effective tool in fighting fires.

18. We have letters from two aviation companies regarding their view on wind factorys attached below. Further, this video shows a Boeing 737 Large Air Tanker dropping on a local fire in March 2024. Using the fuselage length for scale it it can be deduced that the aircraft drops at 200 feet or below altitude. https://youtu.be/FvPeIvzPT9w
Here is a video from Spain showing a another tanker and the pilot wrestling with the controls in the turbulence. https://youtu.be/I9atYDG1X1s

19. To conclude, the wind industry, DPIE and various IPCN we have presented to are aware of the extra risks to aviation posed by wind turbines and has taken steps to close any criticism in this area down. They are in denial about the real hazard that turbines are, as they are with every problem that should be a showstopper. The RFS management is negligent in avoiding any recognition or honest discussion on the topic.

20. I will update this document when further responses are received from the AAAA and aerial firefighting organisations.

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Ex-RAAF Pilot, DFSM, AASM
1600hrs experience on the C130 Hercules transport (type used as LAT in 2017-2020 fire seasons).
1400 hrs experience as Forward Air Controller - operating at low level directing Close Air Support aircraft and artillery - similar to fire spotting.
Civil Low Level Endorsement to operate below 500ft.
Endorsed to fly aerobatics to ground level.
Authorised to train and issue Aerobatic Endorsements to ground level.
Twice Runner-up in Unlimited Category, Australian Aerobatic Championships.

NSW RFS Volunteer 20+ years with recent experience at Sir Ivan fire 2017 and Flaggs Road fire 2019 where use of RFS aerial assets was closely observed.