



## **NSW Independent Inquiry into Bushfire Season 2019-2020**

**Submission by:**

**Australasian Fire and Emergency Service Authorities Council (AFAC)**

who are:

**The National Council for Fire and Emergency Services**

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The Australasian Fire and Emergency Service Authorities Council (AFAC) welcomes the opportunity to make a submission to the NSW Independent Inquiry into Bushfire Season 2019-2020. The submission is based on consultation among AFAC membership as well as our broader understanding of the context of the Independent Inquiry.

We ask the Independent Inquiry to note that the submission should not be taken as the position of any single AFAC member. Also, some of our members will have contributed to the Independent Inquiry through jurisdictional submissions, and nothing in this advice should be taken as implying that our members do not fully support their jurisdictional submissions where made.

As part of this submission, various documents produced by AFAC have been cited. These documents form the foundation of information used for this submission and are referenced in the text with hyperlinks where possible. AFAC takes a leading stance in the publication of industry doctrine which has been drawn on where relevant. This doctrine ranges from high-level, principles-based capstone material, through to technical guidance. Individual agencies make practical and realistic operational decisions on how they interpret and implement this doctrine.

This submission begins with an overview of AFAC and its role in relation to Australasian Fire and Emergency Services (**Section 1**). **Section 2** is a response to each of the terms of reference of the Independent Inquiry, which will describe relevant AFAC initiatives that illustrate how AFAC is addressing the issues identified. **Section 3** addresses other matters of importance AFAC seeks to raise with the Committee.

AFAC member agencies have contributed to data collection to form the overview of key indicators from significant fire events from 1939 to the 2019-20 season. This data within the submission highlights the tragic number of lives lost, while at the same time illustrating how this number could have been even worse when compared to the area burnt and location of the fires during this season.

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## SUMMARY

The Australasian Fire and Emergency Service Authorities Council (AFAC) welcomes the opportunity to make a submission to the *NSW Independent Inquiry into the Bushfire Season 2019-2020* (Inquiry). The submission is based on consultation among AFAC membership (refer Appendix 1: AFAC member organisations) as well as our broader understanding of the context of the Inquiry.

New South Wales fire and emergency service agencies are members of AFAC and core contributors to the national collaboration AFAC fosters. There are four key business units initiated and supported by AFAC that support AFAC member agencies in NSW and beyond, and contribute to the safety of the NSW and Australasian community:

- AFAC National Resource Sharing Centre (NRSC): delivering coordination of interstate and international resource deployments
- AFAC National Aerial Firefighting Centre (NAFC): delivering national arrangements for the provision of aerial firefighting resources for combating bushfires
- AFAC Centre of Excellence for Prescribed Burning: delivering further development of innovative, evidence-based principles, policies, programs and practices for prescribed burning; and
- Australian Institute for Disaster Resilience (AIDR): working with government, communities, NGOs, not-for-profits, research organisations, education partners and the private sector to support a disaster resilient Australia.

NSW agencies have been proactive and strong participants within AFAC and have supported these national capabilities. These AFAC business units and initiatives are industry driven with a strong degree of ownership by fire and emergency agencies. Membership of AFAC acts as a force multiplier for NSW agencies, giving them access to and influence over the creation of national doctrine, gaining insight and learning of best practice across AFAC agencies and allowing them to draw on the resources of Australia, New Zealand and beyond to support emergency management in NSW.

AFAC has 34 national collaboration groups to support members. National collaboration is a cost-effective and structured way to share learnings and experience, collectively contribute to the development of national positions, procedures and guidelines to support integrated emergency management. AFAC, with its collaboration groups, partnerships and initiatives such as the AFAC NRSC, AFAC NAFC, AFAC Centre of Excellence for Prescribed Burning and AIDR, are important national capabilities within Australia supporting fire and emergency services.

Our submissions to the Inquiry can be summarised as follows:

- NSW agencies, as AFAC members, participate in a holistic approach to emergency management and contributing to disaster resilience. They have anticipated and understand, the need for climate change adaptation and the ability to keep the public safe, as the extent and duration of natural hazards affecting the community increases.
- A large amount of work has been undertaken by NSW agencies, collaborating nationally, to develop and contribute to appropriate regulatory frameworks including building codes to keep the public safe from fire. NSW agencies contribute to the development of national best practice in prescribed burning to manage fuels and mitigate the impact of bushfires. National doctrine on bushfires is applied in NSW to ensure that the lessons learned from

Australia's history of bushfire are applied to protect communities.

- NSW agencies have been able to leverage off AFAC membership as a force multiplier to respond to bushfire. The national system of fire danger ratings and warnings provides scientifically-based tools for NSW agencies to warn communities and ask them to take appropriate action in response to the threat of bushfire. Nationally-developed predictive tools allow NSW fire agencies to model where fire threatens communities and natural assets and to tailor their response accordingly.
- National and international resource sharing arrangements managed through AFAC allowed NSW agencies to call upon thousands of interstate firefighters and hundreds of international bushfire firefighting experts to support the firefight, and national arrangements for aerial firefighting allowed significant aviation firefighting resources to be applied against the fires for months at a time.

To assist the Inquiry to understand the context of the 2019-20 fire season in a historical sense, AFAC member agencies have contributed to data collection to form the overview of key indicators from significant fire events from 1939 to the 2019-20 season (refer **Figure 1**). This data highlights the tragic, however, low number of lives lost when compared to the area burnt and location of the fires during this season.

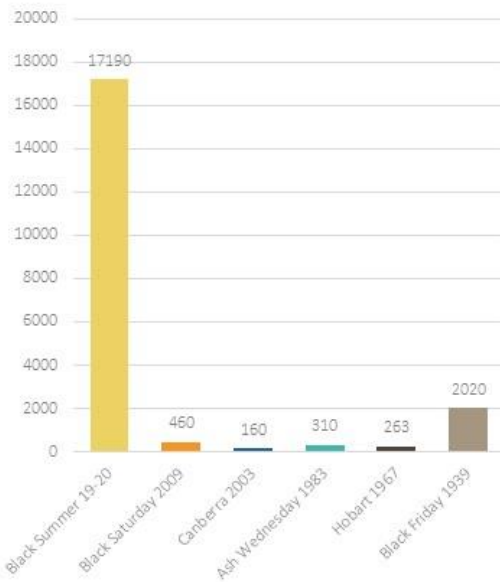
While there is no specific research to draw on at this stage, it would be reasonable to conclude that the relatively few (albeit highly regrettable) deaths; the timely and effective advice and warnings; the sustained and coordinated operational response on the ground and in the air for over six months was, at least in part, due to initiatives nationally developed through the auspices of AFAC leading to improved efficiency and operational effectiveness.

AFAC remains ready to assist the Inquiry and to answer any questions or expand on any concepts and recommendations made herein.

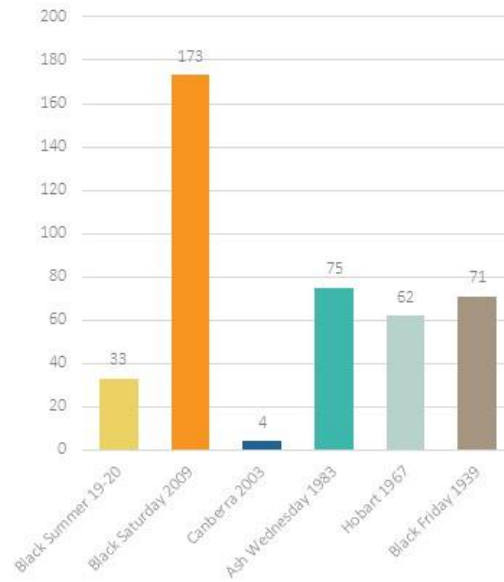
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# 1939 – 2020

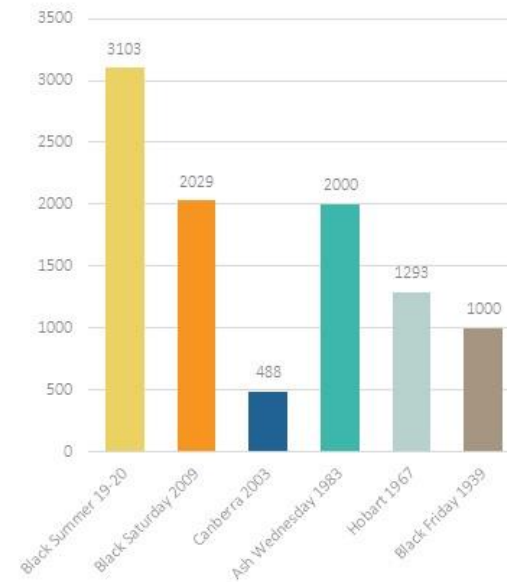
Size (thousand ha.)



Lives lost



Homes lost



\*2019-2020 data is drawn from ACT, New South Wales, Victoria, Queensland, Western Australia and South Australia

Figure 1: Overview of significant historical fire events in Australia 1939-2020

# 1 OVERVIEW OF AFAC AND ITS ROLE

AFAC is the National Council for fire, land management and emergency service authorities in Australia and New Zealand. AFAC represents 31 member and 21 affiliate members, comprising permanent and part-time personnel and volunteers, totalling 288,000 firefighters and emergency workers. The list of AFAC member organisations is provided in **Appendix 1**. NSW land management, fire and emergency management agencies are proactively involved in AFAC. AFAC engages with members through a collaboration model, as well as delivering professional development and knowledge sharing through the facilitation of events, and by influencing regulations and standards. It exists to support the fire and emergency service industry, making communities safer and more resilient. AFAC has no direct role in the delivery of services to the community. AFAC also currently plays no role in representing its members in industrial matters.

AFAC facilitates national collaboration through the [AFAC Collaboration Framework](#), which encompasses 34 groups, technical groups and networks (refer **Section 4.6**). AFAC members regularly come together to share knowledge, utilise research and create solutions that shape practice and guide the industry's development. In this way, the AFAC Collaboration Framework adds value to and is highly regarded by the fire and emergency services industry and ultimately enhances community safety.

These groups, technical groups and networks, organised across the five Strategic Priorities identified by the Sector, offers NSW agencies the opportunity to collaborate, share ideas and initiatives and learn from agencies across Australia and New Zealand. These groups provide a core knowledge capability within AFAC, engaging over 800 senior agency personnel from AFAC's 31 agencies and leads to the development of national doctrine that is critical to the consistent utilisation and application of research and knowledge.

AFAC's most significant intellectual property is the suite of doctrine publications which articulates best practice based on the knowledge and experience of our members and informed by research where it is available. It's evidence-based, constantly reviewed and vested as the official view by the AFAC National Council and sector leaders. An overview of AFAC's doctrine is located on the [AFAC website](#).

## 1.1 AFAC Strategic Directions

The work of AFAC is directed by the [Strategic Directions for fire and emergency services in Australia and New Zealand 2017–2021](#). The Strategic Directions provide clarity on intent and identifies actions at a national level for fire and emergency services in Australia and New Zealand. AFAC recognises that a collaborative approach is critical to achieving the Strategic Directions which gives fire and emergency services a national voice and broader impact, while enhancing collective capabilities (AFAC, 2017a).

The five Directions are:

1. Supporting resilient communities through risk reduction
2. Providing trusted response and facilitating the transition to relief and recovery
3. The source of credible and timely information
4. Effective governance and resource management
5. Informed by knowledge and research.

## 1.2 AFAC is a not-for-profit Company

AFAC is a not-for-profit company, effectively owned by the fire and emergency agencies. This has proved to be a highly efficient and collaborative model which has been in place for more than 25 years. AFAC has existed and thrived as its purpose is to support the fire and emergency agencies and it does this in the absence of a Federal Government Constitutional mandate. AFAC and its members do not wish to see this change and see no reason for the current approach to change. AFAC manages three companies and four business units and the AFAC business units are represented below:

- National Resource Sharing Centre
- Australian Institute for Disaster Resilience
- National Aerial Firefighting Centre
- Emergency Management Professionalisation Scheme



## 1.3 AFAC manages the National Resource Sharing Centre

AFAC established the [National Resource Sharing Centre](#) (NRSC) in 2016 tasked with the sourcing and coordination of interstate and international resource deployments. AFAC is the conduit for international resources from New Zealand, Canada and the United States of America. The AFAC NRSC coordinates and facilitates international and interstate deployments through its established partnerships and national arrangements, authorised by the Commissioners and Chief Officers Strategic Committee (CCOSC). AFAC NRSC is recognised by CCOSC as an enabler of national capability for fire and emergency services.

The AFAC NRSC also develops and maintains the national Arrangement for Interstate Assistance (AIA); pursues collaboration opportunities with international jurisdictions including developing appropriate deployment arrangements where practical; maintains the National Statement of Capability for Fire and Emergency Services; and provides support, if requested, to jurisdictions involved in deployments. Its value has been clearly demonstrated in supporting the management of large-scale incidents, facilitating interstate and international deployments and AFAC is clearly the primary coordinator for international firefighting resources.



There is a clear demand for a national resource sharing capability, maintaining national visibility of availability and resources deployed and a clear understanding of the need for its further development.

#### **1.4 AFAC is the lead partner in the Australian Institute for Disaster Resilience**

The [Australian Institute for Disaster Resilience \(AIDR\)](#) develops, maintains and shares knowledge and learning to support a disaster resilient Australia. Building on extensive knowledge and experience in Australia and internationally, AIDR works with government, communities, NGOs, not-for-profits, research organisations, education partners and the private sector to enhance disaster resilience through innovative thinking, professional development and knowledge sharing (refer **Appendix 2**).

AIDR is a consortium led by AFAC as a business unit and supported by its partners, the Australian Red Cross and the Bushfire and Natural Hazards Cooperative Research Centre. AIDR is funded by the Australian Government through the Department of Home Affairs.

#### **1.5 AFAC manages the National Aerial Firefighting Centre**

The [National Aerial Firefighting Centre \(NAFC\)](#) is a business unit of AFAC. Formed in 2003 by AFAC with the agreement the Australian states and territories, with the support of the Australian Government, to provide a cooperative national arrangement for the provision of aerial firefighting resources for combating bushfires. Originally a separate company for funding purposes, since 2018, NAFC has operated as a business unit of AFAC, the National Council for Fire and Emergency Services.

NAFC's purpose is to deliver improved aerial support to states and territories through national collaboration and cooperation; delivering excellence and a safe, effective and efficient aerial capability; supporting and enhancing fire and emergency management in Australia.

NAFC coordinates the leasing of a national fleet of specialised firefighting aircraft on behalf of state and territory emergency services and facilitates the sharing of these aircraft between states and territories during the fire season, by maintaining a resource sharing agreement. The collaborative arrangements for the national aerial firefighting fleet have been instrumental in protecting communities and saving lives and property over past bushfire seasons.

'Standing charges', the costs of securing major aircraft such as Large Air Tankers and Type 1 Helicopters are shared between the states, territories and federal government to a fixed limit. Operating charges are paid by the states and territories.

Key areas of work which enable NAFC to deliver improved aerial support include:

- Collaborative procurement of specialised aerial services: NAFC coordinates the leasing of highly specialised firefighting aircraft on behalf of state and territory fire agencies. These aircraft supplement aircraft that are engaged directly by, or owned by, individual states and territories. The leasing arrangements allow the aircraft to be easily shared between states and territories and moved around the country to address prevailing bushfire risk.
- Sharing of aircraft resources: It would not be practical, sensible or cost-effective for each individual state and territory to maintain the necessary specialised resources required to deal with all situations. One of the main benefits of the national arrangements is the ability of states and territories to access increased capacity, or surge capacity, for aerial fire suppression at times of peak bushfire activity. A single Resource Management Agreement (RMA) is maintained between NAFC and the states and territories to share aerial resources.

- Support systems: NAFC also provides collaborative national support systems for aircraft operations to support fire and emergency management. All contracted aircraft are tracked in real time through a national satellite-based system. NAFC has developed a national shared information system, known as ARENA, which assists states and territories with effective management and administration of aviation resources. NSW has played a key role in the development of ARENA.
- Standards: NAFC also has a key role in ensuring standardisation of operating practices for use of aircraft in fire management across Australia. Appropriate standardisation contributes to achieving best-practice and underpins effective sharing of aircraft and support resources.

Under a funding agreement with the Commonwealth, the Australian Government currently contributes through NAFC in the order of \$15M annually (exclusive of GST) towards the fixed costs of making the contracted fleet available. For 2018-19 and 2019-20, the Australian Government made additional contributions of \$11M, in each year, to support the provision of additional capability. For 2019-20, the Australian Government made a further additional contribution of \$20M specifically to provide four additional large airtankers across the country for the bushfire season. One of these additional airtankers was based in NSW, and one in the ACT.

State and territory agencies utilising the contacted aircraft for bushfire suppression or other emergency response meet all operating costs.

In 2018 NAFC submitted a business case to the Australian Government to redress the loss in value of the federal funding that had occurred through inflation and exchange rates and to further increase ongoing federal funding support for aerial firefighting. Although not yet confirmed in writing, the Prime Minister has indicated that the NAFC business case has been considered and that an ongoing increase in federal funding can be expected in the 2020 federal budget.

## 1.6 AFAC leads the Emergency Management Professionalisation Scheme

The [Emergency Management Professionalisation Scheme \(EMPS\)](#) exists to advance the cause of professionalisation in the practice of emergency management in Australia and New Zealand. 'Professional' and 'Professionalisation' refer to the technical and ethical standards of practice that we set for ourselves. Professionalisation is open to everyone regardless of whether they are paid or volunteer, and regardless of the particular emergency management function they undertake.

There are currently 24 EMPS Certified Practitioner and EMPS Registered Practitioner roles open for application (refer **Appendix 3**). They range from Incident Management Team functions to specialist operational roles.

EMPS provides an excellent example of a national approach for professionalisation in the industry and has been well supported by both NSW Rural Fire Service and Fire and Rescue NSW.

## 1.7 AFAC Initiatives

In addition to the business units, AFAC has created several other initiatives.

### AIIMS

- AFAC is the custodian of the [Australasian Inter-service Incident Management System \(AIIMS\)](#). (AFAC, 2017b). AIIMS is an integral part of emergency management doctrine for the fire and emergency services industry in Australia and effectively is a 'glue' that binds fire and emergency service operating systems. The system enables Australian agencies to come together to manage and resolve incidents through an integrated and effective system of response.

- Through the application of AIIMS in training, exercising and incident response, people from fire and emergency services, government, not-for-profit agencies and industry have been able to build trust and confidence in each other's ability to work together and effectively manage the most challenging of incidents.
- *AIIMS 2017* is the latest edition endorsed by AFAC National Council, published in June 2017. It replaced *AIIMS-4* as the Incident Control System used by all fire, emergency service and land management agencies within Australia. AIIMS has been examined by numerous reviews and previous Royal Commissions. As recently as 2017, the Hazelwood Mine Fire Inquiry made the following recommendation endorsing AIIMS:

*'Recommendation 2: The State establish, for any future incident, integrated incident management teams with GDF Suez and other Victorian essential industry providers, to: require that emergency services personnel work with GDF Suez and other appropriate essential industry providers; and implement the Australasian Inter-service Incident Management System.'* (Teague et al., 2014)

#### Centre of Excellence for Prescribed Burning

- AFAC has established a [Centre of Excellence for Prescribed Burning](#) (Centre of Excellence) as a business unit of AIDR to lead and support further development of innovative, evidence-based principles, policies, programs and practices for prescribed burning. AFAC has placed the Centre of Excellence within AIDR as prescribed burning is a significant disaster risk reduction strategy in bushfire prone areas. Agencies have recognised that a coordinated approach across jurisdictions through the Centre of Excellence will best support the delivery of prescribed burning outcomes.
- National collaboration is a cost-effective way to collectively contribute to the development of national policies, procedures and guidelines to support integrated landscape management. The potential for national-level standardisation, coordination, optimisation and resource sharing for prescribed burning is considerable. The national capability to conduct prescribed burning is critical to all land management, regardless of tenure, public or private. The principles and tools developed by the Centre of Excellence provide the basis to support this.

## 2 SPECIFIC COMMENTS ON THE TERMS OF REFERENCE

### 2.1 The causes of, and factors contributing to, the frequency, intensity, timing and location of, bushfires in NSW in the 2019-20 bushfire season, including consideration of any role of weather, drought, climate change, fuel loads and human activity.

Weather, drought conditions, climate change, the build-up of fuels and human related factors all contributed to the damaging impacts of the bushfires of 2019-20 in NSW and other jurisdictions. Factors contributing to bushfire impacts are multifaceted and require multiple responses with a collective responsibility for mitigation and disaster resilience from government, industry, communities and individuals. These include activities such as:

- fuel reduction
- predictive services
- training and capability
- information and warnings
- shared responsibility by the community to plan, prepare and respond to emergencies.

Given the threat posed by bushfires in Australia, all reasonable approaches ought to be used and optimised to best effect to protect communities and environmental values. The following pages describe industry positioning on mitigating and responding to bushfires, along with AFAC's initiatives and programs that support them.

#### 2.1.1 AFAC maintains a holistic approach to disaster resilience

In 2011, for the first time in Australia, the Council of Australian Governments' (COAG) *National Strategy for Disaster Resilience* (NSDR) (COAG, 2011) established a national resilience-based approach to disaster management. Australia's resilience to disaster impacts is critical to our continued wellbeing and prosperity. However, our capacity to be resilient to disasters diminishes as disaster risk, and potential impacts, grows. The NSDR outlines that governments at all levels have a significant role in strengthening the nation's resilience to disasters and identifies key strategies:

- developing and implementing effective, risk-based land management and planning arrangements and other mitigation activities
- having effective arrangements in place to inform people about how to assess their risks and reduce their exposure and vulnerability to hazards
- supporting individuals and communities to prepare for extreme events, and
- ensuring the most effective, well-coordinated response from our emergency services and volunteers when disaster hits.

Through AFAC's Strategic Direction 1, 'Supporting resilient communities through risk reduction', AFAC prioritises the holistic approach to risk reduction described by the NSDR, which highlights the collective responsibility of governments, business, communities and individuals to identify risk, undertake strategic risk assessments, to provide advice, education and information regarding the risk, and to undertake activities to mitigate those risks.

The *National Disaster Risk Reduction Framework* (COAG, 2018) is a multi-sector collaboration led by the National Resilience Taskforce within the Australian Government Department of Home Affairs. The framework was co-designed with representatives from AFAC and AIDR together with all levels of government, business and the community sector.

In March 2020, COAG acknowledged that building resilience to natural disasters requires coordinated action from all governments, together with the private sector and communities. They formalised this agreement by endorsing the *National Disaster Risk Reduction Framework* and by asking emergency management Ministers to develop a National Action Plan to implement the framework in consultation with other COAG councils and forums. A new \$261M Commonwealth-State partnership agreement will fund implementation of risk reduction initiatives in line with the framework.

AFAC and AIDR will be active contributors to implementing the *National Disaster Risk Reduction Framework* and accelerating disaster risk reduction to support a resilient Australia.

The contribution by fire and land management agencies in response cannot be considered in isolation of the work these agencies undertake to support disaster resilience within the community. Further, the steps that householders, business owners and the agricultural sector take to prepare for bushfires are crucial to the protection of their life and property. All landowners and managers need to understand the hazards on their land and be well informed on how to reduce their risk.

This requires considering a suite of measures, collaborating with neighbours and having well defined bushfire survival plans. These concepts are outlined at **Appendix 2** taken from the Land Use Planning for Disaster Resilient Communities (AIDR, 2020). AIDR has been established as a key vehicle to support this approach nationally.

### **2.1.2 AFAC is actioning climate change planning**

AFAC acknowledges the relationship between disaster risk reduction, sustainable development, and climate change (AFAC, 2018a). Mitigating the impact of climate change effectively contributes to disaster risk reduction, emergency management, and the resilience of communities into the future. AFAC has established the AFAC Climate Change Group to assist its members in addressing the challenges of climate change from a sector perspective.

The recent bushfires across the 2019-20 season, has reinforced that long-term climate change in Australia is an undeniable reality. The 2019-20 bushfire season in New South Wales and southeast Queensland began much earlier than usual in winter, with far reaching impacts and losses to communities, industry and wildlife. The losses go far beyond anything that has occurred in previous years in these areas. The risks and impacts of bushfires not only cause direct loss of life, physical injuries and mental health issues but large populations are also at risk from the increasing health impacts associated with bushfire smoke.

Scientific evidence provided to AFAC indicates that climate change is extending the length of fire seasons and increasing their intensity. This creates an earlier start to bushfire seasons and an overall more intense season, particularly in south-eastern Australia. Natural variations in climate modes continue to play a role and we should not expect every bushfire season to be worse than the last as a result of climate change.

A discussion paper produced by AFAC's Climate Change Group (AFAC, 2018b) unambiguously highlights the impacts of climate change on the extent and intensity of bushfires and includes advice to the emergency management sector of how to respond. This response is not just to the physical

risks posed by climate change, but also prepare for the transitional risks and legal risks. The Group have a workplan and all member organisations have plans and policies in place responding the challenge of climate change in their sector.

The *Overview of Prescribed Burning in Australasia* (AFAC, 2015a) observes that the smoke from high intensity bushfires such as the 2009 Black Saturday Fires can release huge emissions of greenhouse gasses (GHG) to the atmosphere, including CO<sub>2</sub>, and that if occurrences of severe bushfires can be reduced in frequency, severity and extent, a substantial reduction of GHG emissions may be achieved. The report notes that prescribed burning is a recognised means of mitigating the extent and severity of such bushfires. It also offers potential to reduce carbon emissions (by reducing the amount and ferocity of unplanned fire) and help mitigate predicted climate change impacts.

This relationship has been scientifically demonstrated in northern Australia where over 80 programs for carbon farming have already been successfully implemented. The efficacy of using prescribed burns to reduce overall greenhouse gas emissions in southern forests, and the extent of benefit that could be derived, is unresolved. The *Risk Management Framework – Smoke Hazard and Greenhouse Gas Emissions* (AFAC, 2015b) provides more detailed information in relation to measuring the impact of prescribed burns on the climate in comparison to the impact of bushfires.

### **2.1.3 AFAC recognises the value of prescribed burning for bushfire mitigation**

AFAC recognises that there is significant potential to mitigate climate change impacts, such as longer and more intense bushfire seasons, through enhanced approaches to the management of vegetation fuels and landscapes (AFAC, 2015c). AFAC also recognises that prescribed burning has an important role to play in creating more resilient ecosystems and by protecting species and habitat diversity (AFAC, 2016a). Prescribed burning is considered a critical and key proactive tool for bushfire mitigation.

Both the *Overview of Prescribed Burning in Australasia* (AFAC, 2015a) and the *National Guidelines for Prescribed Burning Strategic and Program Planning* (AFAC, 2017c) offer a summary of relevant research and knowledge in relation to prescribed burning. Key points are discussed below:

- The consensus view for south-eastern Australia is that prescribed burning does not stop bushfires, but reduces the intensity and spread of bushfires and reduces spotting, allowing fire suppression to be more effective and safely undertaken, and allows more time for the community to be informed and respond either by property preparation or enacting their fire plan and leave the affected area early for a safer place. This has a direct impact on improving community safety.
- Under extreme conditions, such as we experienced over the 2019/20 fire season, weather factors drove fire behaviour on many occasions more than ground fuel factors. Under these conditions the effectiveness of prescribed burning is much reduced due to a propensity for weather driven fires to consume the entire fuel profile, even in recently burnt areas. Prescribed burning however, still improves the ability for firefighting to be more effective, when more favourable conditions return (AFAC, 2015a) and this should not reduce prescribed burning activity.

## **2.2 The preparation and planning by agencies, government, other entities and the community for bushfires in NSW, including current laws, practices and strategies, and building standards and their application and effect.**

### **2.2.1 Current Legislation and Regulations**

Given the considerable difficulty of managing bushfires, all possible approaches need to be used to best effect, including regulatory instruments (refer **Appendix 4**). Where possible however, these instruments should not unduly impact on the ability to undertake bushfire mitigation activities.

#### **AFAC Bushfire and Community Safety Position**

AFAC led the development of a Bushfire and Community Safety Position in 2001. The position was revised in 2005 after the learnings of the Canberra bushfires and again in 2010 and 2012 after the Black Saturday fires and subsequent Royal Commission. The current version of the Position was reviewed in 2018 to incorporate the significant body of community safety bushfire research from the Bushfire and Natural Hazards CRC, and approved by AFAC Council in April 2019. (AFAC, 2019)

The focus of the Position is on supporting individuals and communities to build resilience and develop capacity to manage the threat and occurrence of bushfire to best protect lives and property. Its scope includes preparation and planning phases, as well as response to bushfire, including in the immediate aftermath and during the transition to recovery.

AFAC has formulated a set of principles to support member agencies in the development of best practice as they work with communities to enhance public safety during bushfires. These principles are evidence-based, reflecting current research and agency experience regarding bushfire and human behaviour and the response of individuals to perceived risk when threatened by bushfire. The principles are as follows:

1. Human life should be valued above all else.
2. There should be a collaborative approach to the management of bushfire risk, with early community engagement, and with all partners working together to take action to protect communities and save people's lives.
3. Community awareness and education programs and resources should recognise that prepared and knowledgeable communities are more resilient to the impact of bushfire.
4. Emergency management leaders should have the capacity and capability to provide quality leadership and expert guidance to the community during a bushfire.

#### **Codes and Standards for Development in Bushfire-Prone Areas**

AFAC members support a national approach to development controls in bushfire-prone areas. This includes strategic land use planning to avoid placing vulnerable development in those high-risk locations likely to be affected by high intensity fires as well as providing practical and cost-effective bushfire mitigation measures for new buildings as well as for retrofitting for existing developments.

The fire services through AFAC have significant involvement in developing and revising national Standards and Building Codes related to building and other development in bushfire prone areas. These include the Building Codes Committee advising the Australian Building Codes Board about the National Construction Code, the Standards Australia Committee responsible for AS3959 (Construction of Buildings in Bushfire-Prone Areas), and the Standards Committee of the National



Association of Steel Framed Housing Inc which produced the *NASH Standard for Steel Framed Construction in Bushfire Areas*.

In 2018, AFAC registered a negative vote at Standards Australia for the latest version of AS3959 due to a perceived weakening of the Standard without sufficient research and data to justify the changes. The main concern of AFAC members related to a new smaller “AA” test crib with a different heat profile being permitted for the testing of Bushfire Attack Level (BAL) rated materials. The concern was that the change introduces an opportunity for manufacturers and developers to lower the fire-resistant qualities of building materials and therefore endanger life and property.

Since then AFAC has been participating in reviewing AS3959 to incorporate new information and improve its effectiveness especially in anticipation of the new Australian Fire Danger Rating System and to allow new climate data to also be incorporated. The design fire danger index employed in AS3959 needs to be reviewed and upgraded to accommodate climate predictions.

Recently AFAC has drafted quantified performance requirements for buildings and bushfire shelters for use in the National Construction Code. These which will be subject to public consultation and should improve the basis for designing buildings. Other aspects of bushfire mitigation are also needed such as bushfire spray systems, water supplies for firefighting and access standards for both fire appliances and evacuation.

### 2.2.2 AFAC is leading best practice prescribed burning

In 2011, AFAC and the Forest Fire Management Group (FFMG) established the National Burning Project (NBP) which documented the multiple facets of prescribed burning into nationally agreed principles, guidelines and frameworks. Recognised as a project of national significance, funding was provided by the National Emergency Management Projects and National Bushfire Mitigation Program together with further funding by AFAC member agencies. Between 2011 and 2017 the NBP developed a [suite of products](#) that encompass the end-to-end process of prescribed burn planning from objective setting; strategic, program and operational planning; risk management; training and performance measurement.

The list of products is summarised under the following topics:

- best practice principles and guidelines
- risk management frameworks for managing:
  - fuel Hazards
  - ecological risk
  - operational risks, and
  - smoke and greenhouse gases.
- objective setting, performance measures and program logic
- prescribed burning training and capability reviews
- training competencies and learner resource kits.

Key best practice guidelines include the *National Guidelines for Prescribed Burning Operations* (AFAC, 2016b) and *National Guidelines for Prescribed Burning Strategic and Program Planning* (AFAC, 2017b).

A foundational document to emerge from the NBP was a [National Position on Prescribed Burning](#) in which Australian fire and emergency management agencies took the position that ‘*Prescribed burning is an essential part of bushfire mitigation across the Australian landscape to reduce risk to communities and ecological health*’ (AFAC, 2016c).



The Australian fire and emergency management agencies endorsed the National Position, which was tabled at the Capability Development Sub-Committee of the Australia-New Zealand Emergency Management Committee (ANZEMC) in December 2016. In the National Position, agencies also agreed to ten principles that underpin prescribed burning, which are reproduced in Figure 1 overleaf. These are relevant to the Inquiry.

The Centre of Excellence for Prescribed Burning was established in 2017 using residual funding from the National Burning Project. Since its establishment, the Centre of Excellence has taken on the task of further developing and promoting the work of the NBP. The Centre of Excellence is funded until the end of December 2020. With appropriate ongoing funding, the Centre of Excellence could expand support for:

1. Management and development of prescribed burning knowledge and information sharing
2. Implementing and supporting capability development for prescribed burning
3. Promoting enhanced prescribed burning research, training and practice
4. Programs for cultural burning and Traditional Owner engagement
5. Programs for ecological fire management
6. Programs for tenure Inclusive burning, and
7. Communication and engagement.

# POSITION

**AFAC and FFMG member agencies take the position that prescribed burning is an essential part of bushfire mitigation across the Australian landscape to reduce risk to communities and ecological health.**

Each fire and land management agency has different legal, political, organisational, social, economic and environmental requirements, and responds in its own manner in providing its prescribed burning programs.

Under the National Burning Project, extensive consultation with agencies has drawn out and identified common approaches which are defined in the principles below. The context of each principle describes the understanding AFAC and FFMG member agencies have of the environment from which these principles are drawn.



PRINCIPLE:  
**PROTECTION OF LIFE IS THE HIGHEST CONSIDERATION**

**Context:** Prescribed burning is used in reducing the quantity, extent and connectivity of fuel hazards to assist in protection of life, property and community assets.

The protection of human life will be given priority over all other obligations in prescribed burning operations.

PRINCIPLE:  
**LANDSCAPE HEALTH IS LINKED TO FIRE AND FIRE MANAGEMENT**

**Context:** Fire affects the environment as a single event and as multiple events (regimes) of differing fire intensities spread over temporal and spatial dimensions. Inappropriate fire and fire regimes pose a significant risk to ecosystem function, health and diversity.

Managing fire in the environment can help to create a mosaic of diverse fire regimes across the landscape. This aims to provide an improved range of habitats and ecosystems. Fire management also aids in the exclusion of fire from fire sensitive ecosystems by reducing adjacent fuel hazards. Maintenance of biodiversity can contribute significantly to the resilience of ecosystems in the face of bushfires and other threatening processes such as climate change and weed invasion.

Australia's *Biodiversity Conservation Strategy* (NRMMC, 2010) seeks to improve the use of ecological fire regimes to conserve biodiversity and protect the public.

PRINCIPLE:  
**PRESCRIBED BURNING IS A RISK MANAGEMENT TOOL**

**Context:** Bushfires will never be eliminated from the environment. Prescribed burning can help to reduce the risk and severity of impacts that these events have on life, property, community and the environment. Reduced fuel hazards assist the success of first attack efforts and reduce the intensity, extent and impacts of subsequent bushfires.

Prescribed burning is more effective where used alongside complementary risk reduction measures.

PRINCIPLE:  
**ENGAGEMENT WITH COMMUNITY AND BUSINESS STAKEHOLDERS**

**Context:** Community support for prescribed burning programs is essential to their success. Engagement is a two way model (e.g. IAP, 2016) whereby the intentions of agencies are communicated to stakeholders and concerns of stakeholders are identified and considered at all levels of prescribed burning planning and during the burn. In this way, the benefits to land managers and the broader community are optimised and any adverse impacts are minimised as far as practicable. Community engagement also serves to increase awareness of the benefits of prescribed burning for risk reduction and ecosystems.

**PRINCIPLE:**

**PRESCRIBED BURNING IS DONE IN THE CONTEXT OF MEASURABLE OUTCOMES**

**Context:** Objectives of individual prescribed burns should be clearly stated, preferably as measurable objectives. Clearly stated objectives facilitate the formation of suitable burn prescriptions, fire implementation tactics and allow evaluation of burn success for adaptive management purposes. Objectives of individual burns should be guided by and service strategic objectives. Strategic objectives include broad organisational level goals that are further detailed through performance measures that allow an organisation to monitor the success of burn programs.

**PRINCIPLE:**

**INFORMED KNOWLEDGE OF FIRE IN THE LANDSCAPE**

**Context:** Our knowledge of fire, including fire behaviour, ecological responses to fire and the measurement of risk reduction from prescribed burning, can all be informed by sharing research and experience. Informed knowledge comes from research outputs from academic institutions, effective measurement, monitoring and evaluation of the operational programs undertaken by agencies, and from across the community including the knowledge of Traditional Owners. Applied knowledge will allow communities and managers to respect fire as a tool as well as a hazard. Knowledge can always be enhanced, so fire managers must engage in an adaptive management process to ensure improvements can be made across all processes and activities in a continual improvement framework.

**PRINCIPLE:**

**CAPABILITY DEVELOPMENT**

**Context:** Whilst the theory of fire behaviour and fire ecology can be taught in a formal setting, the skill of placing prescribed fire in the landscape to meet stated objectives requires practical experience that can only be gained under variable operational conditions. Experienced practitioners are a highly valued commodity. The knowledge of experienced practitioners should be captured through targeted development, mentoring and training programs to increase agencies' human capital and to feed into agencies' continuous improvement.

**PRINCIPLE:**

**TRADITIONAL OWNER USE OF FIRE IN THE LANDSCAPE IS ACKNOWLEDGED**

**Context:** Fire is culturally significant to Indigenous Australians. The use of fire by many Indigenous Australians to shape the landscape is widely acknowledged. Where Traditional Owners have not been able to continue these practices the depth of spiritual and cultural knowledge and connection to the land is maintained through stories and memories. Integration of this retained knowledge into current agency practices should be actively supported and promoted. Where knowledge gaps exist, agencies should work with Traditional Owners to build that knowledge, and, where appropriate, revive practices.

**PRINCIPLE:**

**AN INTEGRATED APPROACH IS REQUIRED ACROSS LAND TENURES**

**Context:** An integrated and cooperative approach across all tenures is the best way to minimise bushfire risk to lives, property and the environment. Responsibility for risk reduction should be shared between all landholders (including land management agencies) and achieved by risk treatment within the boundaries of their own property and cooperatively with neighbours to increase these benefits across their shared landscape. Education on risk reduction is required in some cases to increase the understanding of the benefits of prescribed burning.

**PRINCIPLE:**

**PRESCRIBED BURNING IS CARRIED OUT UNDER LEGISLATIVE, POLICY AND PLANNING REQUIREMENTS**

**Context:** Agencies that carry out prescribed burning are required to comply with Commonwealth and relevant respective state or territory legislation that address facets of land management, environmental protection, and indigenous cultural heritage, among other requirements.

The ten prescribed burning principles from the *National Position on Prescribed Burning*.

Prescribed burning is the controlled application of fire under specified environmental conditions to achieve planned management objectives (AFAC, 2012). Objectives are developed in response to fire management issues, which can be grouped into broad classes (AFAC, 2016d):

- protection (usually of assets or other values)
- broad-area risk mitigation (to breakup runs of bushfires)
- ecological management (for general ecosystem health or specific ecological outcomes)



- cultural purposes (such as Traditional Owner burning)
- land management (for other land management purposes such as forestry, grazing or weed management).

Performance measurement plays an important role in public accountability, in testing how well objectives are being achieved, in allowing agencies to make more informed management decisions and in benchmark performance over time or in comparison to other areas (AFAC, 2018c). The NBP developed a [Prescribed Burning Measurement Framework](#) of 23 Key Performance Indicators (KPIs) to assist agencies to develop and align performance measurement of prescribed burn programs. The KPIs cover the following areas of work (AFAC 2018c):

- financial
- program planning activities
- community understanding and support
- operational planning activities
- burn implementation
- fuel management outcomes
- risk reduction outcomes
- ecological outcomes
- greenhouse gas abatement outcomes, and
- adverse impacts.

AFAC and its members have recognised that the implementation of effective key performance indicators is still at an early stage and believe that the Centre of Excellence with ongoing funding would be a suitable organisation to support further development in this area.

Although prescribed burning is one of the tools available to reduce bushfire risks, prescribed burning is itself an activity with significant inherent risks. The safe and effective conduct of a prescribed burn requires careful and thorough planning to ensure that objectives can be safely achieved (AFAC 2016d). The NBP built four [risk management frameworks](#) for managing prescribed burning:

- fuel hazards
- ecological risk
- operational risks, and
- smoke and greenhouse gases.

To support operationalisation of the risk frameworks, the NBP produced a [Risk Management Framework for Prescribed Burning](#) that unites the above four risk frameworks into the one guide.

Since its inception the Centre of Excellence has taken on the task of promoting and supporting the risk management work initiated by the NBP, but its ability has been restricted due to limited funding. In places where Indigenous burning practices have made a resurgence, there have been reported, and sometimes well studied benefits to ecosystems, bushfire mitigation and to Aboriginal communities (Russell-Smith *et al.* 2003, 2009a and b).

Cultural burning is not a panacea for bushfire mitigation or prescribed burning, as the approach can be difficult to apply in contemporary contexts, and different Indigenous groups apply prescribed burning differently and for varied objectives. However, there are no doubt principles to be learned.

A number of agencies have established programs such as joint management with Traditional Owners or the establishment of indigenous ranger programs. Wherever possible, support should be given to supporting and expanding cultural burning programs.

### **2.2.3 AFAC advocates for a tenure-blind approach to prescribed burning**

One of the principles in the *National Position on Prescribed Burning* (AFAC, 2016c) is that an integrated approach is required across land tenures. This is also in alignment the *National Strategy for Disaster Resilience*, principles adopted by AIDR for holistic management and international thinking. AFAC notes that a number of states have developed policies encouraging a tenure-blind approach.

At a landscape scale, breaking large, high-intensity, and high-impact fire cycles requires incorporation of private lands to develop effective management strategies. Risk-based planning processes are encouraged to take a tenure-blind approach to assessing bushfire risk and require preparation of landscape-scale strategic bushfire management plans to achieve the objectives, using a transparent, risk-based process based on scientific evidence and local experiential knowledge. A tenure-blind approach would ideally also apply to the reporting of whole-of-landscape performance measures.

While past inquiries into bushfire disasters have focused on the role of risk mitigation activities on public lands, this Inquiry is encouraged to consider a whole-of-landscape approach. The *National Bushfire Management Policy Statement for Forest and Rangelands 2014* (FFMG, 2014) is supported by AFAC. Noting that Australia cannot be ‘fire-proofed’, the policy statement provides a sound framework for ‘reducing the fuel and reducing the bushfire risk’.

## **2.3 Responses to bushfires, particularly measures to control the spread of the fires and to protect life, property and the environment, including:**

- (a) immediate management, including the issuing of public warnings (section 3.3.1);**
- (b) resourcing, coordination and deployment (section 3.3.2); and**
- (c) equipment and communication systems (section 3.3.3)**

### **2.3.1 AFAC is leading improved information provision and bushfire predictive capabilities**

The effective communication of public information and warnings is a critical element of emergency management, with the power to save lives. Public information and warnings play an important role in community safety by empowering people to make informed decisions and timely decisions, thereby taking protective action.

Reliable bushfire prediction capabilities are fundamental to effective and timely information to support community safety. As bushfire research and associated technologies have become more advanced, agencies are integrating more predictive services into critical functions to improve decision-making and enhance the accuracy and timeliness of information provided to the community.

AFAC is leading work to develop a coordinated national bushfire prediction and information capability to improve both the underlying predictive services, as well as optimise and standardise the information and warnings provided to the public. The ingredients of such a capability are described below, with some elements already in development, and others aspirational.

## Warnings

Warnings are a critical component of emergency management, and the evolution of both policy and practice over recent years has been transformative. Warnings have developed rapidly in the information age for fire and emergency services agencies, and over recent years a significant amount of effort has been expended to build capability through the development of national doctrine and through the delivery of training. A series of significant and tragic emergencies across Australia including the Canberra Bushfires 2003, Victoria's Black Saturday bushfires in 2009 and major flooding in Queensland during 2010- 11 highlighted the power of warnings to save lives and a need to learn more about why some warning strategies were more successful than others.

The National Working Group for Public Information and Warnings was formed in 2015 in response to ANZEMC endorsement of Recommendation 1 of the *2014 National Review of Warnings and Information* (EMV, 2014) recommendations. AFAC Council endorsed the establishment of the Warnings Group, as part of the AFAC Collaboration Model. The Warnings Group is tasked with sharing the outcomes of the ANZEMC 2014 *National Review of Warnings and Information* (NRWI), addressing the findings and opportunities, and overseeing implementation of the Review Reports recommendations.

In October 2017 the AFAC Commissioners and Chief Officers Strategic Committee (CCOSC) identified warnings as a national priority and committed to establishing a nationally consistent three-level warning framework across multiple hazards. Following this decision, the National Public Information and Warnings Working Group identified a need to establish a sound evidence base to support the design of a national warnings system.

Currently there is an inconsistent approach to warnings across Australian State and Territories that leads to community confusion. As evidenced by commentary in the media and through social media, the community expects that warnings should be the same across State boundaries, particularly in the 'information age'.

This inconsistency in warnings exists for a particular hazard type across jurisdictions (e.g. bushfire), as well as inconsistency within jurisdictions for a range of hazards (e.g. flood, storm, bushfire). This inconsistency manifests on maps that the community use to understand what hazard they are being warned for, what the level of warning means and what actions they should take to be safe. This inconsistency includes different uses of icons, colours, warning level names, warning areas, and incident location areas. Some fire and emergency service agencies still do not provide warnings in a spatial format as was recommended by the NRWI in 2014.

A national social science research program was conducted across all jurisdictions over an 18-month period in 2018-19. In summary, the research found that there is good community support and a compelling case for a nationally consistent three-level warning framework for multiple hazards. It is proposed that the warning system uses a 'nested model' that includes both the warning level and associated calls to action. There would also be a consistent application of colours, iconography and warning names

At the October 2019 CCOSC meeting, members provided in principle support for the proposed Australian Warning System and asked the group to continue to progress this work.

Consideration is being given to rolling out this new national warning system in conjunction with the rollout of the new Australian Fire Danger Rating System.

### **Fire Danger Ratings**

The Australian Fire Danger Rating System (AFDRS) is a project of national significance to refine forecasting of fire danger and enhance fire danger communications to government, industry and members of the public, in support of greater community safety. AFAC manages the Project Management Office supporting the development of the AFDRS, which is largely being developed through the NSW Rural Fire Service.

While still useful, the current Fire Danger Ratings are largely based on science that is more than 60 years old. Subsequent research has improved our ability to more accurately predict fire behaviour and the potential threat to the community. The new AFDRS combines the latest science, experience and data – including fire behaviour models for a wider range of Australian vegetation types – to deliver more accurate information to emergency services, land managers and the community.

Extensive social research was completed across Australia to understand where the current Fire Danger Rating system did not meet the needs of the community. Based on the information from this research, options for improved public-facing designs, that support greater community comprehension and action, are being developed. The new AFDRS is anticipated to be rolled out in 2022 and because of the science, technology build and implementation requirements, cannot be readily accelerated.

### **National Bushfire Simulation Capability**

Bushfire simulators draw on a range of data sources and fire behaviour models to predict the intensity and rate of spread of fire through natural and rural environments. They have been embedded into various agency processes because they provide a range of information vital to the effective management of bushfires, and the same tools and techniques used for bushfire planning, preparedness and mitigation activities, are also an important ingredient in planning prescribed burning programs.

Currently, most jurisdictions use the PHOENIX Rapidfire bushfire simulator. This was the first simulator to be operationally useable in the Australian context when it was developed over a decade ago and is used extensively in NSW. It is limited in its applicability however, and not able to be updated to take account of a wider range of Australian vegetation types.

The current consensus among fire and land management agencies is that it is time to invest in the next generation of bushfire simulators. A comprehensive set of business requirements for a national bushfire simulation capability has been developed and endorsed by all jurisdictions (Bally, 2020). The benefits of investing in a common national bushfire simulator was investigated with a recent cost benefit analysis showing that the benefits nationally would be over ten times the costs of outlay (JOMO Advisory, 2019). It is noted that many benefits were not considered in the analysis including protection of life and difficult to quantify benefits such as cross-border coordination and support.

AFAC maintains a Fire Predictions Ltd. company together with NSW Rural Fire Service, Department of Environment, Land, Water and Planning (DELWP), Victoria and the University of Melbourne. AFAC is a Board member of the company, provides the CEO and the secretarial services. Fire Predictions Ltd. is investigating future opportunities to partner with other simulation models, such as SPARK developed by CSIRO, in order that a new capability would be compatible with existing fire behaviour models and fuel maps developed for the new Australian Fire Danger Rating System.

## National Spatial Information Viewer

The scale of the current bushfire disaster has highlighted the need for consistent information and warnings, to enhance cross-border operations and to simplify the community's access to bushfire related information. The development of the Fire Danger Viewer through the AFDRS program provides a good platform for the development of a national fire information portal for all land managers and the public.

In addition, the detection and mapping of fires by remote sensing from satellites and aircraft (both piloted and remotely piloted) can assist in their control. Fire scar mapping is also important to assist in managing bushfires and planning prescribed burning. Digital Earth Australia Hotspots is a national bushfire monitoring system that provides timely information about hotspots to emergency service managers across Australia. The mapping system uses satellite sensors to detect areas producing high levels of infrared radiation (called Hotspots) accurately to allow users to identify potential fire locations with a possible risk to communities and property. Hotspot mapping is also done by the [North Australia and Rangelands Fire Information \(NAFI\)](#) website. Significant recent remote sensing advances, such as the Himawari satellite, provide opportunities to improve data intelligence through detecting and mapping fires.

### 2.3.2 AFAC is leading training and capability development

#### National Capability

[The National Statement of Capability for Fire and Emergency Services](#) (AFAC 2017c) is an inventory of Australia's capabilities in relation to fire and emergency services that includes personnel, major firefighting appliances, aircraft and other specialist resources. It states:

*'Significant advances have been made over many years to build greater collaboration and interoperability across the national fire and emergency services community. However the increasing complexity of both natural and human caused disasters driven by a range of factors related to demographics, land use and climate requires an even more consistent and connected approach to capability planning and utilisation that complements existing agency and jurisdictional arrangements.'*

AFAC established the [National Resource Sharing Centre \(NRSC\)](#) which has provided an excellent example of capability development and resource sharing. The NRSC, has been tasked to develop and maintain the national 'Arrangement for Interstate Assistance' (AIA); pursue collaboration opportunities with international jurisdictions; maintain the National Statement of Capability for Fire and Emergency Services and provide administrative support, if requested, to jurisdictions involved in deployments. Its value is demonstrated in supporting the management of large-scale incidents, building strong relationships between AFAC member agencies and facilitating a coordinated approach to combating more frequent and intense weather events.

There is a clear appetite for national resource sharing and significant advantage could be leveraged by applying resource sharing to prescribed burning activities, to assist agencies in achieving their burn program goals. Understanding this, AFAC through the NBP, undertook the [Prescribed Burning Capability Optimisation Review](#) (AFAC, 2018b).

There is a need to develop uniformity across jurisdictions with regard to the baseline for mission critical requirements. Resource sharing across jurisdictions is a significant strength of national capability for fire and emergency services and occurs throughout the year.



Cost sharing and cost-recovery options should be considered, including the Australian Government contributing to the cost of building, maintaining and operating a mobile broadband capability with dedicated spectrum to fire and emergency services so that at times of peak seasonal activity, or during a potential emergency event, it is exclusively available for use by the emergency services. This baseline information will contribute to flexibility and scalability. AFAC does not support any network that is shared with commercial entities. The potential for hardware or programming to occur on a shared network, impacting on emergency services capability, could have devastating consequences to the community.

### AFAC National Resource Sharing Centre

As described earlier, the AFAC NRSC enhances the efficiency of resource deployments to an Interstate or International natural hazard emergency event. Through its creation of partnerships and agreements, national resourcing capability is deployable through a collaborative operating model. These agreements have been developed over years of engagement; they are both complex and detailed.

Its value is built on long term relationships between interstate and overseas entities and is demonstrated in supporting the management of large-scale incidents, leveraging strong relationships between AFAC member agencies and facilitating a coordinated approach to combating more frequent and intense weather events. While the physical home of AFAC NRSC is located at AFAC Office in Melbourne, it integrates and utilises existing national and state emergency management capability and resources in any jurisdiction and can be activated in any suitable location as determined by CCOSC members.

The NRSC operating principles are:

1. Recognising national capability
2. National coordination maximising available capacity
3. Efficiency through effective partnership and collaboration
4. Timely deployment of fit-for-purpose resources
5. Flexible and adaptable, meeting agency requirements

Since early September 2019, AFAC NRSC has facilitated interstate and international assistance across multiple jurisdictions across Australia in the form of firefighter, incident management and aviation personnel. The AFAC NRSC also maintains a national Deployment Manager and Duty Officer capability to assist jurisdictions in managing interstate and international movements of resources and track personnel. In summary the 2019/2020 bushfire season AFAC NRSC interstate and international deployments includes:

State/Territory	Period	Interstate/International Personnel deployed
QLD	11/9/19 – 24/12/19	812 personnel
NSW	9/10/19 – current	5612 personnel
VIC	4/1/20 – current	275 personnel
ACT	30/1/20 – 11/2/20	347 personnel
SA	19/1/20 – 15/2/20	12 personnel
		<b>Total 7058 personnel</b>

*\*figures do not capture cross border assistance between jurisdictions in their entirety.*

The response to the NSW fires was a truly national one from a very early stage. Over the course of the campaign there have been around 5,600 international and interstate personnel deployed into NSW achieved by administering hundreds of individual deployments, each lasting from 3-35 days.

NSW Rural Fire Service (NSW RFS) has enthusiastically championed the development of the AFAC NRSC since its creation in 2016, and this summer's deployments could not have been carried out without the AFAC NRSC's coordination. This demonstrates considerable foresight by NSW.

This is the first year in which resources from North America have deployed into NSW with over 140 personnel deployed, often into key IMT and aviation support roles. Support from NZ has also been excellent with over 200 personnel deployed.

This bushfire season has also seen by far the largest nationally coordinated interstate and international deployment of fire and emergency personnel ever to have been mounted in Australia. As demonstrated, North America resources not only deployed into NSW, but also deployed into Victoria and South Australia simultaneously over numerous individual deployments. This highlights the impracticality for NSW or any other jurisdiction to maintain its own firefighting force big enough to manage any season - it would be very costly and hardly ever used. It is essential that an efficient, coordinated and partnership approach to domestic and international resource sharing continues in a practical way to manage surge requirements.

It is also important to highlight that in previous seasons, NSW has often deployed its own resources to assist with other jurisdictions. During the Tasmania campaign fires during January-March 2019, NSW provided significant interstate assistance to assist Tasmania Fire Service over the three-month period.

During this 2019-20 bushfire season, as fire activity elevated across the country in late December, Australian domestic capacity to support the enormity of the bushfire crises, particularly in NSW and Victoria became stretched. On occasion requests for specialist resources were unable to be filled domestically. The ability to sustain such large-scale responses and movements of Interstate/International personnel across the country for months at a time became challenging. By late December and over the holiday period, many jurisdictions were unable to deploy interstate due to fatigue management, risks and incidents within their own jurisdictions.

NSW was reliant on volunteer firefighters being able to deploy from interstate onto the front line. If those volunteers had deployed elsewhere or simply hadn't been available, NSW RFS may have to have considered paying for capacity such as crews from North America or using a commercial organisation such as 'Working on Fire' to provide paid crews.

While the cost of interstate firefighting crews did not arise on this occasion, there is merit in considering a 'flat rate' cost for career crews when they deploy interstate. Currently, deployments are reliant on existing Enterprise Bargaining arrangements designed for normal station shifts. Landing on a particular daily rate for interstate deployments, would significantly ease the administrative burden of interstate deployments and present a clear cost to receiving states at the time of request.

It also became evident that as the season extended far longer than usual, with no respite, that certain specialist capabilities became increasingly more difficult to source, particularly aviation support (such as Air Operations Manager) and planning roles. NSW also has more available crews than available firefighting vehicles. While Australia can always get more firefighters from overseas and we were never in the position of being unable to source more firefighters if we had been asked, it is not so easy to source additional vehicles at short notice. There may be a need for AFAC with

NSW in collaboration with the Eastern states, to undertake a strategic analysis of fleet and role capacity and consider if there is a need to expand the fleet or create a reserve.

Managing, coordinating and responding to international offers of assistance and media inquiries put significant strain on resources at an agency and AFAC level. It required cooperation across multiple agencies between the Australian Government, AFAC and AFAC members and partners to provide appropriate messaging, determine legitimate offers and coordinate back to states/territories to identify what resources on offer may be of use.

AFAC NRSC's core message was that resource allocations for response operations are determined by needs on ground, and not by offers of assistance. Countless offers were received to provide frontline firefighters, however for various reasons, primarily safety and operational synergy, AFAC NRSC's position was that fire fighter surge capacity was being adequately supported by AFAC NRSC's arrangements with New Zealand, USA and Canada. The lack of existing agreements with other countries also limited the opportunity of accepting the offers.

Many of the unsolicited offers would have been unsuitable to work in Australia's very challenging fire environment and we would only ever use personnel who were specifically trained and equipped to work in the bushfire firefighting environment. While USA and Canada retained capacity to meet further requests, backup plans were in place to obtain additional trained competent firefighters if the USA and Canada had no longer been able to assist. Options continued to be made available under our established arrangements. There was no need to accept unsolicited offers of firefighters, because had NSW asked us to obtain more firefighters, we could have done so.

In some quarters, it has been suggested that the NRSC function should be completed by the Commonwealth and that it should be a function of the Crisis Coordination Centre, which is operated by Emergency Management Australia within the Department of Home Affairs. AFAC and its agencies strongly oppose this suggestion. This is because:

- The NRSC operates well in its current form and function and has achieved exactly what was asked of it over a six-month campaign fire season
- It reflects a unity of purpose and ownership, operating for AFAC agencies by AFAC agencies.
- It has a single focus and function, to facilitate the movement of resources in support of requesting jurisdictions. The CCC has a range of functions and resource sharing would become yet another
- AFAC offers a consistency of purpose, form and personnel whereas the Federal Government requires staff to regularly rotate, reducing familiarity and effectiveness

Undoubtedly, the NRSC needs to keep the CCC informed and it requires the support of the Federal Government to fulfil this function.

## **Aerial Firefighting**

Use of aircraft to assist in the suppression of bushfires in Australia is an operationally efficient and cost-effective technique that provides valuable support to firefighters for protection of communities and environmental values. All governments in Australia recognise the importance of having access to a sophisticated aerial firefighting capability to respond to bushfires, protect communities and to support firefighters on the ground.

Aircraft contribute to fire suppression efforts in a wide variety of roles including:

- reconnaissance and surveillance
- first attack by dropping fire suppressants
- asset protection by dropping fire suppressants or retardants
- limiting the spread by dropping fire suppressants or retardants on the flanks of the fire, and
- transportation of firefighters.

Aircraft can provide the speed and weight of attack that is so important for initial response to incipient bushfires. Direct suppression of bushfires by aircraft is rarely effective on its own. Aircraft can be successful in a fire suppression role, but usually only when used in a coordinated effort with ground firefighters. Aircraft can be of limited benefit in conditions that are often experienced during bushfires such as high winds, heavy smoke and low visibility.

Not all aircraft are effective in all situations. It is important to have a mix of specialised aircraft available, and to match appropriate aircraft to required tasks.

### **Aerial Firefighting during the 2019-20 bushfire season**

For the 2019-20 bushfire season the regular aerial firefighting fleet leased through NAFC initially comprised 147 Services across the country – a mixture of fixed wing aircraft and helicopters.

Of the 147 Services provided through the NAFC contracting arrangements, 29 were engaged on behalf of NSW:

- 14 helicopters, including two Type 1 (Heavy) Erickson Aircranes, and one Type 3 (light) helicopter equipped with specialist infra-red sensing and mapping equipment
- 15 fixed-wing aircraft, including 2 large airtankers.

The contracted fleet also included shared access to four high altitude, high speed infra-red mapping aircraft. For 2019-20 NAFC allocated approximately \$3.4M of Australian Government funding to support these regular Services.

As the bushfire risk developed during the 2019-20 season, at the request of states and territories, a further 21 contracted Services were added nationally. Services added for 2019-20 specifically at the request of NSW included, amongst others:

- 1 x DC-10 large airtanker
- 1 x C130 large airtanker
- 2 x fixed wing aircraft for large airtanker supervision.

During the 2019-20 season NAFC also assisted NSW agencies to access other additional aerial firefighting resources. These included NAFC-contracted aircraft services redeployed from other states, as well as local and interstate aircraft engaged on a 'Call When-Needed' (ad hoc hire) basis.

In all, from ARENA data, 317 aircraft were engaged for firefighting in NSW between 01 July 2019 and 30 January 2020. This figure includes aircraft that were engaged to standby for response. The highest number of aircraft engaged on a single day in NSW was 160 on 22 December 2019. From 01 July 2019 to 12 February 2020, aircraft had flown some 63,000 hours in conjunction with bushfires in NSW. This figure significantly exceeds any previous season.

The 2019-20 season posed some challenges with respect to sharing aircraft resources between states and territories. At times, elevated bushfire activity or bushfire risk occurred concurrently in multiple jurisdictions across the country, in a way that has not been observed previously. In the November to January period this significantly limited opportunities for sharing.

The 2019-20 season also posed some significant challenges in that an unusually high rate-of-effort at times limited the availability of aircraft and crews. The very high number of hours flown, often for extended periods meant that aircraft reached maintenance limits that would not have previously been encountered during a bushfire season. Similarly, pilots reached statutory flight and duty time limitations that would have not applied normally.

### **Impact of longer bushfire seasons on aerial firefighting capability**

NAFC is acutely aware of an apparent trend to longer fire seasons in both the southern and northern hemispheres in recent years. Authorities also predict that the number of days of severe weather will increase in most parts of Australia. NAFC and state and territory agencies continue to closely monitor and research the situation and maintains close communications with overseas counterparts.

Although some firefighting aircraft are shared with the northern hemisphere, over three-quarters of NAFC contracted aircraft remain resident in Australia year-round. Aircraft shared with the northern hemisphere do so under contractual guarantees that they will fulfil their Australian obligations. There may, however, be risks to these arrangements in the future, with increased demand for larger assets from other countries.

Experience has shown that securing additional heavy fixed-wing and rotary-wing assets from overseas at short notice is problematic and unreliable. This was reinforced during 2019-20 by late advice regarding availability of funding for acquiring large air tankers.

In the past, the peaks of the bushfire seasons in the northern and southern hemispheres – when demand for specialised, heavy aircraft is greatest – have normally been some months apart, so the issue of competing needs tended to occur at the margins, not the peak, of the fire seasons. NAFC acknowledges the forecast trend for more serious bushfires to occur outside of the previously traditional peak times – a trend well illustrated during the 2019-20 season. NAFC will continue to work with States and Territories on appropriate resourcing strategies that do not rely on short notice acquisition of assets from overseas to meet surges in demand and requirements for aerial firefighting at non-traditional times of the year.

### **Aircraft management, supervision and support**

Aircraft require high quality, specialised management, supervision and support to ensure they operate efficiently, effectively and safely in controlling bushfires.

The nature of the 2019-20 season, with ongoing requirements for aerial support over extended periods, stretched the availability of qualified aviation personnel in most states, including NSW. Other states and territories made available trained specialist personnel, through the NRSC, to support aircraft operations in NSW during 2019-20. Moving specialist personnel around Australia to support surges in aerial firefighting activity has become relatively routine in recent years and is a key feature of the collaborative arrangements, facilitated by the AFAC NRSC. In an environment where the levels of bushfire activity in individual jurisdictions can vary widely from year to year and even within a season, this makes the best overall use of specialised personnel, who rely on high levels of training and experience.

As with the aircraft assets, however, the 2019-20 season posed some challenges with sharing specialist personnel, as high bushfire risk conditions occurred concurrently across multiple jurisdictions. Accordingly, specialist aviation personnel were also sourced internationally through NRSC. International support was crucial in ensuring continuity of supply of aerial firefighting capability.

CCOSC has previously noted some challenges in providing sufficient aviation personnel across the country and has endorsed finalising a review of the AFAC Fire Aviation Training and Assessment Framework as a key step to improving aviation management and support capability. This framework will also now be known as the Fire and Emergency Aviation Training and Assessment Framework, reflecting that agency aviation capabilities increasingly support an all-hazards environment.

### **Large fixed wing airtankers**

In recent years a newer generation of large, fixed wing airtankers has become available. These airtankers provide increased productivity and cost effectiveness and offer improved drop system technology, overcoming previous limitations.

Over the 2014-15, 2015-16 and 2016-17 fire seasons, NAFC contracted and undertook evaluations of several newer generation Large Airtankers (LATs) including a Very Large Airtanker (VLAT), on behalf of Victoria and NSW. These evaluations demonstrated that larger airtankers provided a valuable capability that complemented the existing fixed and rotary wing firefighting aircraft fleet.

During 2019 the NSW Government purchased a Boeing 737 large airtanker, ensuring that LAT capability was available year-round.

For the 2019-20 season NAFC initially contracted a total of four LATs on behalf of states and territories. Two of these were engaged on behalf of NSW. Subsequently, a further two LATs were engaged at the request of NSW, which, with the NSW owned LAT meant five LATs were operating in NSW over the 2019-20 fire season. During January 2020, a further four LATs were engaged across the country, with one based in NSW, bringing the total LATs in the country to eleven (ten contracted, plus one owned by NSW).

Use of the LATs over recent years has also demonstrated that this class of aircraft is ideal to rapidly provide surge capacity in areas where other resources are limited or fully engaged. LATs are able to quickly deploy and operate effectively across a broad geographic theatre, including in multiple jurisdictions in the one day. NAFC believes that there is merit in considering alternative leasing and ownership provisions of LATs, to ensure more secure availability over an extended fire season.

## **Aerial firefighting safety**

Unfortunately, several serious aircraft accidents occurred during the 2019-20 bushfire season in NSW, including the tragic loss of Bomber 134, a contracted C130 large airtanker, with all three crew members being killed. Two Type 2 (medium) helicopters that had been engaged by NSW on a 'Call when needed' basis were also destroyed. The crews of these helicopters received relatively minor injuries.

Loss of life and injury is not acceptable in firefighting and emergency response operations. NAFC intends to continue working with states and territories to maintain and improve safety systems, ensuring that risks are minimised.

## **Aerial firefighting opportunities**

Firefighters are likely to face extended, hotter fire seasons in the future, with more days of extreme fire danger. Along with changing demographics and land use patterns, this is likely to continue to increase demand for aerial firefighting resources. There is an imperative to continue to develop the current national collaborative arrangements to ensure efficient use of resources and to provide reliable access to surge capacity. There will also be a need to consider the provision of enhanced capabilities necessary to meet forecast increased demand.

AFAC's NAFC intends to work with states and territories to develop and adopt an agreed national aerial firefighting strategy. A national strategy would aim to consolidate a co-ordinated, collaborative approach to all elements of ensuring access to the capabilities that will be required in the future, including aircraft, people and supporting infrastructure and systems. A national fleet strategy and technology roadmap will be included in the strategy that would:

- Clearly delineate Australia's projected future capability requirements to the world aerial firefighting market.
- Address market-driven risks with current approaches, and lead to a more modern, sustainable fleet.
- Aim to provide some appropriate capabilities on a national basis, funded and available to all states and territories to meet surges in demand, and to provide access to capability at times of the year which may be otherwise be uneconomic for individual states.
- In particular, large fixed-wing airtankers are likely to be an important component of enhanced bushfire suppression capability in Australia. A shared, national large fixed-wing airtanker capability is logical and is an attractive strategy.
- Provide a suite of appropriate procurement options for securing capabilities, for suitable periods during each year. Options could include, for example, full-service contracting, purchase or fractional ownership.

Aerial firefighting at night, or in the early morning/late evening, has the potential to enhance firefighting capability and to better protect communities. Fighting fires at night offers the opportunity to take advantage of more favourable conditions including lower temperatures and higher humidity, and to continue work done during the day. NVG and infrared technology has advanced significantly in recent years, opening the possibility of safe and effective firebombing at night.

During 2018, Emergency Management Victoria (EMV) conducted a trial of night firebombing in collaboration with the Civil Aviation Safety Authority and NAFC.



The 2018 trial demonstrated that night firebombing could be a practical and effective tool. For 2019-20 NAFC has contracted two helicopters capable of firebombing at night, both based in Victoria. NAFC would be pleased to assist any jurisdiction seeking to improve their ability to fight fires at night, acknowledging that there may be significant additional cost.

The use of Remotely Piloted Aircraft (RPA or drones) offers many possibilities. The 2019-20 season saw drones being used extensively and increasingly in NSW, ACT and other states for a range of tasks including rapid damage assessment. At the present time, effective use of RPA in bushfire and emergency operations in Australia is constrained to some degree by regulatory considerations and by various operating limitations. Costs can also be relatively high compared to conventional aircraft. NAFC and states and territories will continue to work with the RPA industry and regulatory authorities to identify and develop suitable applications and operating procedures for RPA.

AFAC's NAFC is planning to partner with other interested parties and agencies to further actively identify and test drone capability to assist with firefighting during 2020. It is anticipated that this will include an accelerated capability trial, to explore drone use for reconnaissance and surveillance, aerial ignition for prescribed burns and acting as a communication retransmission facility when other infrastructure is not available.

During the 2019-20 season ARENA reliably provided NSW with an effective system to administer and support the large fleet of aircraft deployed. It is noteworthy that, as a national system, ARENA made it easier for NSW personnel to assist and coordinate with other states, whilst also facilitating assistance to NSW from other states. There is potential to further enhance ARENA, especially to support aircraft operations in the field. There is also potential to extend the functionality to support management and administration of resources other than aircraft.

Given suitable development funding, it is also possible for ARENA to incorporate risk-based decision-support tools, that draw on data already being collected in the system, to assist with resource allocation and dispatch

Recent bushfire seasons across Australia have seen increased emphasis on the use of conventional aircraft and RPA as platforms to obtain timely and accurate information. In turn this has improved the information and intelligence available to incident management teams, and to the communities affected by bushfire. This function has been further aided by recent improvements in sensor and communication technology, and the ability to rapidly process and integrate airborne data into agency systems to provide a range of valuable information products. Notable examples during 2019-20 include Firebird 208 and Firebird 100, Type 3 (light) contracted helicopters equipped with specialist infra-red sensors and sophisticated image processing and communication systems. There is potential to further enhance and streamline airborne information gathering by:

- Developing a national consolidated system for receiving and storing data, and generating and distributing, information products. The underlying technology has been successfully tested and implemented in the ACT during 2018-19 and 2019-20.
- Including cameras and sensors on a wider range of aircraft, to the point where potentially all aircraft (including RPA) flying in conjunction with bushfire operations would feed data to the consolidation system in real time, for integration with other data and distribution to users.
- Expansion of the mesh radio network that provides high bandwidth communications of data, images and video from airborne platforms into the data consolidation and product distribution system.

As noted earlier in this submission, provision of sufficient trained specialist personnel to properly manage and support aviation operations proved challenging across the country during 2019-20, and indeed had posed challenges in previous years.



The current project to revise the AFAC Fire and Emergency Aviation Training and Assessment Framework will assist in guiding agencies in the provision of up-to-date specialist training, within the Nationally Recognised Training framework. It is noted, however, that, other countries who have experienced similar issues are increasingly utilising national training centres for aviation specialists.

A virtual national aviation training centre offers efficiencies in training and skills maintenance as well as ensuring contemporary best-practice across the country. It is envisaged that a national aviation training centre would make extensive use of on-line learning and simulation techniques. Accessibility and effectiveness of simulation has increased markedly in recent years.

### **Firefighter training**

Disaster management and bushfire mitigation in a contemporary landscape is difficult and complex to plan and undertake and requires training, experience and resources. Maintaining a well-trained, resourced and equipped incident response, firefighting and prescribed burning capability is central to effective bushfire mitigation. In addition there are a range of staff, systems, doctrine and services such as strategic planning; operational planning; community engagement; predictive services; fire analysis; incident control and risk, safety and ecological assessments that are essential to maintain an effective landscape and fire management capability.

AFAC supports this through a number of its collaboration groups that are involved in capability and training including:

- Learning and Development Group
- Rural and Land Management Group
- Operational Equipment Technical Group
- Operational Performance Technical Group
- Volunteer Management Technical Group, and
- Personal Protection Equipment Technical Group.

AFAC creates and maintains the nationally endorsed [skill sets and competencies](#) as part of the Public Safety Training Package. The competencies are supported by training material produced in coordination with its member agencies. A national library of training material is maintained by AFAC on its website, for its members. Various areas of work are included such as AIIMS, bushfire response and suppression, prescribed burning, aerial firefighting and other technical aspects addressing various levels of skill.

AFAC with its member agencies undertook a [training competencies and delivery](#) review through the NBP with the aim to improve national prescribed burning practice by improving the content and delivery of training (AFAC 2018d). The review made 26 recommendations to improve:

- training delivery
- training content
- the national competency framework, and
- other, non-governmental use of prescribed burning.

Some of the most relevant recommendations include:

- the establishment of national minimum training requirements
- National level support to agency prescribed burn trainers

- the establishment of a single national Registered Training Organisation (RTO) for prescribed burning to reduce the administrative burden for individual agencies
- the establishment of registered approved contractors to supplement the delivery of training;
- the adoption of standard titles for roles
- the establishment of a Centre of Excellence for Prescribed Burning to support learning and professionalisation, and
- the establishment of a project on cultural burning practice in conjunction with Indigenous groups.

The Emergency Management Professionalisation Scheme (EMPS) was established through AFAC to advance the cause of professionalisation in the practice of emergency management in Australia and New Zealand. EMPS is an excellent example of training support and professionalisation across all areas of disaster resilience.

Western Australia has established a [Bushfire Centre of Excellence](#) as a learning hub to provide high-level training for rural firefighters and other emergency service personnel, based on the best information from science, experienced practitioners and from Traditional Owner practices.

The AFAC Centre of Excellence for Prescribed Burning is working with EMPS and the Western Australian facility to improve prescribed burn training and professionalisation.

### 2.3.3 Equipment and communication systems

#### Interoperability

Over time, Royal Commissions and reports on emergencies have highlighted the need to improve interoperability of emergency communications systems and ensure the expectations of the community are met, relating to the capabilities of communication services available to fire and emergency services. Lack of interoperability between radio communications systems is a major barrier to effective sharing of aerial and ground resources.

Increasingly fire and emergency services are sharing resources across jurisdictions and, indeed, with Canada and the United States.

## 2.4 Any other matters that the Inquiry deems appropriate in relation to bushfires

### The impact of severe fires on the economy in urban, regional, rural and remote areas

AFAC is currently supporting the implementation of the Australian Fire Danger Rating System to provide a more accurate way of calculating fire danger and improved communication to the public to increase community safety. Supported by funding from the Commonwealth National Emergency Management Projects grants program, the Bushfire and Natural Hazards CRC commissioned the Cube Group to prepare a cost benefit analysis to assess the potential benefits of a new fire danger rating system. The report is titled *National Fire Danger Rating System (NFDRS): Illustrative Impact of Benefits and Costs* (Cube Group, 2015).

In order to estimate a baseline for the analysis, the Cube Group undertook an estimate of the costs of Australia's bushfires.

The reports states:

*'Australia's bushfires are currently estimated to cost around \$650 million per year. Over 825 lives have been lost due to bushfires since 1901. This cost of bushfires will rise significantly in the future, largely due to the increasing number and severity of fire events and substantial increases in Australia's population over the next 30 years, particularly at the urban fire-zone interface. The growth of these significant costs can be substantially reduced through the introduction of a modern system capable of incorporating up-to-date science.'*

The report details the methodology used to create the estimate and notes that the figure only partially covers many significant costs of bushfires that frequently go unmeasured, including (Cube Group, 2015):

- loss of wildlife and significant damage to the environment
- disruption to economic and social activities
- the impact of smoke on urban environments, viticulture and agricultural industries
- the cost to community wellbeing, and
- the cost of bushfire relief and recovery programs.

A second cost benefit analysis was undertaken by Inform Economics during Phase 2 of the AFDRS program and considered a broader range of factors (Inform Economics, 2018): The report states

*'Reliable estimates of mitigation/suppression costs and bushfire-attributed losses are not readily available. We have however estimated annual costs of bushfire losses in Australia at approximately \$800 million and annual costs of providing bushfire management in Australia (for the authorities/agencies in each jurisdiction with lead responsibility for bushfire management) at approximately \$1.5 billion/year.*

*We note that the latter does not include costs associated with more than 200,000 volunteers which may be in the order of \$3.6 billion annually.'*

The details of the methodology and assumptions used are contained within the Inform Economics report. It is noted that due to the current bushfires across Australia, the annual costs are likely to be on the rise.

It is requested that the Inquiry note and support the implementation of AFDRS nationally.

### **Future Role of Defence**

Support from the Australian Defence Force (ADF) has been provided over several years including using RAAF Richmond north west of Sydney, as a Large Air Tanker base. As the 2019-20 fire season developed, local Defence support from within NSW increased and the NSW RFS are best placed to provide details of that local support.

In previous years, much of the ADF support provided outside Queensland has been subject to the prospect of the ADF charging for the service.

The 2019-20 fire season changed regarding ADF support, when the Prime Minister acted to remove the impediments to seeking Defence support under the existing 'Defence Assistance to the Civil Community' arrangements. Under the existing Regulations, state and territory governments are required to "exhaust all government, community and commercial options" before requesting ADF assistance. No wonder the ADF support provided prior to the call out was limited.

With the removal of that impediment and the calling out of the Defence Reserve, the support of reportedly up to 6,000 ADF personnel across Australia over January and February 2020 provided invaluable support. The ADF is ideally positioned to provide logistical support. While not directly involved in the firefighting effort, the ADF have been invaluable in assisting with logistics around providing accommodation, facilities, catering, transport, engineering support, reconnaissance from the air and evacuating civilians from isolated townships.

AFAC does not support the ADF becoming involved directly in firefighting. While it is feasible that elements of the ADF could be trained and equipped, there is a significant likelihood that this would duplicate existing state and territory capabilities and, in all likelihood, would not be regularly used. If they were to be deployed ahead of local volunteers, there is a real likelihood that local volunteers would withdraw from providing their services, as the perception would be that this is now being provided by the ADF.

There is a further proposal in the media that the ADF establish a 'disaster response command' to overcome the 'coordination' problems experienced this summer. AFAC is not clear what these coordination problems were and is not convinced a command within the ADF would lead to these being overcome. Resource allocations over summer were guided by the agreed priorities for resource allocation proposed by EMA and agreed by CCOSC. They have subsequently been endorsed by ANZEMC.

The ADF establishment of a 'disaster response command' has every likelihood of duplicating Emergency Management Australia and would wind back the clock to the Defence 'Natural Disasters Organisation' in place many years ago. Such a suggestion fails to recognise the deep commitment by AFAC agencies to existing coordinated resource sharing arrangements, overseen by the CCOSC and facilitated through the NRSC.

### 3 OTHER ISSUES

#### Management of Future Research

After 15 years of research being managed by two independent Cooperative Research Centre (CRC) boards, and with the current Bushfire and Natural Hazards (BNH) CRC Board seeking greater independence and diversity from fire and emergency agencies, the AFAC Board and National Council are ready to manage and direct their own research priorities, projects and utilisation. Reflecting this priority, AFAC has created a Research Committee, which reports to the AFAC Board and advises AFAC Council on priorities, projects and utilisation.

The concern of AFAC, while applauding the Federal Government for recently indicating further research funding is likely to be directed to bushfire, is that there is the potential for future efforts to become research for research's sake and not research that is useful and applied by the end users – fire and emergency agencies. AFAC requires relevant, useful and readily applied research and to better influence the fire and emergency research agenda. If research is not collectively managed through the industry body, then AFAC has real concern that the research will not assist in leading the development of national doctrine and best practice.

The BNHCRC research program has extensively been linked to individuals in agencies, or individual agencies as end users, at the expense of the AFAC Collaboration Framework, which engages the 31 member agencies through shared knowledge, experience and is the source of national doctrine across the 34 Collaboration Groups. To pursue end user focussed research outside of these AFAC Collaboration Groups significantly reduces the benefit AFAC has provided to both the Bushfire CRC and BNHCRC and arguably, what has made these CRC's so successful – strong industry engagement through collaborative end users leading to industry led research utilisation.

The BNHCRC Conference has shared the success it has, because it is programmed as the first day of the nation's largest fire and emergency management conference 'AFAC', which has attracted over 4,000 participants in recent years.

In AFAC's view, the CSIRO are well placed to undertake future, longer-term research projects, potentially 3-5 years in duration, which were previously managed by the CRC's. While AFAC has established and continues to maintain strong links to the CSIRO, particularly around bushfire, many of these longer-term projects have a broader number of end users beyond fire and emergency services, and CSIRO are well placed to also engaged with them.

AFAC is in a strong position to oversee shorter term research projects, particularly ensuring effective research utilisation by the sector. It proposes that the Australian Institute for Disaster Resilience (AIDR), which is a business unit managed by AFAC, while also being a consortium with the Australian Red Cross (30% stake) and the BNHCRC (10% stake), is well placed to manage a future, more modest research capability on behalf of the sector.

Such an arrangement was presented to Emergency Management Australia in 2019 and had their support. AIDR is a highly effective knowledge broker, maintaining a 'Knowledge Hub' and generating national doctrine on emergency management and resilience through its 'National Handbook' collection. Together with AFAC, with its unmatched Collaboration Framework of 34 groups, this arrangement would ensure research is user driven, meeting the needs of the sector and is relevant, useful and readily applied.

AFAC's proposal of integrating future research capability within industry, is totally aligned to the intent of the CRC program: to use the experience, knowledge and familiarity of 15 years of CRC research, to establish an industry led and sustainable research entity. It is an industry driven solution with a strong degree of ownership by fire and emergency services. This is however, not the view of the BNHCRC Board, which has stridently argued for a further research centred capability, not an industry driven capability. AFAC understands that decisions regarding the future research capability for the sector now rest with the Department of Industry, Innovation and Science.

## 4 CONCLUSION

Weather, drought conditions, climate change, the build-up of fuels and human related factors all contributed to the severely damaging impacts of the bushfires of 2019-20 in NSW and other jurisdictions. Factors contributing to bushfire impacts are multifaceted and require multiple responses with a collective responsibility for mitigation and disaster resilience from government, industry, communities and individuals. The response by NSW agencies over a six month period of campaign fires was professional and maintained the trust and confidence of the NSW public and their Government.

Bushfire mitigation and response is a difficult and complex issue requiring a whole-of-community effort to identify risk, undertake strategic risk assessments, to provide advice, education and information regarding the risk, and to undertake activities to mitigate those risks. All sectors of society from individuals, communities, businesses, industry, infrastructure managers and government need to be aware, engaged and prepared.

There is much that can be done nationally to support the efforts of jurisdictions and agencies in NSW involved in land and fire management, emergency management and disaster resilience. Considerable savings and efficiencies can be leveraged through optimisation of resources, greater standardisation, supporting national programs, national resource sharing, developing better tools and systems, utilising and supporting research and through collaboration and cooperation.

AFAC, with its collaboration groups, partnerships and initiatives such as the AFAC NRSC, AFAC NAFC, AFAC Centre of Excellence for Prescribed Burning and the Australian Institute of Disaster Resilience, are important national capabilities within Australia to support these goals. They are industry driven with a strong degree of ownership by fire and emergency agencies. NSW agencies have been proactive and strong participants within AFAC and have supported these national capabilities. Through this engagement and active collaboration, this positions NSW agencies to be at the forefront of best practice in relation to all aspects of fire and emergency management and led to NSW benefiting from national collaboration through what became an extraordinary fire season extending over many months.

AFAC stands ready to further assist the Independent Inquiry as required and trusts this submission is of assistance with its deliberations.

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## **APPENDIX 1: AFAC MEMBER ORGANISATIONS**

### **Full Members (31)**

#### **Australian Capital Territory**

ACT Emergency Services Agency

ACT Parks Conservation Service

#### **New South Wales**

Fire and Rescue NSW

NSW Rural Fire Service

Forestry Corporation of NSW

Office of Environment and Heritage

NSW State Emergency Service

#### **Northern Territory**

Northern Territory Fire, Rescue and Emergency Services

Bushfires NT

#### **New Zealand**

Fire and Emergency New Zealand

#### **Queensland**

Queensland Parks and Wildlife Service

Queensland Fire and Emergency Services

#### **South Australia**

Department for Environment and Water (National Parks and Wildlife Service)

ForestrySA

South Australia Country Fire Service

South Australian Metropolitan Fire Service

South Australian State Emergency Service

#### **Tasmania**

Sustainable Timber Tasmania

Parks and Wildlife Service

Tasmania Fire Service

Tasmania State Emergency Service

#### **Victoria**

Country Fire Authority

Forest Fire Management, Department of Environment, Land, Water, and Planning

Metropolitan Fire and Emergency Services Board Melbourne

Parks Victoria

Victoria State Emergency Service

#### **Western Australia**

Department of Fire and Emergency Services

Department of Biodiversity Conservation and Attractions, Parks and Wildlife Service

## **National**

Air Services Australia

Department of Home Affairs, Emergency Management Australia

Parks Australia

## **Affiliate members (21)**

Australasian Road Rescue Organisation

Australian Maritime Safety Authority

Australian Red Cross

Brisbane City Council

Bureau of Meteorology

Council of Australian Volunteer Fire Associations

Department of Conservation New Zealand

Department of Health and Human Services, VIC

Emergency Management Victoria

Geoscience Australia

Hong Kong Fire Services Department

HQ Plantations Pty Ltd

Melbourne Water

Ministry of Civil Defence & Emergency Management

National SES Volunteers Association

NSW Environment Protection Authority

NSW Volunteer Rescue Association

Office of Emergency Management NSW

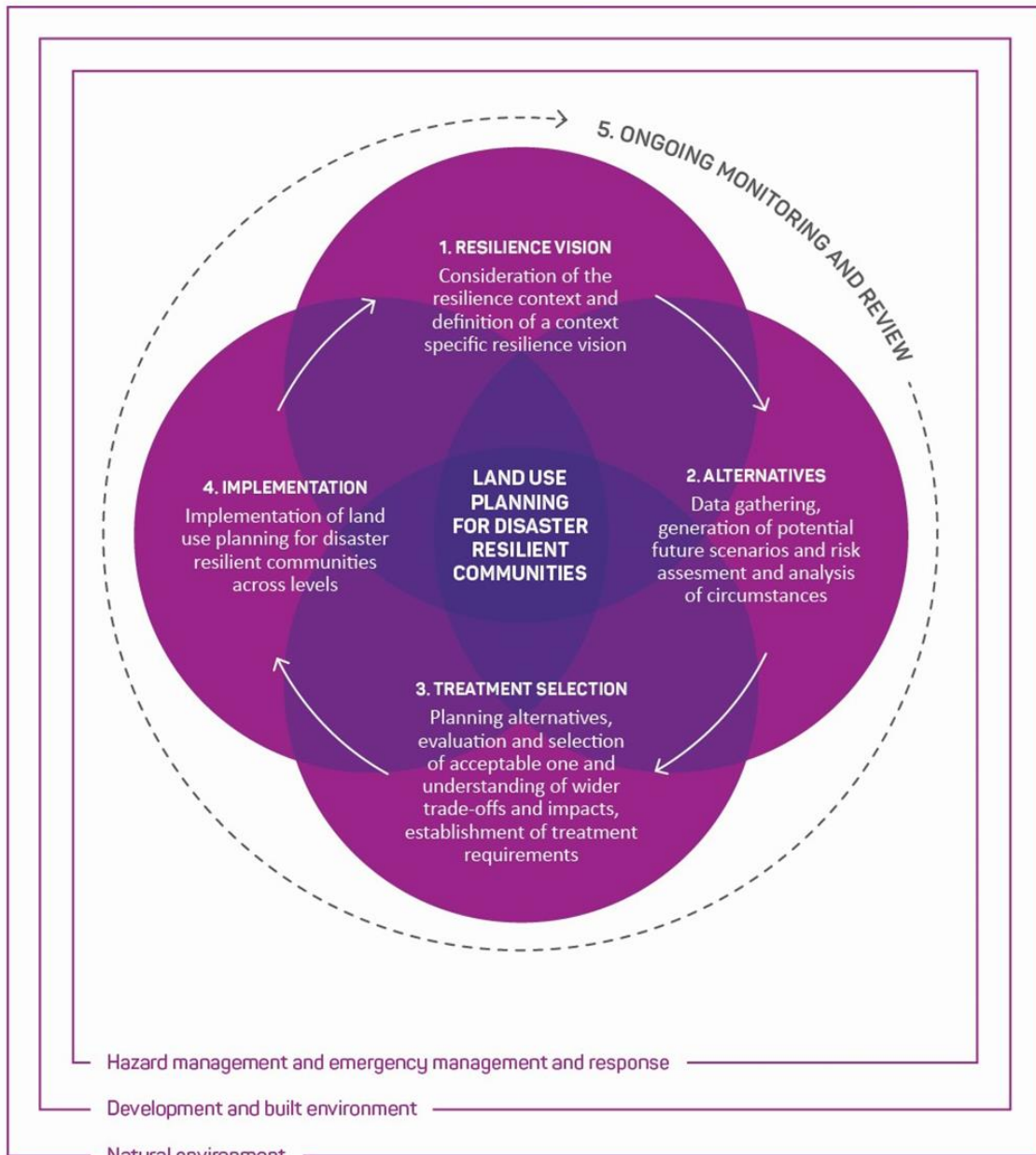
Pacific Islands Fire Service Association

South Australian Fire and Emergency Services Commission

State Emergency Management Committee Secretariat WA

Surf Life Saving Australia

## APPENDIX 2: LAND USE PLANNING FOR DISASTER RESILIENT COMMUNITIES



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## APPENDIX 3: EMPS CREDENTIALS CURRENTLY OPEN FOR APPLICATION



### **EMPS Certified Practitioner roles**

- Certified Strategic Commander
- Certified Incident Controller
- Certified Fire Investigator
- Certified Public Information Officer
- Certified Operations Officer
- Certified Planning Officer
- Certified Logistics Officer
- Certified Burn Controller
- Certified Fire Behaviour Analyst

### **EMPS Registered Practitioners**

- Registered Level 2 Incident Controller
- Registered Level 3 Incident Controller
- Registered Planning Officer
- Registered Intelligence Officer
- Registered Public Information Officer
- Registered Level 2 Operations Officer
- Registered Level 3 Operations Officer
- Registered Logistics Officer
- Registered Finance Officer
- Registered Prescribed Burn Planner
- Registered Prescribed Burn Operations Officer (Complex Burns)
- Registered Divisional Commander
- Registered Fire Investigator
- Registered Fire Behaviour Analyst
- Registered Arduous Bushfire Firefighter

## APPENDIX 4: REGULATORY INSTRUMENTS AVAILABLE FOR ASSISTING WITH MITIGATING BUSHFIRE IMPACTS

Instrument	What they entail	Role in disaster resilience
Legislation	<p>Each state and territory in Australia has a planning act setting out the general powers, responsibilities and rights of various parties of land use planning, including setting processes for plan development and implementation. They require local governments to administer land use planning.</p> <p>Additionally, there is other legislation that may have an influence on planning matters (for example, environmental or building legislations).</p>	<p>Enable and provide context for land use planning for disaster resilient communities by containing goals for community safety or resilient development.</p> <p>Specify that disaster resilience is to be included in all land use planning levels.</p> <p>Specify the need to consider natural hazards in land use planning decisions.</p> <p>Establish links to risk assessment processes and advice from natural hazard leaders and emergency managers for all planning decisions.</p> <p>Specify that risk assessments must consider existing and future risks and may include scenario testing of future settlement patterns.</p> <p>Consider other disaster management legislations that have impact on planning matters.</p>
Policy	<p>All states and territories have developed policies that impact on land use planning and disaster management. These may include fire, flood, landslide and water quality management policies; coastal, environmental, agricultural and wetlands protection policies, and management of urban expansion policies.</p>	<p>Ensure that the policy is aligned with the direction of other overarching national policies or international agreements, establishing clear links and hierarchies between them.</p> <p>Clearly articulate how disaster resilience and risk information is considered in land use planning, to guide decision-making processes and selection of future growth patterns.</p> <p>Articulate guidance on the level of risk tolerance that will frame the system and guide decision-making.</p>
Regulation	<p>In each state and territory, planning acts are associated with planning regulations that set how the legislations' requirements are to be met.</p>	<p>Link planning decisions to advice from natural hazard leaders and emergency managers.</p>

		<p>Specify the need to consider natural hazards in land use planning decisions, including in strategic planning decisions, and their implementation. Require assessment of strategic alternatives when appropriate.</p> <p>Support with guidance on the level of risk tolerance that will frame the system and guide decision-making.</p> <p>Provide an objective of disaster risk reduction and resilience processes or mechanisms as appropriate, according to the level of risk tolerance that frames the system.</p>
<p>Standards and Codes</p>	<p>Standards and codes can be technical or functional and cover the physical characteristics, materials and components for new developments. They specify what is considered satisfactory in a given context.</p> <p>Usually, regulations refer to standards.</p>	<p>Relevant standards and codes provisions to natural hazard information and risk assessments.</p> <p>Restrict certain uses, building types, and occupancy density in hazard prone areas where risk is considered to be beyond acceptable.</p> <p>Restrict certain uses, building types, and occupancy density in hazard prone areas to that compatible with the natural hazard and its constraints.</p> <p>In areas where development is considered acceptable, specify disaster risk reduction treatments that meet the objectives of the policy or regulation and correspond with the system’s level of risk tolerance.</p>

Summary of the main instruments at the legislative and regulatory planning level.

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