# A E R I A L  A P P L I C A T I O N  A S S O C I A T I O N  O F  A U S T R A L I A  L T D .

**ABN 13 002 501 886 • ACN 002 501 886**


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24th February 2017

## AAAA Submission

## Modernising Airspace Protection - Public Discussion Paper December 2016

**Introduction**

AAAA welcomes the discussion paper, the issues canvassed and many of the options put forward.

In particular, the neglected policy area of low-level airspace away from the vicinity of aerodromes perpetuates a range of unmitigated risks that AAAA has been struggling to address for decades.

Low level airspace users include aerial applicators undertaking the spraying of crops to protect them from weeds, insects and fungus, fertiliser applications, seed sowing, bushfire fighting and waterbombing, powerline survey, powerline slinging, general slinging, soil and crop analysis, mineral survey, mustering, photography, search and rescue, emergency services including search and rescue operations, drones and a wide range of other specialised operations.

The incursion of tall structures into traditionally low level airspace without any consideration of aviation risks or mitigation continues largely unabated. The lack of forthright regulation to bring home responsibility to developers of hazards for aviation risk management is long overdue.

The simple mandating of powerline mapping and marking, tall structure reporting, mapping and timely data availability would all make a significant positive impact on the safety of low level aviation.

While AAAA has had some modest success in improving the marking of powerlines and the availability of mapping information, this has been limited to one single jurisdiction (NSW) and one single company (Essential Energy).

A key concept for consideration is the ongoing externalisation of disproportionate costs that 'outside' sectors are able to impose on aviation - whether this be developments near airports, into regulated airspace or tall structures and powerlines posing a threat to legitimate low level airspace users.


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Adoption of the principles of risk management and a systematic approach to improving regulation and information flow is critical to repairing the obvious regulatory gaps that have emerged.

While the discussion paper has both identified critical areas and offered some sensible options for better aviation safety outcomes, the policy objectives would more likely be attained successfully if the AAAA recommendations in this submission were also adopted.

In particular, the decades of experience AAAA has in addressing low level aviation safety issues are entirely relevant to Reform Proposal 3 in the Discussion Paper.

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## *AAAA Comments on the Proposals*

### Reform Proposal 1 – Modernising Airspace Protection under the Airports Act 1996

### Policy Objective: To create a modern, nationally consistent and transparent airspace protection regime at our major airports

### Key outcomes

1. Prescribe criteria for the establishment of prescribed airspace to clarify what volumes of airspace require protection for the purpose of the safety, efficiency and regularity of aircraft operations;
2. Strengthen the declaration process by establishing a legislative framework to support a transparent and consultative pre-declaration-making process;
3. Streamline the handling of applications for intrusions into prescribed airspace to clarify roles and responsibility and avoid any unnecessary administrative steps; and
4. Avoid regulatory overlap by repealing legacy regulations under the CA Act, given the operation of the APAR and CASR Part 139 'Aerodromes' (CASR Part 139).

## *AAAA position:*

While the proposal, objective and key outcomes are supported, AAAA believes the inclusion of a 'risk-based approach' would clarify the type of criteria that should be used for the establishment or de-establishment of prescribed airspace. This process should include a mandatory requirement for additional industry consultation.

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### Reform Proposal 2 – Protecting the National Communications, Navigation and Surveillance (CNS) Network

### Policy Objective: To create a nationally consistent regulatory framework for the protection of the national CNS network

### Key outcomes

1. Clarify roles and responsibilities, including the role of the civil Air Navigation Service Provider (ANSP), the owner of a CNS facility (who may not be an ANSP), airport and aerodrome operators, and local building authorities;
2. Improve public awareness of CNS facilities and the protected airspace around them;
3. Provide a mechanism to enable the assessment of a proposed development that may significantly impact on, or require the relocation of, a CNS facility;
4. Where relocation is required, provide a mechanism to enable the owner of the CNS facility to recover costs from the person seeking the relocation; and
5. Authorise, as a measure of last resort, CASA to refuse a request for relocation, or take steps to prevent an unauthorised interference due to a proposed development, on aviation safety grounds.

### *AAAA position:*

Supported.

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## Reform Proposal 3 – Mitigating Risks to Aircraft Flying Beyond Aerodromes

### Policy Objective: To improve safety for the low-flying aviation sector (including commercial operations and aerial emergency search and rescue services) when operating beyond aerodromes

### Key outcomes

1. Ensure visual markers are provided on power lines, overhead cables and transmission lines, and other inconspicuous objects. Options include but are not limited to:

    a. Mandate the Australian Standard for power line marking in the CA Act;
    b. Develop voluntary guidelines for national adoption;
    c. Agree to industry self-regulation with relevant peak industry organisations; and
    d. Develop a model framework for State, Territory or Local government to consider.

2. Provide a nationally consistent approach to the marking and lighting of wind turbines. Options include but are not limited to:

    a. Mandate marking and lighting of wind turbines under the CA Act in accordance with Annex 14 of the Convention on International Civil Aviation (the Chicago Convention), as endorsed by the International Civil Aviation Organization (ICAO);
    b. Mandate the provision of a safety case and an aviation impact statement with all wind farm proposals to facilitate assessment by Airservices; and
    c. Develop a model framework for State, Territory or Local government to consider.

3. Develop location-specific or hazard-specific obstacle charts to assist with pre-flight planning and situational awareness. Options include but are not limited to:

a. Peak industry organisations, or individual operators, to commission (and fund) the development of location-specific or hazard-specific obstacle charts for their pilots/members, based on the obstacle data collected by Airservices under CASR Part 175.

### *AAAA Position:*

AAAA supports the reform proposal and the objective in the strongest possible terms, but recommends a range of initiatives that should be pursued in addition to refinements of the key outcomes.

As background information, AAAA refers the Department to the various incident and accident reports and research papers from ATSB and the CASA Sector Risk Profile where powerlines and tall structures are identified as a major threat to legitimate low level aviation (Risk #2) and where both mapping and marking of powerlines are identified as key safety / risk mitigators.

It is critical to understand that the aerial application industry is highly seasonal and the numbers of incidents reflect the level of activity and consequently risk exposure of the sector.

However, the overall accident and incident *rate* (number of incidents/ accidents per 100,000 hours flown) over many years has been in a consistent decline - ie improvement. AAAA is strongly of the view that the continually improving safety trend over seasonal variation is due to industry safety improvements (eg heavier, larger aircraft, universal wearing of helmets, reliability of turbine engines) and especially the work and programs of AAAA in promoting safety training and awareness and working with safety partners such as Essential Energy.

There is clear supporting safety information, including human factors and safety research, that points to both wire mapping and wire marking as being critical safety interventions to support the efforts of industry in continuing to improve safety. AAAA is happy to provide further information on the research available, much of which has already been integrated into AAAA safety training.

Some 57% of aerial application accidents or serious incidents over the last 10 years have been wirestrikes (*ATSB, 2016*). While few wirestrikes result in fatality or even injury, the cost to the industry in repairs to aircraft, lost productivity and wire repair is significant.

Even a modest improvement in safety concerning wires would therefore likely have a very significant impact on overall incident and accident rates and costs for the sector.

Of these wirestrikes, approximately 30% of the wires hit were *unknown* to pilots, most likely indicating a failure of available mapping information, intelligence gathering, planning and aerial survey of the target area.

A clear safety initiative to address this component would be the mandating of the provision of wire mapping information to pilots and operators by electricity companies. Not only is this data readily available in all States and Territories, Essential Energy in

NSW already provides it to industry. Proof of concept has been operational in NSW through Essential Energy for many years and works well, although there have been challenges with supply of markers and a breakdown in work management systems that enable and support wire marking - both issues being under current focus to resolve.

Essential Energy also works cooperatively with AAAA on information campaigns - see for example:

*https://www.essentialenergy.com.au/asset/cms/pdf/safety/AerialSafety.pdf*

The remaining approximately 70% of wires were ***known*** to pilots, most likely indicating a failure of visual acuity and the negative interaction of inattentional blindness, short term memory failure, distraction, forgetting and a range of other human factor issues.

The only known, practical and easily-implemented antidote to this in-built and common failure of all human eyes and brains is the marking of high-risk powerlines to provide pilots with a clear visual reminder of the existence and location of wires.

Where wires have been marked, there has been a significant improvement in safety.

No pilot goes to work intending to hit a wire, so we must assume that pilots are doing their best to manage an extremely difficult operational task. They deserve support by mandatory national requirements for the provision of electricity network mapping information to pilots and operators and the visual marking of 'high risk' powerline spans - such as those that have already been hit or those assessed by pilots and operators as posing a significant risk.

AAAA notes that the CASA / AAAA Sector Risk Profile requires CASA to write to Energy Networks Australia to seek engagement on this issue, but AAAA has been advised that correspondence has been sent seeking their engagement, but no response has been received. No follow-up action has been taken by CASA over the last 18 months or longer.

AAAA also notes that it has been providing Powerline Risk Management Training courses to the aerial application sector for many years, and aerial application operators conduct thorough risk management planning before every operation, including the identification, where possible, of powerlines.

Safety awareness in the aerial application industry is already extremely high and backed by a range of strong risk management systems, standard operating procedures and AAAA education and training initiatives.

The aerial application industry is doing all it can to manage the safety threat posed by powerlines and would applaud the mandatory marking and mapping of wires on a national basis.

**Mandatory Powerline Mapping**

AAAA has a long history of working positively with Essential Energy in NSW (formerly Country Energy) and this has led to the provision of mapping of their electricity networks to low level airspace users, covering much of rural NSW and northern border areas.

AAAA has also sought to work with electricity companies in other States and has received some positive, if minor, engagement from Ergon Energy in Queensland and Western Power in WA. Unfortunately, that initial work has not resulted in mapping systems being widely adopted, mainly due to the way information can be provided.

AAAA is hopeful of improved software removing this current impediment to the national availability of powerline mapping and is currently working with a AAAA member on a project to address this issue.

However, it is clear that most electricity companies in Australia have no interest in improving aviation safety unless they are regulated to do so.

The power of a national **mandatory** requirement for the provision of this already existing data should not be underestimated in terms of ensuring powerline companies contribute to safer aviation.

> **AAAA is strongly of the view that the *Civil Aviation Act* should be amended to require the mandatory provision of powerline network mapping information to legitimate users of low level airspace by electricity companies.**

**Mandatory Powerline Marking**

AAAA has a long history of working positively with Essential Energy in NSW (formerly Country Energy) and this has led to the placement of over 1200 markers on dangerous powerlines throughout NSW. An improved marker system is coming to market in early 2017 and AAAA is working with Essential Energy on a supporting promotional campaign aimed at landholders and a work management system within Essential Energy.

The key issue with marking systems is that they must be able to be fitted 'live line' by Essential Energy / electricity company staff. This brings the cost down from the traditional $2-3000+ for a single large orange ball marker (as the line must be isolated / turned off for fitting and several crews are involved) to about $100 per modern marker supplied and fitted. This puts the costs of marking well within the reach of electricity companies, landholders and aviation operators.

There are a number of suppliers of marking systems to the electricity industry and their commitment to innovation has led to the ongoing improvement of available markers. The current review of the Australian Standard 3891 (Part 2) has been triggered by a new and innovative approach to marker design that has shown the currently prescriptive Standard is not fit for task as it is not performance or outcome based.

However, it must be noted that, to date, the expense of marking has generally been a cost largely to the aviation industry and not to the electricity industry. This creates an inequitable externalisation of costs from the electricity industry to the aviation industry -

even where the clients of both sectors are the same people. The widespread failure of the electricity industry to fairly address this issue by embarking on a wire marking campaign - for the aviation hazards they have created - at their own cost, is a clear indication of the unwillingness of much of that sector to address obvious safety issues without regulation.

As a minimum, having the ability, through clear work order systems within electricity companies, to get powerlines marked is a significant safety improvement, especially given the relatively low-cost of modern marking systems.

If a mandatory requirement were introduced requiring all electricity companies to provide a straight-forward system for ordering wire marking at a reasonable cost, AAAA would then be in a much better position to promote the system to both members and their clients for improved safety, targeting the most high-risk wires as a priority.

Where powerlines have been marked, aviation safety has been significantly enhanced.

> **AAAA strongly recommends that the *Civil Aviation Act* be amended to require all electricity companies to establish a powerline marking system, based on risk management principles, with supporting internal work management systems and promotion to landholders, farmers and low-level airspace users.**

**Review of Australian Standard AS 3891 - Air Navigation - Cables and their supporting Structures - Safety and Marking Requirements - Part 2**

The Australian Standard AS3891 Part 2 on wire marking for low level aviation is currently being reviewed and both AAAA and CASA have been asked to participate on that review committee. The first meeting occurred on the 23rd of February 2017.

AAAA chaired the previous review of the Standard some years ago (before 2008) and was frustrated in achieving any substantive changes to marking thresholds (mostly contained in Part 1 of the Standard) due to concerted resistance from electricity network owners largely concerned with cost.

However, the previous review of the Standard enabled the use of newer types of markers that are able to be placed during live-line work and are consequently far cheaper to install and even more effective (visually) than the traditional large 'ball' markers.

AAAA hopes that the current review will similarly improve the Standard in terms of being less restrictive on innovative marker types (of which several are now available but which have difficulty conforming to the current prescriptive Standard).

AAAA is also hopeful that the current hard triggers for marking of powerlines with significantly long spans (up to 1500 metres) and very high clearances above ambient vegetation (up to 90 metres) will eventually be addressed to be set at more realistic and safer - ie shorter and lower - distances through the adoption of a risk management process that is currently included in the Standard for information purposes only and is not mandatory.

**AAAA notes that the Australian Standard is not binding or mandatory for electricity network owners and strongly recommends its mandating by regulation as a potential first step, significantly changing the nature and status of the Standard.**

**AAAA recommends that the Commonwealth Department of Infrastructure engage with the review of Standard 3891 Part 2 through Standards Australia, or at least monitor any amendments to the Standard arising out of the current review, and consider whether the nature and content of the revised Standard is adequate for mandating, or whether separate regulation is required.**

**AAAA is doubtful even the revised Standard will provide a strong enough remedy to mandate systems for the universal marking of high-risk wires on a national basis, and consequently AAAA recommends direct regulation of a system as below (amended Key Outcome 1) to be developed alongside the review of the Standard.**

**Key Outcome 1 - mapping and marking of powerlines - AAAA recommends that this outcome should be amended to require all powerline companies to develop a system whereby:**

- Powerlines are required to be marked where a risk assessment by the landholder, the powerline company or an aerial application company (or other low-level airspace user) identifies that operational safety of low level operations such as aerial application would be improved.

  The cost of such marking in some cases will fall to the landholder (who has a clear National Workplace Health and Safety responsibility to provide a safe workplace for their contractors), but a system must allow for voluntary marking on report and payment by the aerial application company concerned, or the powerline company being required to fund the marking when they repair a wire after damage by an aircraft, or for that matter a farm vehicle or implements such as tipper trucks, augers, harvesters, cotton pickers, ground boom sprayers etc, which account for the majority of 'wirestrike' incidents.

- A clear trigger for the automatic, mandatory marking of a powerline span or spans - paid for by the network owner or operator- must be where the powerline has actually been hit by an aircraft. Often, the powerline company simply puts the wire back up and does not mark it. This is especially true in all States outside NSW, but also still happens in NSW occasionally.

- Electricity companies are required to have a system where 'bad' wires that pose a threat to aerial application or other low level airspace use can be reported and a marker ordered for placement by either a landholder or an aerial application company or other low level airspace user.

- Electricity companies are required to provide mapping of their powerline networks to legitimate low level airspace users (such as aerial applicators) so as to facilitate better risk assessment and planning by airspace users. The model for this system is already in place with Essential Energy in NSW and is in widespread use in

NSW. AAAA has initiated work with both Ergon Energy in Queensland and Western Power in WA, but software problems and file size created issues in practically accessing the data.

- Electricity companies are required to conduct an aviation risk assessment when planning new powerline installations or rerouting/repairing/replacing existing installations, including but not limited to:

    - the placement of powerlines outside areas likely to be treated by aerial application (as is the practice in Canada)
    - the placement underground of wires in high aviation-use areas
    - the provision of taller poles in high aviation-use areas to facilitate the safer practice of flying underneath wires as included in the CASA syllabus for an application rating
    - the painting of poles in high aviation-use areas to improve visibility of this primary visual cue to the location of wires (this is the practice in northern NSW cotton-growing areas but not elsewhere)
    - the use of reflectors on poles and markers in areas where night-time aerial application takes place
    - the marking of spans and painting of poles being integrated into the construction/repair/replacement phases.

**Key Outcome 2 - marking and lighting of wind turbines - AAAA recommends that this outcome be amended to include:**

- Making the NASAG requirements for wind turbine marking mandatory.

- Mandatory marking of wind monitoring towers - which pose the much greater aviation threat to low-level airspace users (see NASAG Guidelines).

- Consider the issues raised in the AAAA windfarm policy - see **Appendix 2**

**Key Outcome 3** - AAAA does **not support** the proposed option of peak industry bodies taking over what is clearly a government role, or the continued use of outdated technology by reference to charts.

Peak bodies simply do not have the resources to undertake the ongoing work required to maintain such a network of information and there are likely to be a range of self-reporting / monitoring and interrogating IT solutions that minimise costs and make critical information more available to low level operators in a timely manner.

**Instead, AAAA recommends that government:**

- review and amend, in cooperation with the aviation industry, the requirements for reporting of tall structures so as to make reporting of all tall structures that pose a threat to low level aviation mandatory and based on a risk assessment as well as a minimum height reporting threshold. AAAA notes that CASA has prematurely released for discussion a proposed new Advisory Circular on Reporting Tall

Structures. AAAA believes that the timing of such a change is inappropriate and that CASA should withdraw the AC and consult with the Department on a more appropriate timing given this discussion paper process and especially the input from industry through submissions.

- Establish a system that removes the current capability (and one that has been exploited by wind monitoring towers developers in the US) to build a tall structure just underneath a 'hard' reporting threshold - 200 feet in the US and much higher in Australia. A risk assessment would be a more appropriate mechanism than a hard height limit alone and the process could be supported by a range of mandatory triggers that would help remove confusion (eg all wind monitoring towers, all radio and communication masts higher than ambient vegetation etc). Government should refer to recent positive changes in this regime in the US through the FAA for towers under 200 feet tall. See for example, http://news.agaviation.org/naaa/issues/2016-07-08/index.html

- Through Airservices Australia (who now control the former RAAF Tall Structures Database), develop a GIS system (eg based on Google Earth or other easily accessible technology) that can be accessed in real time by *bona fide* low level airspace users to identify hazards and threats from tall structures in their intended area of operations.

  It is clear that the current significant time lag between any reporting of a tall structure and its potential (but not predictable) appearance or non-appearance on a relevant chart at a scale that is useful to low level airspace users is a threat to aviation safety.

  Moving to a GIS web-based system in real time could be coupled with appropriate safeguards for access (eg usernames and passwords following a simple application process based on recognition of existing CASA licences for example - AOC or ARN).

  It is critical to understand that in moving to such a system, the data accuracy and verification requirements need not be as stringent as for other Airservices data such as precision approaches. While accuracy is still important (probably +/- 10 metres or perhaps even more), it would not have to be field-verified by Airservices or at the same level of granularity. However, if the IT system developed also included a means of aviation operators reporting significant errors, the system could then contain its own continuous improvement and quality assurance sub-systems.

  To minimise costs even further, Airservices could consider means by which it could accredit a range of trusted organisations or State agencies to contribute to the GIS system based on their entering tall structures directly on the database (eg Telstra for coms towers, State planning agencies for wind monitoring towers etc), or they could simply continue to maintain the current approach to the tall structures database and reporting - with the only difference being the data is actually available for aviation users.

Such a development should also be investigated for potential to bring together other threats to low level airspace safety into a single integrated IT application - including powerline mapping, tall structures, and even drone operations to facilitate the currently non-existent but essential communication gateway between drone users and other low level airspace users.

- AAAA also recommends government consider the issues raised in the AAAA Tall Structures Policy at Appendix 3.

### *New recommendation*

In addition to the comments above, AAAA believes the current proposal is incomplete in terms of its lack of coverage of the increasing appearance of drones in low level airspace and their poor regulation by CASA.

A critical missing safety initiative is the need to urgently establish a mandatory and appropriate communications system between drone users and existing low level airspace users.

AAAA recommends the recent AAAA submission to the Senate Inquiry into Drones - Appendix 4

### *More Information*

If you require further information or explanation on any of the issues raised in this submission, please do not hesitate to contact the CEO of AAAA, Mr Phil Hurst on 02 6241 2100.

### *Appendices*

1 AAAA Powerline Policy

2 AAAA Windfarm policy

3 AAAA Tall Structures policy

4 AAAA Submission to the Senate Inquiry into Drones

# Aerial Agricultural Association of Australia

# Powerlines Policy

**Last Revised: March 2011**

## Introduction

Powerlines present a threat to legal low-level aviation including aerial application—one that has caused the majority of aerial application accidents and the deaths of many pilots.

AAAA has developed this policy so as to inform regulators, asset developers and operators alike of the need for action on their part to fulfill their duty of care to Australia's aerial applicators.

## *AAAA Powerlines Policy*

AAAA recommends:

- The Commonwealth mandate a powerline safety program for all owners and operators of powerlines that would minimize the risks to legitimate low-level aviation and which would feature:
- The mandatory marking of powerlines in areas of aerial application and firebombing activity
- A national web-based database and mapping system, accessible by pilots, that would accurately identify the position of all powerlines and relevant infrastructure.
- The placement either underground, or aligned with paddock boundaries or road easements, of all new powerlines and powerlines being repaired in areas of aerial application and firebombing activity.
- Electricity network owners and operators should not be able to refuse the aerial agricultural industry permission to operate around powerlines, including flying under them where appropriate, as this is often the safer option.
- Electricity network owners and operators should be required by legislation to consult with landholders and aerial operators when proposing to construct a new powerline in farming areas, and to pay compensation to the farmer where this results in increased costs of aerial application as a result of forcing changes to flight paths.
- If unable to put powerlines underground, electricity network owners and operators should be required to mark powerlines in farming areas so as to make them more easily identifiable to pilots..

## *Background*

Most agricultural land in Australia is criss-crossed with powerlines and aerial application companies and pilots put enormous effort into managing these hazards safely, generally using a risk identification, assessment and management process in line with Australian Standard AS4360/ISO 30000.

The agricultural pilot curriculum mandated by CASA includes training for the safe management of powerlines and AAAA has been active in providing ongoing professional development for application pilots that includes a focus on planning, risk management and a knowledge of human factors relevant to managing powerlines in a low-level aviation environment.

AAAA runs a specific training course for aerial application pilots entitled *'Wire Risk Management'* to address these issues.

Every aerial application mission is planned to take account of the threat of powerlines and to manage then as safely as possible while still applying the essential chemicals to protect the crop.

In terms of due diligence, the aerial application industry is doing everything it can to reduce the risk of hitting powerlines.

This is in stark comparison to the very lax, on occasions hostile attitude of powerline companies to the threat their powerlines pose to aviation operations being conducted legally and under the regulation of CASA.

In some cases, the powerline companies' ongoing refusal to provide to aerial application companies the detailed mapping of the position of their network or to mark their wires to make them easier to see, is negligent.

Certainly, the courts (*Sheather v Country Energy*, NSW Court of Appeals) have found that powerline companies do owe a duty of care to all pilots and should mark their powerlines where they are an obvious threat to aviation safety.

AAAA has worked very successfully with one powerline company with coverage of most of NSW - Country Energy - on the development of a cheap and simple powerline marker that can help pilots keep visual contact with the position of powerlines in and around treatment areas.

Unfortunately, these markers are not used in other States, although AAAA notes that Ergon Energy, with coverage of much of Queensland, has recently introduced the same markers and this may improve safety, although take-up rates are still very low.

AAAA's was involved in the Australian Standards Committee for the review of AS 3891 - Marking of Cables and their Supporting Structures.

Unfortunately, it was not possible to secure a significantly improved approach to the marking of powerlines, especially in relation to low level aviation and lowering any thresholds for the mandatory marking of powerlines, such as long spans across valleys etc that have previously caused fatalities. However, a useful risk management approach was included in the standard to encourage landowners to consider the marking of wires in areas of known low level aviation activity. The key aim of the review was achieved however, and that was to permit the markers developed by Country Energy to be use legitimately under the Australian Standard which previously had no provision for them.

Agricultural areas and areas of probable bushfire activity would be two obvious places where powerline companies should be exercising their court-defined duty of care and marking powerlines so as to assist aerial agricultural and firebombing pilots manage another risk in an already hostile aviation environment.

## FURTHER INFORMATION

**If you would like more information on the vital and responsible role the aerial application industry plays:**

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**Or contact us on:**
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# Aerial Agricultural Association of Australia

# Windfarm Policy

## March 2011

### Introduction

Windfarms and their pre-construction wind monitoring towers are a direct threat to aviation safety – and especially aerial application. They also pose an economic threat to the industry where the costs of windfarm development—including those of compensation for loss of income—are externalized onto other sectors such as aerial application.

AAAA has developed this policy so as to inform regulators, asset developers and operators alike of the need for action on their part to fulfill their duty of care to Australia's aerial applicators.

## *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 longest) binding compensation arrangements for affected aerial application companies.

While it is not AAAA policy to provide specific comment on particular development proposals due to resource limitations, AAAA notes that windfarms can have far-reaching footprints that can remove significant amounts of land from treatment for a considerable distance from the windfarm boundary.

Operational implications of each development will vary enormously depending on the site, the positioning of the turbines, orientation of affected paddocks relative to the turbines, the type of aerial application taking place, the aircraft used, the pilot's experience, the meteorological conditions, the site elevation, the position of any airstrip relative to the turbines and a range of other variables.

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

AAAA believes that:

- All wind monitoring towers—including guy wires—must be clearly marked to assist pilots to see them
- All wind turbines, wind monitoring towers and associated infrastructure must be required to be removed when no longer in use. A mandatory bond should be levied on all developments to ensure the site can be remediated.

## *Recommendations to Government*

**Moratorium & National Policy**
AAAA recommends to all Governments the establishment of a moratorium on windfarm developments until a national COAG policy on windfarms is established that requires the following to be considered before approval:

- Competing land uses for the particular site.
- Priority for existing long-term land-uses.
- Economic and safety impacts on contracting industries such as aerial application, including the broader implications for thresholds of sustainability for contractors.
- Independent life cycle analysis of windfarms and their overall environmental impact.
- Impact on aviation safety.
- Impact on bushfire preparedness and aerial firefighting.
- Impact on visual pollution / amenity/ tourism.
- Other sources of sustainable energy.

**Transparency**
AAAA recommends that any 'special' or 'fast-track' planning processes established for windfarm developments be removed. All windfarm developments should be subject to the full planning processes and community consultation in each State and Territory, including appeal of decisions.

Governments should require public disclosure on a register of payments to landholders made before approval of the windfarm. This will allow other landholders and contractors to be aware of developments.

**Aviation Safety**
AAAA recommends that government provide better information to all windfarm developers on their responsibilities for aviation safety, including raising the duty of care requirements established under *Sheather v Country Energy* (NSW Court of Appeals) for owners of assets that pose a known threat to aviation activities to provide for suitable marking and other safety initiatives.

The Commonwealth should establish a head of power to consider and regulate windfarm developments to protect aviation safety. This should include mandatory marking and notification of wind infrastructure and the power to veto proposed developments where they interfere with aviation safety.

CASA should set a much lower than previously used height trigger for notification of tall structure developments - down to 50 feet in an area of known aerial application activity—or by using a risk assessment based approach.

CASA should work with Airservices Australia and any other relevant agencies to ensure that completed windfarms are included on suitable aviation mapping including WAC charts and topographic maps.

CASA should develop a national tall structures web database that is accessible in real time by all low-level aviation pilots and which captures all wind-monitoring towers as well as completed windfarms. The database should also capture other tall structures such as radio masts etc.

## *Background*

CASA does not have a clear head of power or a pathway for windfarm developers to ensure the risks their developments are posing are appropriately managed so as to protect legitimate activities of low-level aviation operators.

In particular, previous CASA efforts to address this issue by requiring marking and lighting of certain towers above a certain height and within a certain distance of an airport misses the main risk to aviation and this is the wind monitoring towers as they are frequently lower than the height trigger, but still a threat to legitimate low-level aviation.

Wind monitoring towers are very tall in relation to aerial application operations, are erected within very short timeframes, are extremely difficult for any pilot to identify from the aircraft and are often not notified to aviation users because of the lack of a Government-mandated notification system and the desire of the developers to keep their positions a secret because of commercial issues.

There are two quite distinct issues arising from windfarms that affect aerial application:

- safety of the aircraft and pilot and
- economic impact on aerial applicators.

### *Safety Impacts*

AAAA's view is that the case of *Sheather v Country Energy* (NSW Court of Appeals) clearly established that anyone with infrastructure posing a threat to aviation must consider the risks that infrastructure poses to aviation safety and respond appropriately through marking or other measures to safeguard aviation operations.

This precedent is of critical relevance to windfarm developers although not apparently widely known to them or acted upon.

### *Economic Impacts*

Safety is not the only consideration that is imposing additional risk and consequences on the aerial application industry.

The placement of wind farms in areas of highly productive agricultural land is leading to reductions in treatment areas of aerial application companies with no compensation for this externalization of costs by wind farm developers.

For example, placement of a wind farm may affect flight lines and application height or even whether the application can be conducted at all - leading directly to either an increase in cost or a reduction in income - and sometimes both - for aerial application operators.

As windfarm developments increase in number and scale of footprints, the threshold of non-viability of aerial application in an area may be reached where it is simply not economic to base an aircraft there. In a highly seasonal industry such as aerial application, operations may already be close to this threshold and windfarm footprints may compromise the availability of a critical service.

The need to manage spray applications to ensure they are safe may mean that pest outbreaks such as locusts may not be able to be effectively controlled. Windfarms may create significant gaps in large scale treatment plans—leading to a breakdown of an overall campaign against locusts, cereal rust, noxious weeds or other pests with massive economic implications for farmers and the economy.

In particular, AAAA is concerned that not enough consideration is being given through the State planning approval processes to the impacts of windfarms on productive agricultural land and the aerial application industry, remembering that it may not only be the land footprint where the windfarm is sited, but also land surrounding that for some kilometers where aircraft may have to maneuver to conduct aerial application.

At the very least, windfarm developers should be required to pay compensation to aerial applicators where it can be reasonably established that there will be an economic impact imposed on the aerial application company by the wind farm developer.

### *Operational Impacts*

The following potential impacts on aerial application should be considered by all windfarm developers:

- positioning of wind farms may affect local aerial application operations, depending on the particular site.
- impacts could vary from affecting flight lines to treatment height and accuracy, maneuvering areas and possibly take-off and landing splays if an airfield is nearby (see for example, CASA CAAP 92-1 for agricultural airstrips – www.casa.gov.au – search for CAAP 92-1.)
- it may not be the land or farm that the wind farm is to be situated on that will be affected. Neigbouring farms, especially any with borders close to the windfarm site, may suffer significant impacts by imposed limits on the manouvering areas of aerial application aircraft.
- a key impact may not be the turbines themselves, but the positioning of any powerline that would lead from the windfarm substation back to the grid, or any other above ground powerline that would be put in to support the development. Any sections of above ground cable should be adequately marked.
- economic impacts could include increased costs due to longer flight times required to manouver heavily laden aircraft around wind towers, a loss of accuracy due to being required to fly higher for safety reasons, an increase in liability due to the reduction in accuracy, or the complete loss of application jobs due to the landholder not wanting the area covered by windfarms to be treated.

### *AAAA Activities to date*

AAAA has done a lot of work to make it easier to mark guy wires and powerlines – including on wind monitoring towers – through amendment of the national standard on marking of wires so as to use a marker developed by Country Energy (NSW) with the cooperation of AAAA.

There is now little practical reason why wind towers and especially wind monitoring towers should not to be clearly marked.

In addition, AAAA has attempted to provide relevant information to developers through the Wind Energy Association, but this process/ advice is voluntary and consequently will not provide coverage of all developers.

AAAA also passes on information to members that has been provided to it by wind farm developers on the physical location of wind monitoring towers. However, only a few developers provide this information and again there is little doubt that many towers are going up unmarked and unknown until hopefully spotted by pilots during pre-application inspections.

More comprehensive safeguards must include a mandatory national system of communication of the position of all wind monitoring towers and the inclusion of this on a national database accessible by low level pilots.

This is a very real issue for topdressing and firebombing operations - as wind monitoring increases, so does the threat to legal aviation activities.

### *AAAA Windfarm Notification Process*

AAAA tries to assist aviation safety by advising those of our members on our email lists of the position of wind monitoring towers and also wind turbines when they are under construction and finally constructed, if advised by windfarm developers.

Windfarm developers are encouraged to provide these details (in lats and longs by email to AAAA) so that AAAA can pass them on to those members.

AAAA provides this facility on the basis of it being information of a general nature only and the understanding that the information, for a range of reasons (including email failure, not all members being covered by email, or non-use by members, or operational shortcomings) will not provide any guarantees of aviation safety.

AERIAL AGRICULTURAL ASSOCIATION OF AUSTRALIA

**FURTHER INFORMATION**

**If you would like more information on the vital and responsible role the aerial application industry plays:**

**www.aerialag.com.au**

**Or contact us on:**
**02 6241 2100 ph.**

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**AAAA**
**PO BOX 353**
**Mitchell ACT 2911**

# AAAA Tall Structures Policy

**Last Revised: February 2017**

## Introduction

Tall structures—such as radio masts—are a direct threat to aviation safety – and especially aerial application. In an already hazardous low-level environment, tall structures impose additional operational costs onto aerial applicators in addition to increased risk.

AAAA has developed this policy so as to inform regulators, tall structure developers and operators alike of the need for action on their part to fulfill their duty of care to Australia's aerial applicators.

## *AAAA Tall Structures Policy*

As a result of the potential safety and economic impact of tall structures and supporting infrastructure on the sector, AAAA **opposes all tall structure developments** in areas of agricultural production or elevated bushfire risk 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 that is acceptable to local operators
3. clearly and fairly identified that there will be no 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 tall structures and related infrastructure and advised pilots and operators of its presence.

AAAA believes that the above processes should also apply for all tall structures that have already been approved or erected.

While it is not AAAA policy to provide specific comment on particular development proposals due to resource limitations, AAAA notes that tall structures can have far-reaching footprints that can remove significant amounts of land from treatment for a considerable distance from the tall structure vicinity.

Operational implications of each development will vary enormously depending on the site, the positioning of the tall structure, orientation of affected paddocks relative to the tall structure, the type of aerial application taking place, the aircraft used, the pilot's experience, the meteorological conditions, the site elevation, the position of any airstrip relative to the tall structure and a range of other variables.

However, it is clearly unacceptable that one industry can impose significant safety threats on another industry.

AAAA believes that:

- All tall structures—including guy wires and infrastructure—must be clearly marked to assist pilots to see them
- All tall structures and associated infrastructure must be required to be removed when no longer in use.
- The Commonwealth Government should establish and maintain a mandatory Tall Structures Reporting and Advice System, based on a real-time GIS system available on the internet to all bona-fide low level airspace users.

## *Recommendations to Government*

**Land Planning**

AAAA recommends that the Commonwealth, States and Territories cooperate so as to make the NASAG processes binding on all government jurisdictions when they consider development applications for tall structures.

AAAA recommends that the Commonwealth expand its work under the NASAG process to include a new Guideline for the development of tall structures away from airports, including considerations of existing land use, known aerial application activity, notification and marking of tall structures.

The aim of such a Guideline, in addition to enhancing aviation safety, should be to ensure that tall structure developments do not adversely affect known aviation activities or aviation safety, and are compatible with existing land-use patterns.

AAAA recommends that the Commonwealth provide coordinated and comprehensive information to all tall structures developers on their responsibilities for aviation safety, including raising the duty of care requirements established under *Sheather v Country Energy* (NSW Court of Appeals) for owners of assets that pose a known threat to aviation activities to provide for suitable marking and other safety initiatives.

The Commonwealth should establish a head of power to regulate tall structure developments away from airports to protect aviation safety. This should include mandatory marking and notification of tall structures and the power to veto proposed developments where they interfere with aviation safety.

The Commonwealth should develop a national tall structures web-based database that is accessible in real time by all low-level aviation pilots and which captures all tall structures. The database should also capture other threats to low-level aviation including wind monitoring towers and powerline mapping systems.

CASA should set a much lower than previously used height trigger for notification of tall structure developments - down to 50 feet in an area of known aerial application activity—or use a risk assessment based approach.

CASA should work with Airservices Australia and any other relevant agencies to ensure that tall structures are included on suitable aviation mapping including WAC charts and topographic maps in a more timely manner.

## *Legal Responsibilities of Developers*

AAAA's view is that the case of *Sheather v Country Energy* (NSW Court of Appeals) clearly established that anyone with infrastructure posing a threat to aviation must consider the risks that infrastructure poses to aviation safety and respond appropriately through marking or other measures to safeguard aviation operations.

While the requirement of marking of towers and notification to the RAAF Tall Structures Database is covered to some degree by the CASA regulations, this is based on what AAAA believes is a flawed approach to risk management and some towers may be excluded from the requirements because of the height threshold.

The Federal and State governments have undertaken significant work in this area through the National Safeguarding of Airports Working Group - http://www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/index.aspx - AAAA believes the Commonwealth should make compliance with these guidelines mandatory as a first step in improving aviation safety.

In particular, AAAA have identified unmarked and un-notified wind monitoring towers as a safety threat to legitimate low level aviation—one that significantly increases the liability of developers should an accident occur. AAAA suggests tall structure developers should consider AAAA evidence to the Senate Windfarm inquiry and the death of an agricultural pilot in the US from hitting an unmarked, unnotified tower which has since resulted in significant legal and legislative action in the US - http://www.aph.gov.au/hansard/senate/commttee/S13670.pdf

## *Powerline Mapping and Marking*

No pilot goes to work intending to hit a wire, so we must assume that pilots are doing their best to manage an extremely difficult operational task that would be significantly supported by mandatory national requirements for the provision of electricity network mapping information to pilots and operators and the visual marking of 'high risk' powerline spans - such as those that have already been hit and those assessed by pilots and operators as posing a significant risk.

Safety awareness in the aerial application industry is already extremely high and backed by a range of strong risk management systems and AAAA education and training initiatives.

AAAA has a long history of working positively with Essential Energy in NSW (formerly Country Energy) and this has led to the provision of mapping of networks to low level airspace users, and the placement of over 1200 markers on dangerous powerlines throughout NSW.

The key issue with marking systems is that they must be able to be fitted 'live line' by qualified electricity company staff. This brings the cost down from the traditional $2-3000+ for a single large orange ball marker (as the line must be isolated / turned off for fitting and several crews are involved) to about $100 per modern marker supplied and fitted. This puts the costs of marking well within the reach of electricity companies, landholders and others.

Essential Energy also works cooperatively with AAAA on information campaigns - see for example:

***https://www.essentialenergy.com.au/asset/cms/pdf/safety/AerialSafety.pdf***

AAAA has also sought to work with other electricity companies in other States. Unfortunately, that work has not resulted in mapping or marking systems being widely adopted, mainly due to the way information can be provided, but also a lack of interest in engaging on this critical safety issue.

AAAA is hopeful of improved software removing this current impediment to the national availability of powerline mapping.

However, the power of a national mandatory requirement for the provision of this already existing data should not be underestimated in terms of ensuring powerline companies contribute to safer aviation.

**Review of Australian standard AS 3891 - Air Navigation - Cables and their supporting Structures - Safety and Marking Requirements - Part 2**

The Australian Standard AS3891 on wire marking is currently being reviewed and both AAAA and CASA have been asked to participate on that review committee.

AAAA chaired the previous review of the standard some years ago and was frustrated in achieving any substantive changes to marking thresholds by concerted resistance from electricity network owners.

However, the previous review of the Standard did permit the use of new types of markers that are able to be placed during live-line work and are consequently far cheaper to install and even more visually effective than the traditional large 'ball' markers.

AAAA hopes that the upcoming review will similarly improve the Standard in terms of being less restrictive on innovative marker types (of which several are now available but which have difficulty conforming to the current Standard).

AAAA is also hopeful that the current hard triggers for marking of powerlines with significantly long spans (up to 1500 metres) and very high clearances above ambient vegetation (up to 90 metres) will eventually be addressed to be set at more realistic and safer - ie shorter and lower - distances.

**AAAA notes that the Australian Standard does not appear to be binding or mandatory for electricity network owners and would strongly support its mandating by regulation.**

### *Operational Impacts*

The following potential impacts on aerial application should be considered by all tall structure developers:

- positioning of tall structures may affect local aerial application operations, depending on the particular site.
- impacts could vary from affecting flight lines to treatment height and accuracy, maneuvering areas and possibly take-off and landing splays if an airfield is nearby (see for example, CASA CAAP 92-1 for agricultural airstrips – www.casa.gov.au – search for CAAP 92-1.)
- it may not be the land or farm that the tall structure is to be situated on that will be affected. Neighboring farms, especially any with borders close to the tall structure site, may suffer significant impacts by imposed limits on the maneuvering areas of aerial application aircraft.
- a key impact may not be the tall structure itself, but the positioning of any powerline that would lead from the tall structure. Any supporting powerline should be put underground. If this is not possible, any above-ground cable must be adequately marked.

### *AAAA Activities to date*

AAAA has done a lot of work to make it easier to mark tall structures, guy wires and powerlines through amendment of the national standard on marking of wires so as to use a marker developed by Essential Energy (NSW) with the cooperation of AAAA.

There is now little practical reason why tall structures and guy wires should not to be clearly marked.

AAAA also passes on information to members that has been provided to it by developers on the physical location of some tall structures. However, only a few developers provide this information and again there is little doubt that many tall structures are going up unmarked and unknown until hopefully spotted by pilots during pre-application planning and inspections.

More comprehensive safeguards must include a mandatory national system of communication of the position of all tall structures towers and the inclusion of this on a national database accessible by low level pilots.

### *AAAA Windfarm and Tall Structures Notification Process*

Despite extremely limited resources, AAAA tries to assist aviation safety by advising those of our members on our email lists of the position of tall structures if advised by developers.

While AAAA has very limited resources, tall structure developers are encouraged to provide these details by email to AAAA.

AAAA will pass that information on to our members in that State on the basis of no assumed liability.

AAAA points out clearly that this in no way absolves the tall structure developer from the need to mark the masts so as to contribute to a discharge of their due diligence and duty of care to pilots.

AAAA provides this facility on the basis of it being information of a general nature only and the understanding that the information, for a range of reasons (including email failure, not all members being covered by email, or non-use by members, or operational shortcomings) will not provide any guarantees of aviation safety.

AAAA accepts no liability in terms of the accuracy of information provided, and makes no representations as to the use of the information provided or the likely actions of members.

Tall structure notifications to AAAA should include, in the following order:

- State
- Distance and direction relative to the nearest significant town (eg 10 miles SE of xxxx)
- Latitude and longitude
- Location—eg top of hill
- Height to top
- Type—eg lattice tower / monopole and guys
- Footprint - eg guys 45 metres from pole
- Date of erection
- Marking—eg painted orange/white / strobe
- Any other relevant information

**FURTHER INFORMATION**

**If you would like more information on the vital and responsible role the aerial application industry plays:**

**www.aerialag.com.au**
**Ph: 02 6241 2100**
**Email: phil@aerialag.com.au**

**PO BOX 353**
**Mitchell ACT 2911**

AERIAL APPLICATION ASSOCIATION OF AUSTRALIA LTD.

# AERIAL APPLICATION ASSOCIATION OF AUSTRALIA LTD.

**ABN 13 002 501 886 • ACN 002 501 886**


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15 December 2016

Committee Secretary
Senate Standing Committees on Rural and Regional Affairs and Transport
Inquiry into Drones
Parliament House
Canberra ACT 2600

## AAAA Submission - Drones

**Introduction**
AAAA is the peak industry body representing business owners and pilots involved in the aerial application of crop protection products, firebombing and related operations. The Association was established in 1958 and has a long track record of working positively on aviation safety and regulatory issues.

The members' operations require them to work at low level - often a few metres above a crop or higher when sowing, fertilising or firebombing. Almost all operations will be conducted below 400' - creating a direct conflict with drone use in the same airspace.

**Key Risk Not Mitigated**
AAAA believes that the key risk that CASA has failed to address is separation between legitimate and legal low level airspace users and drones.

Airspace users affected include aircraft used for aerial application, survey, mustering, pest control, slinging, fire observation, emergency rescue and other aerial work activities.

In addition, all other aircraft approaching, landing, taking off and departing from private, agricultural or other airstrips are not protected by current laws.

In addressing this primary risk of a breakdown of separation - which AAAA has raised with CASA many times - it would not be unreasonable to expect CASA to have established a real time system of communication between drone users and existing low-level airspace users to allow them to make local arrangements for adequate self-separation.

No such communication system is in place and consequently this primary risk remains unmitigated.

The current NOTAM system is simple not adequate to cope with this risk given the likely number of interactions, the variability of geography covered on an hourly basis and the essential immediacy necessary for timely notification and further communication between parties.


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AAAA believes that the current CASA approach of deregulating drones up to 2 kg generally and up to 25 kg when used on farm - without a commensurate system to facilitate notification and communication - is fundamentally flawed from an aviation safety perspective.

It is not the low kinetic energy of the drone that is at issue - it is the kinetic energy of the low level aircraft weighing several tonnes, travelling at approximately 250 km/h and with a vulnerable pilot at the controls protected by a thin sheet of Perspex and powered by an engine that would be highly likely to fail should a drone be ingested or hit a control surface. The consequence of such an event could be significant, especially for the pilot.

Again, AAAA has raised these issues with CASA and been consistently ignored, as demonstrated by the current regulations that ignore this very real risk.

A number of safety reports made to ATSB involving conflict between drones and other aircraft clearly demonstrate that this risk is not theoretical and not able to be managed given the current lack of a coherent notification/communication system.

There are many examples of GIS based apps that already perform this type of function in other areas. One example is the BeeConnected app - http://beeconnected.org.au/ - developed by Croplife and the Australian Honey Bee Council and of which AAAA is a strong supporter. This app allows spray contractors and apiarists to work together to manage a range of risks and is based on the principles of notification and communication.

The technology is obviously available and being successfully used in other sectors.

CASA - or the management of AirServices - has simply not considered the potential of such an approach to improve safety in this area. GIS technology combined with smart phones or other devices would lend itself to improving safety across a wide range of low level airspace issues.

This could include, for example, better and more timely notification of wind monitoring towers, wind farms, radio towers, powerline marking etc - information that is critical to low-level aviation but which is simply not made available through existing charts in a timely manner for operations that are highly seasonal, highly mobile and require constant variation and rescheduling due to weather and other operational considerations.

Clearly, such an approach would be a win-win scenario for drone operators, low-level operators, the regulator CASA and the airspace service provider AirServices - but unfortunately appears to be beyond the imagination or knowledge of those determining current drone regulations and responses to the clear primary risk of separation.

**Key Issues Requiring New Consultation and Regulations**

The following additional issues may also be useful in establishing for the Inquiry core issues of concern to industry and potential ways forward to improving safety:

***Communication*** – the critical factor to improving safety is to use modern technology to facilitate improved communication between drone users and legitimate users of low-level airspace as outlined above.

***Education*** – improved education of the wider population and obviously drone users (including hobbyists) regarding drone safety and sharing airspace is critical. While the current campaign

conducted by CASA has some good elements, it is not achieving penetration into the potential drone user community and is basically a toothless threat unless accompanied by high profile prosecutions using significant penalties.

***Enforcement*** – while there are regular negative events involving drones, only a few make it to ATSB reports or media reports of prosecutions. CASA penalties in the legislation are not set at a significant level to be a major deterrent to poor or reckless use and should be increased to a maximum penalty – especially for wilful and negligent offences - of up to $50,000 for an individual and $100,000 for a corporation. While these levels of penalty may appear to be high, they are unlikely to match the potential loss of income to aircraft operators who have to stand down, or the potential damage to life or property during a bushfire. Without supporting legislation to improve the traceability of drone offences, CASA will be unlikely to mount the high profile prosecutions to establish any deterrence value.

***Deregulation to 2kg*** – opposed – need for transparency, accountability and responsibility – see the US FAA model that requires registration. As a minimum, every drone should carry a registration number/engraving so that trace back is possible should the drone crash or cause injury etc. The key risk to be managed remains the lack of a communication system and safe drone use away from the public and other airspace users.

***Deregulation to 25kg on farms*** – opposed – as above, but there are additional issues to be considered including the competence of operators of the drone in areas such as aerial application of chemicals including environmental protection, spray quality, drift management and the prime risk of separation through communication.

***Regulation of commercial drone operations*** - Commercial drone operations should be required to have systems of management that provide a commensurate level of safety as all other commercial aviation operators.

AAAA supports the following regime for all drones used in a commercial setting to ensure systems are in place to manage the relevant challenges including safety:

- All business owners must operate under the requirements of an AOC or similar and be licensed by the Dept in charge at the State/Territory level for chemical control of use purposes if involved with application of agricultural chemicals.
- All business owners must comply with the full requirements of an operations manual.
- All operations manuals must detail how the operation will manage the risk of airspace sharing, especially with aerial application and other low level users.
- All business owners must have operational control of their personnel.
- All drone operators must be competent and licensed by CASA and the Dept in charge at the State/Territory for chemical control of use if involved with application of agricultural chemicals.
- All drone businesses and operators must comply with similar competence requirements for all other commercial aviation businesses conducting similar operations.

**Further Information**

If the Committee requires any further information or explanation, please contact the AAAA CEO Mr Phil Hurst on 02 62412100. AAAA would be happy to appear before the Committee should that felt to be valuable by Committee Senators.