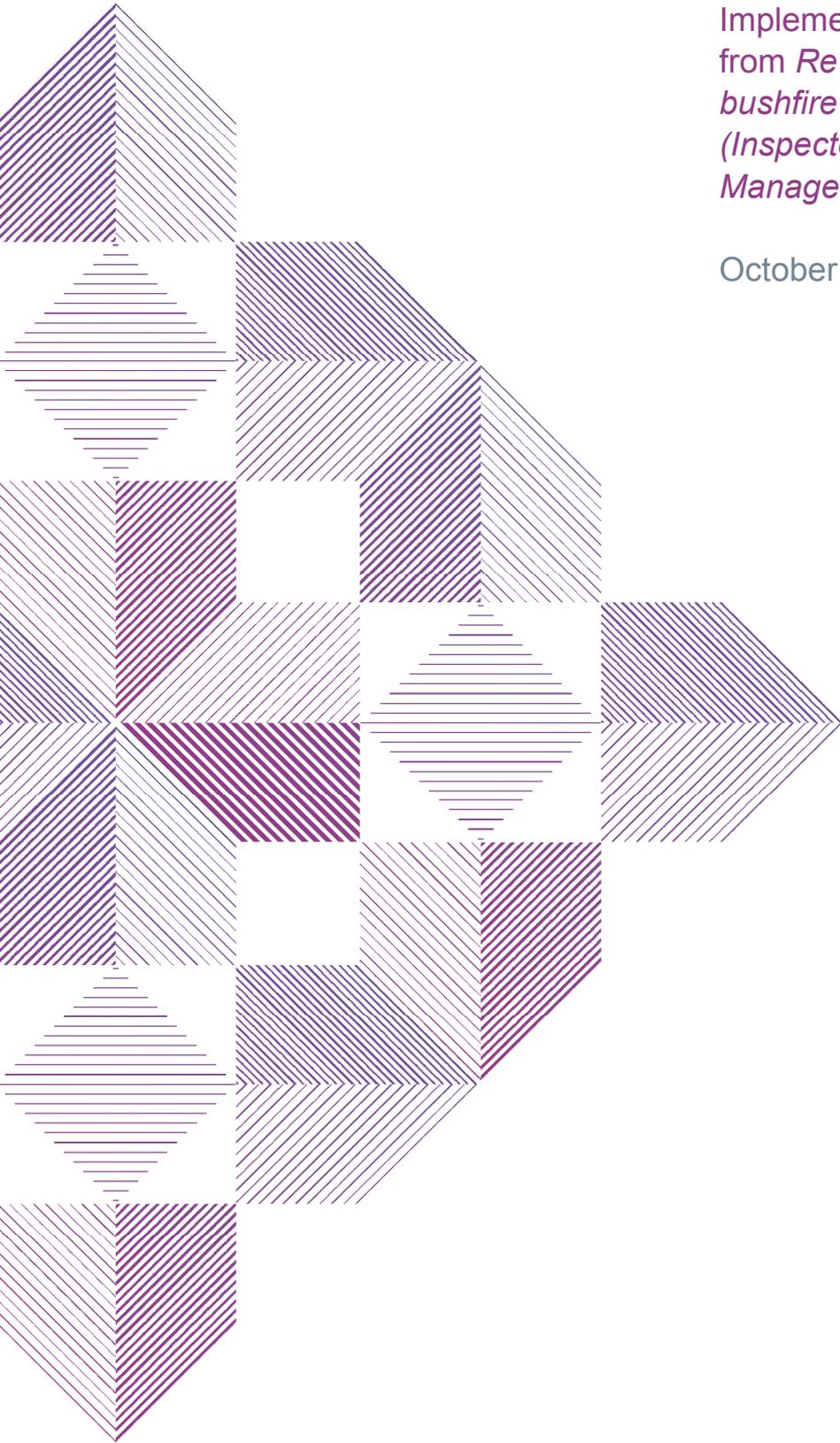


Annual Report

Implementation of recommendations
from *Review of performance targets for
bushfire fuel management on public land*
(*Inspector-General for Emergency
Management – May 2015*)

October 2016



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Common terms

Bushfire Fuel Management Program	DELWP Bushfire Fuel Management Program on Public Land
Safer Together	<i>Safer Together: A new approach to reducing the risk of bushfire in Victoria</i> , November 2015
DELWP response	<i>Response to the recommendations of the independent investigation into the Lancefield-Cobaw fire</i> , November 2015
The code	<i>Code of Practice for Bushfire Management on Public Land</i> , 2012
The department	Department of Environment, Land, Water and Planning
The investigation	<i>Independent Investigation of the Lancefield-Cobaw Fire</i> , November 2015
The review	<i>Review of Performance Targets for Bushfire Fuel Management on Public Land</i> , May 2015.

Acronyms

Bushfire and Natural Hazards CRC	Bushfire and Natural Hazards Cooperative Research Centre
BOM	Bureau of Meteorology
BRCIM	Bushfires Royal Commission Implementation Monitor
BRL	Bushfire Risk Landscape
CBBM	Community-Based Bushfire Management
CFA	Country Fire Authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DELWP	Department of Environment, Land, Water and Planning
EMV	Emergency Management Victoria
FOP	Fire Operations Plan
GMA	Geometric Mean Abundance
IGEM	Inspector-General for Emergency Management
MER	Monitoring, Evaluation and Reporting
MERI	Monitoring, Evaluation, Reporting and Improvement
MFB	Metropolitan Fire Brigade
SAQH	Community Smoke, Air Quality and Health Standard
SBMP	Strategic Bushfire Management Plan
TFI	Tolerable Fire Interval
VBRC	Victorian Bushfires Royal Commission

Preface

Bushfires are and will be ever present in Victoria's landscape. As Victoria's communities and environments change should we also change our emergency management approach for managing bushfire risk?

Until experiences or practices are significantly challenged by an emergency event, we often see 'moment in time', or incremental changes, in the State's emergency management arrangements. The emergency management sector continually makes these incremental changes because it always seeks better ways of doing things. That is continuous improvement.

This annual report documents the State's progress with implementing one of the most significant emergency management reforms since 2010 – the adoption of a risk reduction target as the most effective form of performance target for bushfire fuel management on public land.

The Victorian Bushfires Royal Commission's investigation of the causes and responses to the devastating and tragic 2009 bushfires, brought significant changes in the State's emergency management arrangements including community warnings, emergency management governance and incident management, and land and fuel management.

At the time, the Commission recommended a hectare-based performance target as the best measure for bushfire fuel management. With the evolution of changes in our communities, environment, land and fuel management science, the efficiency and effectiveness of the hectare-based approach was questioned by many.

In February 2015, the Victorian Government requested I review the performance targets for bushfire fuel management on public land -- and in doing so – consider the form of performance target that best supports delivery of Victoria's fuel management program that would meet the intent of the Commission's recommendations and the achievement of objectives described in the Code of Practice for Bushfire Fuel Management on Public Land.

In May 2015 I released my report *Review of performance targets for bushfire fuel management on public land*, making four recommendations including 'a risk reduction target as the most effective form of performance target for bushfire fuel management on public land'.

The outcomes of the Independent Investigation of the 2015 Lancefield-Cobaw Fire provided additional evidence and impetus for change in the State's bushfire fuel management practices.

In November 2015, the Victorian Government responded to the Independent Investigation and my Review with the release of *Safer Together: A New Approach to Reducing the Risk of Bushfire in Victoria*.

Implementation of priorities and actions under *Safer Together* over the next five years, will also realise the adoption and implementation of recommendations from my review of performance targets for bushfire fuel management on public land, including the move from a hectare-based to risk reduction fuel target.

As Victoria's Inspector-General for Emergency Management, I will oversee the implementation of *Safer Together*, including the investigation and reporting of breaches of control lines by planned burns. This will provide assurance of government's commitment to minimising the effects of emergencies – such as bushfire - on Victorian communities and environment.

While managing bushfire risk is a challenging task, the transition to a risk-based planning and performance measurement to reduce bushfire risk is a significant step in Victoria's emergency management reform, and an important contribution to the continuing protection of the Victorian community and our environment.

Tony Pearce

Inspector-General for Emergency Management

Executive Summary

This is the first annual report by the Inspector-General for Emergency Management (IGEM) on the Victorian Government's implementation of recommendations from IGEM's May 2015 *Review of Performance Targets for Bushfire Fuel Management on Public Land* (the review).

The review included four recommendations relating to the Department of Environment, Land, Water and Planning (DELWP) Bushfire Fuel Management Program.

The most significant was IGEM's recommendation for DELWP to move from a hectare-based fuel reduction target to a risk-reduction approach where the most at-risk areas are prioritised for fuel reduction operations.

IGEM also made a number of complementary recommendations in order to provide assurance to the community in transitioning to this form of performance target.

The Victorian Government accepted all of IGEM's recommendations.

In November 2015, in response to IGEM's recommendations, the Victorian Government released *Safer Together: A new approach to reducing the risk of bushfire in Victoria* (Safer Together).

Safer Together is a policy approach to bushfire management that considers the full range of options to manage bushfire risk across public and private land, and across prevention, preparedness, response, and recovery activities. The Victorian Government's response to IGEM's review and its four recommendations is embedded within Safer Together.

IGEM is monitoring implementation of the four review recommendations and a further three recommendations relating to Safer Together that carried over from the independent investigation of the Lancefield-Cobaw Fire.

The recommendations are listed in Tables i and ii.

On 1 July 2016, DELWP introduced a risk reduction performance target for fuel reduction to maintain bushfire risk at, or below, 70 per cent of Victoria's maximum bushfire risk, thus implementing IGEM's first recommendation.

Implementation of IGEM Recommendation 3 is progressing satisfactorily with DELWP's continuing collaboration in the development of the State Smoke Framework for managing the risks of smoke and other emissions and finalisation of a smoke impact management procedure.

A number of projects have been commissioned to conduct research relating to estimating and monitoring the impacts of smoke and understanding decision-making needs of the community, industry and emergency management sector during smoke events.

DELWP has established processes for more effective community engagement and, in collaboration with CFA, will evaluate implementation of Community Based Bushfire Management, a process for working with communities in managing bushfire risk.

In relation to IGEM Recommendation 4, DELWP is improving annual fuel management reporting, which includes metrics for bushfire risk and ecosystem resilience. The reports will have more emphasis on bushfire risk, improved online reporting and more information relating to statewide bushfire risk.

DELWP's transition to risk-based planning and performance measurement is being supported by an audit and quality assurance framework for the planned burning program. The framework will include independent auditing and a bushfire management audit program.

DELWP has also commissioned processes for self-assessment of compliance with the international standard for risk management.

IGEM Recommendation 2 and Lancefield Recommendations 1–3 relate to the implementation of Safer Together.

The sector has commenced transition planning, including the establishment of a leadership group and governance to support implementation and oversight of Safer Together.

The leadership group comprises multi-agency representation from DELWP, CFA, EMV and Parks Victoria, which provides the structure to facilitate the key milestones and deliverables.

A draft sector program plan¹ is scheduled for completion in November 2016.

IGEM notes the foundational work that is being conducted in relation to Safer Together and will expect to see further progress during the next reporting period once the sector program plan is finalised and timelines and milestones for associated projects are further developed.

IGEM considers that IGEM Recommendation 1 has been implemented as planned and the remaining recommendations are progressing satisfactorily.

¹ Safer Together: draft Sector Program Plan and annual Delivery Plan, CFA/DELWP, July 2016

Table i: IGEM's Recommendations: *Review of performance targets for bushfire fuel management on public land*

REFERENCE	RECOMMENDATION	STATUS
IGEM Recommendation 1	IGEM recommends a risk reduction target as the most effective form of performance target for bushfire fuel management on public land to protect life and property and guide investments in fuel reduction burning.	Complete
IGEM Recommendation 2	In the event that government adopts a risk reduction target: <ul style="list-style-type: none"> • DELWP transitions to this target through a defined program of activities and milestones. Effective transitioning will require DELWP to enhance its capacity and capability to implement risk-based planning and needs to be supported by appropriate performance measures and dedicated monitoring, evaluation and review. • Government supports DELWP in making this transition. 	Ongoing
IGEM Recommendation 3	IGEM recommends that DELWP: <ul style="list-style-type: none"> • continue to develop and employ its capability to predict the smoke effects of planned burning, ensuring its planned burning processes remain consistent with the State Smoke Plan • adopt performance measures to monitor the quality and effectiveness of community engagement activities • continue to develop the reliability of its estimates of unit risk reduction costs. The availability of such estimates will be required to enable comparison and prioritisation of options for bushfire risk reduction across the areas of prevention, preparedness, response and recovery, and would involve contributions of other emergency management agencies. 	Ongoing
IGEM Recommendation 4	IGEM recommends that: <ul style="list-style-type: none"> • DELWP report clear, publicly accessible information on bushfire risk and ecosystem resilience, and report on the key activities required to achieve outcomes for the community in these areas • DELWP's transition to the risk-based planning and performance measurement be supported by a program of internal and external reviews. 	Ongoing

Table ii: Recommendations of the *Independent Investigation of the Lancefield-Cobaw Fire*, to be implemented as part of *Safer Together*

REFERENCE	RECOMMENDATION	STATUS
Lancefield Recommendation R1 (3.1.1.5)	The Department must adopt a tenure-blind approach to the management of bushfire risk including the planning of burns	Ongoing
Lancefield Recommendation R2 (3.1.1.6)	In broadening its focus the Department should consider planned burning as just one of many options in managing fuels, landscape risk, multiple tenures, diverse land uses and must incorporate community perspectives	Ongoing
Lancefield Recommendation R3 (3.1.1.7)	The Department should engage with EMV in seeking and implementing solutions to improving landscape scale bushfire risk management	Ongoing

1 Introduction

This is the first annual report by the Inspector-General for Emergency Management (IGEM) on the Victorian Government's implementation of recommendations from IGEM's May 2015 *Review of Performance Targets for Bushfire Fuel Management on Public Land* (the review).

The review included four recommendations relating to the Department of Environment, Land, Water and Planning (DELWP) Bushfire Fuel Management Program.

IGEM's most significant recommendation was for DELWP to move from a hectare-based fuel reduction target to a risk-reduction approach where the most at-risk areas are prioritised for fuel reduction operations. The Victorian Government accepted all of IGEM's recommendations.

In November 2015, in response to IGEM's recommendations, the Victorian Government released *Safer Together: A new approach to reducing the risk of bushfire in Victoria* (Safer Together).

Safer Together is a policy approach to bushfire management that considers the full range of options to manage bushfire risk across public and private land and across prevention, preparedness, response, and recovery activities. The Victorian Government's response to IGEM's review is embedded within Safer Together.

IGEM is monitoring implementation of the four review recommendations and three recommendations from the *Independent Investigation of the Lancefield-Cobaw Fire* that are being implemented as part of Safer Together.

IGEM will report annually to the Minister for Energy, Environment and Climate Change and the Minister for Emergency Services on progress.

2 Background

Victorian Bushfires Royal Commission Recommendation 56

Following the 2009 Victorian bushfires, the Victorian Bushfires Royal Commission (VBRC) made a number of recommendations in relation to fuel management, including:

Recommendation 56:

"The State fund and commit to implementing a long-term program of prescribed burning based on an annual rolling target of 5 per cent minimum of public land" (VBRC 2010 Vol 2, p. 295).

Prescribed, or planned, burning is defined as the "controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity and rate of spread required to attain planned resource management objectives" (AFAC 2012).

The practice has a long history in Victoria, across Australia and internationally. It is considered the most efficient and effective approach for managing fuel hazard over large areas and is one activity in DELWP's Bushfire Fuel Management Program on Public Land (Bushfire Fuel Management Program).

VBRC discussed the merits and limitations of a hectare-based performance target. The VBRC's intent was to reduce risk to human life from bushfires and the five per cent planned burn target was considered to be commensurate with an acceptable risk reduction.

The five per cent target was equivalent to a threefold increase in the annual area burned. The VBRC also recognised that not all hectares were equal in terms of the potential risk reduction from planned burning (VBRC 2010 Vol 2, p. 294). At the time, there was not the capability to easily relate area burnt to risk reduced.

The Victorian Government agreed to implement Recommendation 56 and successive governments committed to a staged increase of planned burns using an annual hectare-based target. DELWP's efforts to meet the target were noted by the Bushfires Royal Commission Implementation Monitor, however the VBRC's recommended five per cent target was not achieved.

Bushfires Royal Commission Implementation Monitor

In 2010, the Victorian Government appointed Mr Neil Comrie AO APM as Bushfires Royal Commission Implementation Monitor (BRCIM) to monitor, review and report on the progress of agencies in carrying out the government's response to the VBRC's Final Report recommendations. In doing so, BRCIM considered the effectiveness of the methods used and the efficacy of their implementation.

In 2013, BRCIM concluded that the planned burning target of five per cent of public land was not achievable, affordable or sustainable and advocated that the government reconsider the hectare-based target in favour of a risk-based approach (BRCIM 2013).

In arriving at this position, BRCIM considered advances in DELWP's capabilities since the VBRC made its recommendations. (BRCIM 2014)

The Code of Practice for Bushfire Management on Public Land 2012

The intent of VBRC's Recommendation 56 was primarily the protection of human life. This continues to be one of the objectives of DELWP's Bushfire Fuel Management Program.

The *Code of Practice for Bushfire Management on Public Land 2012* (the code) sets the objectives for bushfire management on public land and supports DELWP in meeting its legislative responsibilities under the *Forest Act 1958*.

The code has two primary objectives:

- To minimise the impact of major bushfires on human life, communities, essential and community infrastructure, industries, the economy and the environment. Human life will be afforded priority over all other considerations.
- To maintain or improve the resilience of natural ecosystems and their ability to deliver services such as biodiversity, water, carbon storage and forest products.

Planned burning is the largest fuel reduction activity, by area, in DELWP's Bushfire Fuel Management Program. However it is only one approach to managing bushfire risk.

The suite of potential fuel management activities listed in the code also includes ploughing, mulching, herbicide application, chain rolling, grazing, mowing and slashing. Fuel management activities can reduce risk from bushfires, but they cannot eliminate it.

Inspector-General for Emergency Management

IGEM is a legislated appointment established under the *Emergency Management Act 2013* (the Act) to:

- provide assurance to government and the community in respect of emergency management arrangements in Victoria
- foster continuous improvement of emergency management in Victoria.

The Act requires IGEM to develop and maintain a monitoring and assurance framework for emergency management, against which the capacity, capability and performance of the emergency management sector is to be assessed.

Implementation monitoring is a key element of the *Monitoring and Assurance Framework for Emergency Management*².

In February 2015, the then Minister for Environment, Climate Change and Water and the then Minister for Emergency Services requested IGEM to:

- review the commentary and findings of the BRCIM in respect of hectare-based performance targets for fuel management on public land and DELWP's risk-based approach to bushfire management.
- consider other relevant reports on these matters, including the Expert Reference Group – Bushfire Management Reform Program.
- provide recommendations regarding the form of future performance targets for the Bushfire Fuel Management Program, specifically the continuation of a hectare-based target or the adoption of a bushfire risk reduction target, such as that developed by DELWP as part of its risk-based approach to bushfire management.
- provide recommendations on any other complementary measures of performance for the Bushfire Fuel Management Program.

Undertaking such a review is consistent with IGEM's legislative role to provide assurance to government and community in respect of the emergency management arrangements.

IGEM was asked to consider the form of performance target that best supports delivery of a fuel management program that both meets the intent of the VBRC recommendations and the achievement of the objectives in the code.

The review was to specifically exclude the following as out of scope:

- expert technical review of DELWP's Bushfire Fuel Management Program
- advice on what the recommended performance targets should be.

Independent Investigation of the Lancefield-Cobaw Fire.

On 30 September 2015, DELWP conducted a planned burn at Lancefield-Cobaw Croziers Track in the Macedon Ranges Shire – a standard practice in DELWP's Bushfire Fuel Management Program.

The burn later breached containment lines and, until contained on 13 October 2015, burned over 3,000 hectares, destroying a number of dwellings, sheds, and many kilometres of fencing, and causing significant disruption for local communities.

At the Victorian Government's request, the *Independent Investigation of the Lancefield-Cobaw Fire* (the investigation) was conducted by independent expert Mr Murray Carter, Director of Western Australia's Office of Bushfire Risk Management. The investigation recommended improvements to DELWP's systems and processes that are crucial to the delivery of planned burning throughout Victoria.

Three recommendations related to the implementation of Safer Together and are reported on here.

DELWP accepted all 22 of the recommendations in the investigation report and made 10 additional commitments to improve delivery of the Bushfire Fuel Management Program.

At the request of the Victorian Government, and in line with Section 64(1)(ca) of the Act, IGEM provided independent oversight to ensure all recommendations from the investigation report were implemented and progress publicly reported.

IGEM published an interim progress report in February 2016, a further progress report in June 2016, and final progress report in August 2016.

3 IGEM's review

In arriving at the recommendations on the future form of performance target for DELWP's Bushfire Fuel Management Program, IGEM considered:

- the perspective of the VBRC and its recommendations
- changes in DELWP's capacity and capability
- BRCIM findings
- the views of interviewees
- written submissions.

IGEM commissioned the Centre for Risk and Community Safety, RMIT University, to evaluate the merit of a policy based on a hectare-based performance target compared to the merit of a policy based on a risk reduction performance target.

² Inspector-General for Emergency Management 2015, *Monitoring and Assurance Framework for Emergency Management*.

The evaluation found that, compared to a hectare-based target, a policy that adopts a risk reduction target:

- is more effective at achieving the objectives of the Bushfire Fuel Management Program (including the primacy of life)
- provides the right kinds of incentives
- more easily allows adaptive management
- is more transparent, more efficient and more equitable.

A risk reduction target allows DELWP to optimise risk reduction across the suite of potential activities to manage fuel load on public land. Under a hectare-based target, there is insufficient incentive to adopt alternative risk reduction activities when planned burns cannot take place.

The benefits of a risk reduction target are not limited to the Bushfire Fuel Management Program. A risk reduction target also encourages shared responsibility for bushfire risks and promotes engagement with communities to address these risks regardless of whether they sit on private or public lands. A risk reduction target further supports efforts to integrate planning and investment across the spectrum of bushfire management activities.

The IGEM review noted the tools and approaches DELWP had developed to support its decision-making since the VBRC, including use of risk-based planning to meet its hectare-based target.

Shifting DELWP's measure of performance to risk reduction would more effectively focus the attention of planners, communities and emergency management stakeholders on the varying contributors to bushfire risk, how best to reduce them, and the nature of trade-offs between bushfire risk and other values.

IGEM's recommendations

IGEM's review recommended a risk reduction target as the future form of performance target for DELWP's Bushfire Fuel Management Program.

IGEM believes that the introduction of a risk reduction performance target for fuel reduction represents a shift in focus from activity to outcome. The transition to risk-based planning and performance measurement for DELWP's fuel reduction program represents a key step in Victoria's emergency management reform.

IGEM also provided a number of complementary recommendations in order to provide assurance to the community in transitioning to this form of performance target.

IGEM Recommendation 1

IGEM recommends a risk reduction target as the most effective form of performance target for bushfire fuel management on public land to protect life and property and guide investments in fuel reduction burning.

IGEM Recommendation 2

In the event that government adopts a risk reduction target:

- *DELWP transitions to this target through a defined program of activities and milestones. Effective transitioning will require DELWP to enhance its capacity and capability to implement risk-based planning and needs to be supported by appropriate performance measures and dedicated monitoring, evaluation and review.*
- *Government supports DELWP in making this transition.*

IGEM Recommendation 3

IGEM recommends that DELWP:

- *continue to develop and employ its capability to predict the smoke effects of planned burning, ensuring its planned burning processes remain consistent with the State Smoke Plan*
- *adopt performance measures to monitor the quality and effectiveness of community engagement activities*
- *continue to develop the reliability of its estimates of unit risk reduction costs. The availability of such estimates will be required to enable comparison and prioritisation of options for bushfire risk reduction across the areas of prevention, preparedness, response and recovery, and would involve contributions of other emergency management agencies.*

IGEM Recommendation 4

IGEM recommends that:

- *DELWP report clear, publicly accessible information on bushfire risk and ecosystem resilience, and report on the key activities required to achieve outcomes for the community in these areas*
- *DELWP's transition to the risk-based planning and performance measurement be supported by a program of internal and external reviews.*

4 Implementation progress

IGEM RECOMMENDATION 1

IGEM recommends a risk reduction target as the most effective form of performance target for bushfire fuel management on public land to protect life and property and guide investments in fuel reduction burning.

Status	Complete
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A risk reduction performance target should clearly communicate the objectives and effectiveness of the Bushfire Fuel Management Program.

In this context, a risk reduction target refers to a performance objective specifying the level of risk remaining after fuel management activities have been taken into account.

A risk reduction performance target will:

- effectively drive investment and delivery of the Bushfire Fuel Management Program toward risk reduction
- best position the role of fuel management in a broader approach to bushfire management that considers the full range of options to manage bushfire risk across land tenures and across the spectrum of prevention, preparedness, response and recovery.

Progress summary

From 1 July 2016, DELWP's fuel management program is guided by a risk reduction target, rather than a hectare-based target, maintaining bushfire risk at, or below, 70 per cent of Victoria's maximum bushfire risk.

This 70 per cent residual risk target means the impact of bushfires will be reduced by about a third compared to maximum fuel loads.

Bushfire risk is measured for the whole of Victoria and at the scale of 'Bushfire Risk Landscapes' (BRLs). BRLs are geographical areas of Victoria grouped by similar bushfire behaviour at those locations.

There are seven BRLs:

- Alpine and Greater Gippsland
- Alpine North East
- Barwon Otway
- East Central
- Mallee Murray Goulburn
- South Western
- West Central

Strategic Bushfire Management Plans (SBMPs) for each of the BRLs describe how risk will be reduced. Fire Operations Plans (FOPs) operationalise the SBMPs, providing detail about individual fuel treatments and the expected risk reduction resulting from implementation.

FOPs are analysed to ensure they will deliver the statewide risk reduction target over the long term.

Finding

IGEM considers that this recommendation has been implemented as planned.

IGEM RECOMMENDATION 2

In the event that government adopts a risk reduction target:

- DELWP transitions to this target through a defined program of activities and milestones. Effective transitioning will require DELWP to enhance its capacity and capability to implement risk-based planning and needs to be supported by appropriate performance measures and dedicated monitoring, evaluation and review.
- Government supports DELWP in making this transition.

Status	Ongoing
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Safer Together is being jointly implemented by DELWP, Parks Victoria, Country Fire Authority (CFA) and Emergency Management Victoria (EMV).

Safer Together sets out three key milestones to be implemented over the next five years:

- From 1 July 2016 DELWP's fuel management program is guided by a risk reduction target, rather than a hectare-based target, maintaining bushfire risk at or below 70 per cent of maximum levels statewide.
- In the next two years (2016–18), land and fire agencies will combine efforts to manage fuel on public and private land, based on where and how risk can most effectively be reduced.
- By 2020, working as one fire sector, all bushfire management strategies will be measured against risk reduction, and investment directed to the most effective ways to reduce risk – whether that is fuel management, increased resourcing of initial attack, or local shelters.

Progress summary

Representatives from DELWP, CFA, EMV and Parks Victoria have established a leadership group and commenced the development of a sector program plan to guide implementation of Safer Together.

CFA and DELWP are developing a business case and exploring funding options to enable development of shared strategic and operational delivery capabilities for cross-tenure fuel management.

Work to further develop the scientific and technical capability that underpins risk-based planning for fuel reduction is progressing. This includes enhancing DELWP's risk modelling tool to provide a likelihood element and a more comprehensive bushfire risk assessment process.

Planned actions

Nine priority projects will be initiated and/or delivered in 2016–17:

- statewide risk assessment to identify highest risk communities
- CFA and DELWP cross-tenure fuel management strategies
- community-based bushfire management with high bushfire risk communities
- building CFA and DELWP capability and capacity model to partner with Victorian communities
- cross-tenure bushfire risk management (Safer Together implementation) business case
- cross-tenure bushfire management operating model
- development and documentation of cross-tenure bushfire management systems
- addressing policy and legislative barriers to whole of landscape bushfire management
- sector monitoring evaluation and reporting framework

IGEM comment

IGEM notes that, at the cut-off date for receipt of evidence, the sector program plan that drives the implementation of Safer Together was still in draft and due to be finalised in November 2016. IGEM will expect to receive the finalised plan during the next reporting period and will report further progress in the next Annual Report.

Finding

IGEM considers that this recommendation is progressing satisfactorily and will revisit in the next Annual Report.

IGEM RECOMMENDATION 3

IGEM recommends that DELWP:

- continue to develop and employ its capability to predict the smoke effects of planned burning, ensuring its planned burning processes remain consistent with the State Smoke Plan
- adopt performance measures to monitor the quality and effectiveness of community engagement activities
- continue to develop the reliability of its estimates of unit risk reduction costs. The availability of such estimates will be required to enable comparison and prioritisation of options for bushfire risk reduction across the areas of prevention, preparedness, response and recovery, and would involve contributions of other emergency management agencies.

Status

Ongoing

IGEM's review noted the need for performance measures that capture issues of public concern related to the bushfire fuel management program - water quality, smoke, community engagement and cost-effectiveness.

Water quality

The review supported DELWP's emphasis on the development of comprehensive measures of ecosystem resilience as the basis for long-term monitoring of the capacity of ecosystems to generate services, including clean water.

IGEM also noted the importance of an enhanced understanding of the relationship between fuel reduction activity and water quality.

Progress summary

To improve understanding of the relationship between the effects of bushfire and water quality, DELWP is investing in new research with the University of Melbourne and applying lessons learnt to strategic bushfire management planning.

In June 2016, DELWP renewed its commitment to water research for the next three years. DELWP advises that the results of research are being applied operationally through calculation of residual risk to water quality and quantity under different fuel management scenarios.

Air quality

Planned burning is one of the main causes of poor air quality in regional Victoria (Commissioner for Environmental Sustainability 2013).

The IGEM review noted a lack of arrangements to support a single performance measure relating to the air quality effects of planned burning.

DELWP has invested in research to improve capability for predicting the smoke effects of planned burning, and IGEM emphasised the importance of integrating this capability into DELWP's planning processes.

Progress summary

In response to the Hazelwood Mine Fire Inquiry, the Victorian Government and fire agencies, including DELWP, developed the State Smoke Framework for managing the short and long-term risks of smoke and other emissions.

The Community Smoke, Air Quality and Health Standard (community SAQH standard) is part of the framework and establishes a standard for monitoring, data provision and issuing advice to communities on air quality and health protection.

A Smoke Impact Management Procedure is being finalised, which is intended to identify potential smoke impacts and strategies to address these impacts.

The Commonwealth Scientific and Industrial Research Organisation (CSIRO), in collaboration with the Bureau of Meteorology (BOM), has developed a smoke modelling system. Built on an advanced meteorological model, it enables the emergency management sector to predict the spread, dissipation and constituents of smoke from planned and unplanned fires.

The modelling system also provides a statewide perspective on the cumulative effects of smoke. Using 3-4 day weather forecasts, it may be used to estimate smoke dispersal and inform the timing and location of planned burning.

Once fully developed, the system is intended to provide guidance for planning hazard reduction burns and addressing smoke related issues from fires. The next phase of operational development was agreed through a Memorandum of Understanding between BOM and DELWP in June 2016.

Planned actions

DELWP has commissioned the Bushfire and Natural Hazards Cooperative Research Centre (CRC) to conduct several research projects, including:

- development of a means of dynamically assessing the extent and concentration of smoke using remote sensing and fixed sensors.
- development of a means of estimating and monitoring impacts of smoke on communities from bushfire and planned burns.
- understanding the decision-making needs of the community, industry and emergency management sector during smoke events, as part of the development of a predictive services framework.

These are multi-agency projects managed by DELWP and governed by a project control board with sector representatives from DELWP, CFA, MFB and EMV. Four workshops will take place with community members who have been affected by, or exposed to, smoke.

Community engagement

IGEM's review proposed that DELWP's community engagement activities align with, and support, EMV's broader community resilience and engagement strategies. Such alignment would ensure an integrated and consistent approach to community engagement across the emergency management sector.

Progress summary

Since IGEM's review, DELWP has established structures and processes to enable more effective community engagement. Some foundational work in building broad-based relationships with the community has begun through implementation of the Lancefield-Cobaw fire investigation recommendations.

DELWP developed a draft Monitoring, Evaluation, Reporting and Improvement (MERI) framework for its engagement activities, however, its implementation was dependent on systems and processes to collect engagement data.

This is now being addressed as described in the following section and the MERI framework will be reviewed and updated accordingly.

Earlier this year, in response to the Lancefield-Cobaw fire investigation, DELWP developed a series of measures for assessing the quality and effectiveness of its engagement with community stakeholders.

DELWP tested the effectiveness measures in two districts during June and July 2016. The process will be reviewed and refined for implementation across all districts during the spring 2016 and autumn 2017 planned burning programs.

Planned actions

Building on the community engagement effectiveness measures, CFA and DELWP will develop a framework to evaluate implementation of the Community Based Bushfire Management (CBBM) process³, as well as evaluation of how effectively the CBBM process achieves its stated outcomes and objectives.

CFA and DELWP will develop a capability framework as a priority project of Safer Together. The framework will help build agencies' capability and capacity to implement place-based community engagement and cross-tenure fuel management planning.

DELWP is participating in an EMV-led project to develop a community resilience framework that will include resilience indicators to enable the sector to measure the effectiveness of its engagement with the community in building resilience.

DELWP is also developing a customer relationship management system that will enable data about engagement activities to be captured and used more effectively for reporting and quality management.

Cost effectiveness

IGEM's review noted that DELWP had developed the capability to estimate the cost effectiveness of risk reduction from planned burning.

Improving the reliability of cost estimates will facilitate comparisons with alternative fuel reduction strategies.

It will also facilitate comparisons with broader bushfire risk reduction alternatives as they relate to bushfire risk management such as initial attack, evacuation or community preparedness.

Progress summary

DELWP developed a cost model based on a broad estimate of direct and indirect costs during 2014-15. The costs of individual burns and associated management have been tracked, and an interim budget and costing guideline for fuel management has been developed.

Planned actions

DELWP is undertaking further work to capture all relevant costs and to improve the systems and reporting mechanisms. As fuel management treatment costs are better understood, the relationship between costs and risk reduction will be further developed to support investment decisions in relation to prevention, preparedness, response and recovery.

³ CBBM expands on the community-based emergency management planning framework developed by EMV and articulates an approach for working with communities in managing bushfire risk.

Finding

IGEM considers that this recommendation is progressing satisfactorily and will revisit in the next Annual Report.

IGEM RECOMMENDATION 4

IGEM recommends that:

- DELWP report clear, publicly accessible information on bushfire risk and ecosystem resilience, and report on the key activities required to achieve outcomes for the community in these areas
- DELWP's transition to the risk-based planning and performance measurement be supported by a program of internal and external reviews.

Status	Ongoing
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IGEM's review noted that communities are sensitive to bushfire risk and have a strong interest in the natural environments affected by fuel reduction. Many feel that communication and consultation around planned burning could be improved and expressed a wish for greater transparency in decision-making and planning for fuel reduction.

IGEM noted that in this environment, a focus on accountability through clear performance information and regular internal and external reviews will play an important role in maintaining community trust and confidence.

Ecosystem resilience measures

DELWP advises that development and implementation of a framework to assess bushfire risk and ecosystem resilience has been a significant undertaking over the past five years.

Since IGEM's review, DELWP has focused on revising its ecological resilience policy, developing ecological models, improving ecological assessments and investing in research.

DELWP's ecological resilience policy describes how the effect of planned burning on ecosystem resilience is to be assessed at the BRL scale as part of strategic planning.

DELWP has adopted a suite of three measures to monitor and predict ecological resilience to fire:

- Geometric Mean Abundance (GMA) of species in a community
- Tolerable Fire Interval (TFI)
- Vegetation growth state structure.

In planning and measuring the environmental impacts of bushfire management, DELWP is initially using TFI at a landscape scale. The TFI metric was applied to the seven BRLs to inform the first round of SBMPs.

Through research over several years, ecological models have been developed in a range of ecosystems across the state that capture relationships between plant and animal species, their habitats and fire.

The ecological models are a critical input into analyses of bushfire risk to ecosystems (ecological risk assessments) and can be used to predict and evaluate the ecological

outcomes associated with different fuel management options.

Information products from the ecological risk assessments enable DELWP to have informed discussions about the ecological outcomes of different fuel management options with the community, and to make better bushfire management decisions.

Planned actions

DELWP reports that the integration of the full suite of ecosystem measures and the threatened species impact assessment process into its strategic bushfire management planning process is a priority.

Development of the ecological risk assessment framework will continue to be improved through DELWP's research partnerships, and its bushfire Monitoring, Evaluation and Review (MER) program.

DELWP is commissioning new research to develop a coherent framework for the development, application and continuous improvement of ecological models to better inform bushfire management decisions.

The bushfire MER program will support DELWP in monitoring and reporting on the effects of bushfires and its activities on ecosystems.

The MER program will also support continuous improvement of the ecological risk assessment framework through the integration of new knowledge and data. It will be critical to testing the ecosystem resilience measures, identifying and filling knowledge gaps, and validating and refining DELWP's ecological models.

Monitoring and evaluation

In February 2015, DELWP launched a MER framework for Bushfire Management on Public Land - the first stage in a long-term monitoring, evaluation, reporting and continuous improvement program. The scope of the framework is currently limited to the fuel management program on public land.

Progress summary

The MER framework is being applied at the regional level. In early 2016 DELWP recruited seven new landscape evaluators to support implementation of the framework at the BRL scale.

The evaluators have developed a landscape-level program logic with outcome statements and thresholds for ecosystem resilience.

Regional MER plans have been developed to support reporting and continuous improvement of SBMPs.

The plans enable each bushfire risk landscape to identify performance against the management strategies contained in the SBMPs.

Based on this progress, data from the regional MER plans may also be used to validate the models that underpin development of management strategies. Where the model is not validated by data, further research is undertaken to improve the existing models.

Six regional MER plans have been developed so far and the seventh and final plan is due for completion by the end of September 2016.

Planned actions

In addition to the MER framework, DELWP has commenced a pilot review program to verify the extent to which planned burns have met their burn objectives at the district level.

This program will collect data to improve the reliability of information contained in the fire history dataset which underpins DELWP bushfire risk models.

A new framework will be delivered for monitoring, evaluating and reporting against all aspects of bushfire management (prevention, preparedness, response and recovery), including cross-tenure fuel management.

Reporting

DELWP's annual fuel management report includes:

- the metrics for measuring bushfire risk and ecosystem resilience
- information about DELWP's progress towards the two primary objectives of the code
- information about DELWP's annual fuel management target.

Prior to the release of Safer Together, the primary target for bushfire management on public land was measured in 'hectares treated.'

With the release of Safer Together, the new target for fuel management is based on 'bushfire risk', also known as 'residual risk'. The fuel management report for 2015–16 will continue to include information on both hectares treated and bushfire risk, but there will be an increased emphasis on bushfire risk as part of the transition to a risk-based target.

The fuel management report also contains information based on the ecosystem resilience measures outlined previously. Data and information collected as part of the regional MER plans will be an input into future versions of DELWP's annual fuel management report.

Progress summary

DELWP publishes data relating to bushfire management on its website, together with narrative text, videos and interactive graphs on the state of bushfire risk and ecosystem resilience at the statewide and risk landscape level. The website also includes the latest version of DELWP's annual fuel management report.

Planned actions

DELWP is currently preparing the 2015–16 fuel management report, with updates to the bushfire risk and ecosystem resilience interactive graphs.

Improvements, such as enhanced online reporting, visual accessibility of data and information available at the bushfire risk landscape and statewide scales have been identified and are scheduled for publication in January 2017.

Internal and external reviews

DELWP commissioned two scalable self-assessment toolkits for assessing compliance with *ISO31000:2009 Risk Management*, to enable:

- BRL teams to assess the degree to which the risk-based planning processes they use to plan for bushfire management comply with the current SBMP guidance documentation.
- the Strategy, Capability and Innovation Division to assess whether the SBMP guidance documentation conforms to international risk management standards and provides appropriate and current guidance for BRL teams to undertake bushfire management planning that is consistent with ISO 31000.

Progress summary

In response to the investigation, DELWP commissioned the development of an audit and quality assurance framework for the planned burning program. This framework will include independent auditing and a bushfire management audit program.

The audit program is intended to provide assurance that DELWP's operational controls – designed to manage key risks and achieve its bushfire management objectives – are operating in an efficient, effective, economical and ethical manner. It is also intended to assist management in continuously improving DELWP's bushfire management performance outcomes.

Planned actions

DELWP's bushfire management audit program includes a rolling four-year plan comprising internal audits conducted by outsourced providers and operational quality and assurance reviews, conducted by a person or team within DELWP's Forest, Fire and Regions Group who is independent of the process being examined.

Finding

IGEM considers that implementation of this recommendation is proceeding satisfactorily and will revisit in the next Annual Report.

Three recommendations from the investigation still in progress are being implemented as part of Safer Together.

A progress update for Lancefield Recommendations R1, R2 and R3, is provided below.

IGEM notes that, at the cut-off date for receipt of evidence, the sector program plan that drives the implementation of Safer Together was still in draft and due to be finalised in November 2016.

LANCEFIELD RECOMMENDATION R1 (3.1.1.5)

The Department must adopt a tenure-blind approach to the management of bushfire risk including the planning of burns

Status

Ongoing

Background

IGEM's review noted that bushfire risk sits across multiple land tenures, both public and private, and the management of this risk is a shared responsibility between a number of emergency management agencies and the community.

IGEM acknowledged that the practice of planned burning on public land takes place in this broader context, and that DELWP's legislative responsibility extends only to public land.

The investigation noted that the planned burn in the Cobaw State Forest was in a heavily vegetated broader landscape consisting of multiple land tenures, private forest and farm land, and a network of road reserves under different jurisdictions.

The investigation identified the importance of considering fuels across public and private land, and a full range of bushfire management options. Failure to do this effectively was found to have been a problem in management of the Lancefield-Cobaw planned burn and a significant source of community frustration.

Progress summary

Safer Together commits to undertaking bushfire fuel management activities where they will most effectively reduce risk, regardless of land tenure.

DELWP advises that statewide guidance is being developed to facilitate cross-tenure fuel management. Interim guidance for cross-tenure fuel management strategies for each of the seven BRLs has been developed.

More detailed guidance incorporating feedback from regional leaders will be developed over the next few months. The scoping for this project and the associated guidance has been informed by a position paper on cross-tenure fuel management planning and delivery, which outlines the policy and legislative context, roles and responsibilities and proposes a cross-tenure fuel management approach.

In 2013–14 and 2014–15, DELWP and Parks Victoria released the first generation of strategic bushfire management plans describing the approach to bushfire

fuel management on public land in Victoria. These plans were developed for each of the seven BRLs. An objective of Safer Together in 2017–18 is for land and fire agencies to combine their efforts to manage fuel loads on private and public land, based on where and how risk can be most effectively reduced.

As such, the second generation strategic bushfire management plans will be developed jointly by DELWP, Parks Victoria and CFA.

DELWP, Parks Victoria and CFA are piloting opportunities for fuel management across private and public land with local governments. For example, DELWP is currently working with the Surf Coast Shire to establish a fuel management program across public and private land in Lorne.

Planned actions

The draft Safer Together sector program plan includes the following projects:

- cross-tenure Bushfire Management Operating Model
- cross-tenure Bushfire Management Systems Developed and Implemented
- cross-tenure business case.

DELWP reports these projects as aiming to ensure there are business systems and structures, joint standard operating procedures and funding available to implement the cross-tenure fuel management strategies.

DELWP is engaging with regional staff, Parks Victoria, CFA, EMV and local councils in relation to the development of an operating model for cross-tenure bushfire management.

Finding

IGEM considers that this recommendation is progressing satisfactorily and will revisit in the next Annual Report.

LANCEFIELD RECOMMENDATION R2 (3.1.1.6)

In broadening its focus the Department should consider planned burning as just one of many options in managing fuels, landscape risk, multiple tenures, diverse land uses and must incorporate community perspectives

Status

Ongoing

Background

IGEM's review noted that planned burning is only one approach to managing bushfire risk. It is the largest fuel reduction activity, by area, in the DELWP Bushfire Fuel Management Program. Other fuel management activities listed in the code include ploughing, mulching, herbicide application, chain rolling, grazing, mowing and slashing.

Fuel management activities can reduce risk of bushfires but they cannot eliminate it. IGEM noted that bushfire risk can be reduced through activities other than fuel management, such as land use planning controls, community education, suppression strategies, availability of fire refuges or evacuations in the event of a bushfire.

The management of this risk is a shared responsibility between a number of emergency management sector

organisations and the community. IGEM acknowledged that the practice of planned burning on public land takes place in this broader context.

The investigation noted that many people in the affected community emphasised the alternatives to planned burning, some of which were canvassed in IGEM's review.

Progress summary

A key objective of Safer Together is to address bushfire risk by working with communities to look at the full suite of bushfire management options.

DELWP identifies the following key elements needed to support this work:

- a common view of risk across the sector
- strategic management objectives
- mechanisms to evaluate different bushfire management options
- appropriate planning frameworks
- work with communities in a flexible manner to meet their individual needs.

DELWP has commenced project planning to address policy and legislation barriers to whole of landscape bushfire management. This will include identification of changes required to policy and legislation frameworks and development of an implementation plan.

DELWP and CFA have commenced development of a state-wide risk assessment process to identify where fuel management operations could be the most effective in reducing the risk to Victorian communities.

The CBBM approach, described previously, is being implemented with priority communities including Lorne, the Strathbogie Ranges and Benloch.

DELWP and CFA will work with these communities to identify preferred strategies for reducing risk across land tenures, and incorporating government, business and community action. The approach will continue to be implemented with high risk communities across Victoria throughout 2016–17.

Planned actions

Priority projects identified in the draft Safer Together sector program plan:

- Development of a consistent, statewide risk assessment process.
- Addressing policy and legislation barriers to whole of landscape bushfire management.

Other relevant projects identified include development of:

- a State Bushfire Management Strategy
- an Integrated Emergency Management Planning Framework
- a framework for Evaluating the Impact of Bushfire Management Activities
- a cross-tenure Bushfire Management Capability and Capacity review

DELWP reports that the 2017–18 FOPs will have a broadened focus to incorporate a suite of fuel management activities across all land tenures.

Finding

IGEM considers that this recommendation is progressing satisfactorily and will revisit in the next Annual Report.

LANCEFIELD RECOMMENDATION R3 (3.1.1.7)

The Department should engage with EMV in seeking and implementing solutions to improving landscape scale bushfire risk management

Status

Ongoing

Background

EMV has responsibility for developing integrated policy, strategy and planning across the emergency management sector, and leading and coordinating preparedness activities. It also works to achieve community-focused outcomes with the sector.

EMV is a key partner in the delivery and implementation of Safer Together.

Progress summary

EMV is a member of the Safer Together Leadership Group, along with representatives of CFA, DELWP and Parks Victoria.

This group oversees the development of the sector program plan which will outline the governance, key work streams, projects and associated deliverables required to implement Safer Together, along with defined outcomes, measurable indicators and timelines.

Key EMV priorities, such as the development of a sector resilience framework and a Victorian Bushfire Management Strategy, are reflected in the Safer Together commitments and sector program plan.

Finding

IGEM considers that this recommendation is proceeding satisfactorily and will revisit in the next Annual Report.

5 Concluding remarks

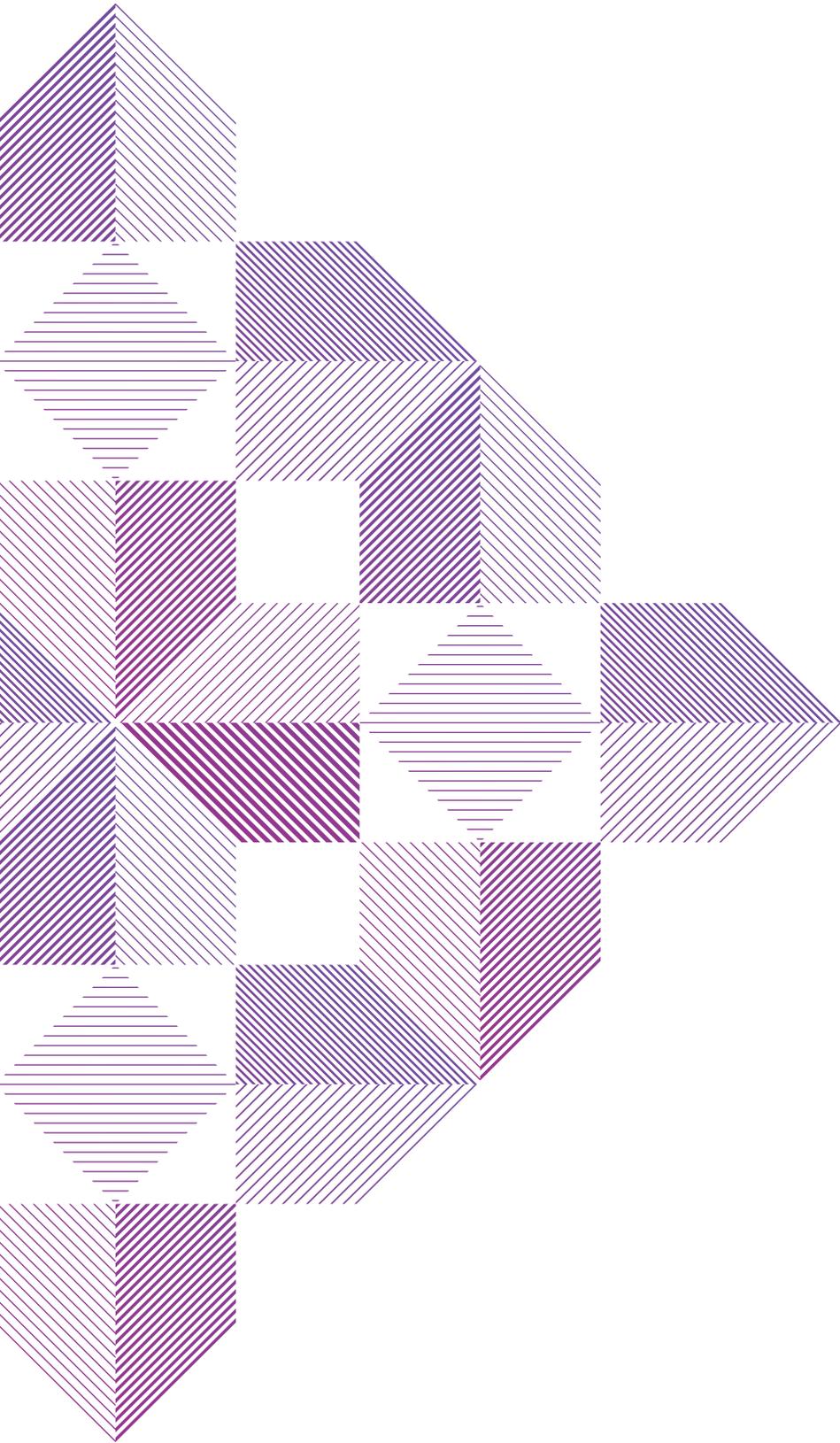
The IGEM review recommended a risk reduction target as the most effective form of performance target for bushfire fuel management on public land.

IGEM also made a number of complementary recommendations in order to provide assurance to the community in transitioning to a risk reduction performance target.

Much of the work now being undertaken to address these recommendations builds on DELWP's advances in capability in recent years, including its capability to measure risk and planned burn effectiveness on reducing risk.

IGEM's review noted that this risk-based approach provided a platform for strategic planning and could allow DELWP to partner with other emergency management agencies and the community to identify the most effective combination of bushfire risk reduction strategies.

Implementation of Safer Together provides the opportunity to achieve that outcome.



Inspector-General for
Emergency Management

