Adoption of Safe Work Australia's Workplace Exposure Limits for airborne contaminants (WEL list) Regulatory Impact Statement

WorkSafe Victoria

17 October 2025

nous

Nous Group acknowledges Aboriginal and Torres Strait Islander peoples as the First Australians and the Traditional Custodians of Country throughout Australia. We pay our respect to Elders past and present, who maintain their culture, Country and spiritual connection to the land, sea and community.

This artwork was developed by Marcus Lee Design to reflect Nous Group's Reconciliation Action Plan and our aspirations for respectful and productive engagement with Aboriginal and Torres Strait Islander peoples and communities.

Disclaimer:

*Nous Group (**Nous**) has prepared this report for the benefit of WorkSafe Victoria (the **Client**).*

The report should not be used or relied upon for any purpose other than as an expression of the conclusions and recommendations of Nous to the Client as to the matters within the scope of the report. Nous and its officers and employees expressly disclaim any liability to any person other than the Client who relies or purports to rely on the report for any other purpose.

Nous has prepared the report with care and diligence. The conclusions and recommendations given by Nous in the report are given in good faith and in the reasonable belief that they are correct and not misleading. The report has been prepared by Nous based on information provided by the Client and by other persons. Nous has relied on that information and has not independently verified or audited that information.

Contents

Glossary

Term	Definition
Workplace exposure	
Airborne contaminant	A contaminant in the form of a fume, mist, gas, vapour, particle, fibre, dust, or combinations of these, and includes microorganisms. An airborne contaminant of this type is a potentially harmful substance that is either not naturally in the air or is present in an unnaturally high concentration and to which workers may be exposed in their working environment.
Breathing zone	A hemisphere of 300 mm radius extending in front of a person's face and measured from the midpoint of an imaginary line joining the ears.
Workplace Exposure Standard (WES) or Workplace Exposure Limit (WEL)	The airborne concentration of a particular substance or mixture, which must not be exceeded. The exposure standard can be of three forms: • Eight-hour time weighted average; • Peak limitation; and • Short term exposure limit.
Eight-hour time weighted average (TWA)	The maximum average airborne concentration of a substance when calculated over an eight-hour working day, for a five-day working week.
Peak limitation	The maximum or peak airborne concentration of a substance determined over the shortest analytically practicable period of time which does not exceed 15 minutes.
Short term exposure limit (STEL)	The time weighted average maximum airborne concentration of a substance calculated over a 15-minute period.
ppm	Parts per million. A unit of measurement for the concentration of a substance in a solution or mixture.
mg/m^3	Milligram per cubic metre. A common unit for measuring air concentration.
Occupational injury and disease (defined by International Labour Organization, 1998)	An occupational injury is any personal injury, disease or death resulting from an occupational accident. An occupational disease is a disease contracted as a result of an exposure over a period of time to risk factors arising from work activity. (Occupational accident - an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work, which results in one or more workers incurring a personal injury or death)
Non-threshold based genotoxic carcinogen (NTGC)	Carcinogens which have no safe exposure limit, meaning any exposure, even for a short period of time, is associated with an increased risk of cancer.
Prohibited substance	A substance that is banned, forbidden, or illegal to use, possess, or distribute by law or some other authority.
Health	
Disability-adjusted life years (DALYs)	Years of healthy life lost, either through premature death or living with disability due to illness or injury. YLD and YLL described below sum up to DALY.

Term	Definition
Disability weight (DW)	A factor that reflects the severity of health loss from a particular condition on a scale from 0 (perfect health) to 1 (equivalent to death).
Burden of disease, fatal	The fatal burden of disease represents the burden from dying prematurely, as measured by years of life lost to occupational disease.
Burden of disease, non-fatal	The non-fatal burden of disease represents the burden from living with ill health, as measured by years lived with disability related to occupational disease.
Value of a statistical life year (VLY)	An estimate on the value society places on a year of life, assumed to be the life of a young adult with at least 40 years of life ahead. The VLY is most appropriately measured by estimating how much society is willing to pay to reduce the risk of death.
Years with lived disability (YLD)	The number of years of what could have been a healthy life that were instead spent in states of less health than full health. YLD represent non-fatal burden.
Years of life lost (YLL)	The number of years of life lost due to premature death, defined as dying before the ideal life span. YLL represent fatal burden.

Executive summary

National agreement to update standards

Victorians exposed to hazardous substances at work are at risk of adverse health effects which can lead to chronic illness, premature death and economic costs from reduced workforce participation. The Workplace Exposure Standards for airborne contaminants (WES) list published by Safe Work Australia (SWA) which currently specifies limits on personal exposure to hazardous substances in the workplace was last updated in 2003. Some of these limits may no longer reflect contemporary health evidence.

A review of the WES list was conducted by SWA between 2019 to 2021 to ensure that standards are based on the highest quality, contemporary evidence and supported by a rigorous scientific approach.[1] As a result of this review, Work Health and Safety (WHS) Ministers have agreed to update the WES list to reflect current scientific evidence. These updates are set out in the new Workplace Exposure Limits (WEL) list, which will replace the existing WES list. Ministers have agreed to a consistent, national rollout of the WEL list starting from 1 December 2026.

This Regulatory Impact Statement (RIS) analyses the estimated impacts on Victorian businesses of adopting the WEL list, considering Victoria's industrial profile which has a relatively high concentration of manufacturing and construction businesses. Of the 700+ hazardous substances with a WES, 278 will have changes to their exposure limits under the agreed WEL list.[2] Nine hazardous substances included in the WES list are excluded from this RIS as they are subject to a separate impact analysis process by SWA at the request of WHS Ministers.[3] The outcome of this process is not yet known. WorkSafe will await the outcome of this process before confirming next steps.

This RIS quantifies the impact of adopting the agreed WEL list in Victoria from 1 December 2026. The reform supports the Victorian Government's goal to reduce harms in the workplace and protect workers from hazardous substances that can cause serious, long-term health conditions.

Why the standards are changing

Scientific advances since a comprehensive review of the WES list in 2003 found that some hazardous substances cause harm at lower concentrations than previously understood. The current standards do not reflect this updated evidence for some substances.

The 2019 SWA review of the 700+ substances on the WES list evaluated toxicological and epidemiological data from credible international and domestic sources. An expert panel recommended changes to the WES list for 278 hazardous substances to ensure that the WES list reflects the latest scientific and toxicological evidence.

The review found that:

- Some existing limits were outdated and may not offer enough protection, including some substances which are not safe at any level
- Some limits were more stringent than required
- Some substances that are no longer used or are prohibited in Victoria were on the WES list
- Some hazardous substances commonly used in Victorian workplaces were not on the WES list.

[1] See Safe Work Australia, *Workplace exposure standards review*.
[2] See the list of the affected hazardous substances at Appendix A.
[3] Safe Work Australia (2024), *Consultation paper impact analysis on the workplace exposure limits for 9 chemicals*. This impact analysis estimated the costs and benefits of the agreed WEL, relative to the current WES for benzene, chlorine, copper, formaldehyde, hydrogen cyanide, hydrogen sulphide, nitrogen dioxide, respirable crystalline silica (RCS) and titanium dioxide. SWA members have received the results of this impact analysis, but these results have not yet been made publicly available as at October 2025.

Options considered and preferred option

Two options were assessed:

- Option 1: Keep the current WES list (base case)
- Option 2: Adopt the agreed WEL list from 1 December 2026 (preferred option).

In line with the WHS Ministers' decision to adopt the WEL list from 1 December 2026, Option 2 is the preferred option.

These changes include adding new limits, adjusting existing ones based on health evidence, and reclassifying substances outside of the WEL list to reflect more stringent regulatory requirements. The updated limits are designed to reflect levels of exposure that are generally considered safe.

The cost benefit analysis found that the estimated costs of introducing the agreed WEL list are expected to significantly exceed the estimated quantified benefits. However, there are many benefits that have not been able to be quantified.

The agreed WEL list affects 278 hazardous substances. Most changes to the WEL list involve lower (more stringent) limits (177 substances), while others introduce new limits or increase limits. Thirty hazardous substances are prohibited or reclassified as non-threshold based genotoxic carcinogens (NTGCs) where there is effectively no safe exposure level. These changes will vary in impact depending on the substance and the workplace, but all employers will need to understand where limits are changing and evaluate whether their current controls are adequate. For example:

- Diesel particulate matter is a hazardous substance with a new limit, meaning employers will need to implement controls such as substituting or minimising the use of diesel equipment, tightening maintenance and idling practices and, where residual risk remains, providing respiratory protective equipment (RPE) and verifying exposures via personal monitoring.
- Wood dust (soft wood) will have a lower limit, meaning employers must tighten controls – upgrading on-tool extraction and local exhaust ventilation at saws/sanders, enclosing or isolating dusty processes, increasing exposure monitoring, and using RPE for residual risk – which is why additional upgrade and operating costs may arise.

This RIS has not considered the impact of changing limits for the nine hazardous substances which are currently being reviewed in a separate SWA impact assessment process.

Stakeholder consultation

Targeted stakeholder engagement formed a key part of the RIS development. Industry associations and businesses operating in Victoria were engaged using two engagement channels:

- Five interviews with targeted Victorian and national industry associations across a range of affected industries to better understand the potential impacts of the agreed WEL list on Victorian businesses.
- A web-based survey delivered to Victorian businesses across Victoria included in WorkSafe Victoria's (WorkSafe) relevant mailing lists. Eight hundred and twelve employers responded to the web-based survey.

This consultation helped to inform the RIS content and provided insights to support the cost benefit analysis. Specifically, stakeholder interviews and business survey responses informed the qualitative assessment of the health benefits and impacts on compliance costs under Option 2.

Findings from the impact analysis

It is estimated that approximately 530,000 Victorian workers are exposed to hazardous substances. The health burden from these exposures is estimated at $286 million per year, $93 million from non-fatal conditions and $192 million from premature deaths.[4] These impacts include disease and illness such as asthma and cancer, poisoning symptoms, irritation and hearing loss.

[4] Does not sum to $286 million due to rounding.

If Option 2 is implemented, the estimated compliance costs for Victorian businesses would be approximately $6.3 billion over 10 years, compared with estimated quantified benefits of approximately $2.9 billion. These costs reflect additional control measures and management practices that employers would need to implement to meet the agreed WEL list requirements.

We estimate that approximately 130,000 employers may be affected based on available data and assumptions about hazardous substance use across industries. All employers would need to assess whether their existing measures are sufficient and determine if further action is needed.

Table 1 provides a summary of the costs and benefits associated with Option 2.

Table 1 | Overview of estimated benefits and costs of Option 2 ($M) over 10 years

WEL change group	Total Cost	Total Benefits	NPV	BCR
Additions to the WEL list	2,526	382	-2,145	0.15
WEL value increases	0	0	0	0.00
WEL value reductions	3,249	2,181	-1,068	0.67
Prohibited substances and NTGCs	573	296	-277	0.52
Total	**6,347**	**2,859**	**-3,490**	**0.450**

While the cost-benefit analysis shows that the quantified costs outweigh the quantified benefits, it does not include several important benefits that are harder to measure. These benefits include increased productivity, maintaining national regulatory alignment and improved public confidence. To fully offset the estimated costs, these additional benefits would need to be valued at around $3.4 billion over the next decade.

Despite the cost-benefit gap, adopting the agreed WEL list (Option 2) will deliver the objective of improved long-term health and productivity benefits, including:

- **Improved health outcomes:** Adopting the agreed WEL list is estimated to avoid approximately 1,700 disability-adjusted life years (DALYs) per year across an estimated 530,000 workers, reflecting fewer cases of premature death and chronic illness.
- **National consistency:** Maintaining alignment of Victoria's standards with other jurisdictions will retain current regulatory efficiency benefits and avoid inconsistent requirements for employers operating interstate.
- **Workplace productivity:** Reduced illness is expected to improve workforce performance, reduce absenteeism and presenteeism, and uplift workforce morale and sense of workplace wellbeing.
- **Public confidence:** Adopting standards based on the latest scientific evidence will strengthen community trust that workplace hazards are being controlled effectively.

The estimated costs are significantly higher than those provided in the SWA 2019 DRIS. The SWA DRIS noted that its cost estimates were indicative only and were intended to represent just part of a range of potential outcomes. It noted that the actual impacts would depend on the nature of the changes to the WES values and the number of businesses affected. The cost estimates developed for this RIS reflect that significantly more employers are expected to be affected by the agreed WEL changes and that business costs are significantly higher today than in 2017 (the 2019 SWA DRIS cost base) due to inflation.

A sensitivity analysis tested how variations in key assumptions affect the estimated costs and benefits of the agreed WEL list changes. Results show a wide range, with total costs varying between $3.6 billion and $9.9 billion and total benefits between $1.3 billion and $4.3 billion over ten years. The largest sources of variance are:

- The number of affected employers and compliance costs, which act as near-linear multipliers of total costs.
- The burden-of-disease estimates and WEL value effectiveness drive most of the variation on the benefits side.

While these parameters substantially influence the magnitude of results, costs remain higher than benefits across all sensitivity scenarios, indicating the overall cost–benefit conclusion is not affected by the assumptions.

Table 2 provides a summary of the sensitivity analysis outputs.

Table 2 | Summary of estimated costs and benefits under all scenarios ($ billions, discounted)

Scenario[5]	Total costs	Total benefits
Low scenario	3.6	1.3
Central scenario	6.3	2.9
High scenario	9.9	4.3

Additionally, varying the discount rate changes total costs to $7.8 billion (4% discount rate) and to $5.2 billion (10% discount rate). Total benefits change to $3.5 billion (4% discount rate) and to $2.4 billion (10% discount rate). Both costs and benefits decline in similar proportions as the discount rate increases, indicating that while the magnitude of results changes, the overall relationship between costs and benefits remains consistent, with costs exceeding benefits under all scenarios.

Assumptions about when health benefits are realised also influence results. If all benefits are assumed to be realised immediately, total benefits are estimated at $2.9 billion, compared with an estimated $0.7 billion when only short-latency benefits (such as asthma) are assumed to be realised within the 10-year period, with costs remaining at $6.3 billion. This reflects the long latency of many occupational diseases such as lung cancer, where much of the benefit from reduced exposures will typically occur beyond the 10-year appraisal period.

Key assumptions

The cost-benefit analysis methodology draws from SWA's 2019 Decision RIS and the 2024 impact analysis on the proposed limits for nine hazardous substances on the WEL list. The analysis has been adapted for Victorian circumstances.

The methodology applies the following key assumptions as part of the impact analysis:

- all employers are currently compliant with existing WES list requirements, noting that this may not be the case in practice.
- observed health impacts have occurred at exposure levels within the current WES values, noting this may not be the case in practice.
- the agreed WEL list will prevent all occupational disease caused by workplace hazardous substance exposure, with the benefits starting in year one. This simplifying assumption may overstate the benefits due to the latency period of some diseases.
- an employer's controls for one hazardous substance are also used to control for other hazardous substances used by that employer, resulting in negligible incremental costs for managing additional hazardous substances. This may not be the case for all affected employers.

[5] The low, central and high scenarios vary key inputs (e.g. number of employers, compliance costs, hazardous substances, burden of disease estimates, and WEL effectiveness) by ±25% around the central estimate, while maintaining a 7% discount rate.

The analysis is based on a representative employer and does not consider the specific circumstances of individual employers or industries.

Implementation

In 2024, WHS Ministers agreed to the changes in the WES list to form the WEL list, and a harmonised transition across Australia for the adoption of the WEL list, excluding the nine hazardous substances that are still under review by SWA. WHS Ministers also agreed to a harmonised transitional period for duty holders to comply with the WEL list, with an implementation date of 1 December 2026.

To support Victorian employers in transitioning to the updated WEL list, a transitional period is proposed that aligns with the national adoption timing agreed by WHS Ministers. Therefore, the new requirements would commence in Victoria on 1 December 2026.

WorkSafe will work closely with industry groups to support implementation of the WEL list by developing education and awareness activities, practical tools and resources, and clarity on compliance with the WEL list. At a national level, SWA is also developing technical guidance (e.g. for occupational hygienists) as well as non-technical guidance for employers and duty holders to support the transition to the WEL list.

Following the implementation of the agreed WEL list requirements, WorkSafe will seek to employ an educative approach to compliance in the initial period, followed where necessary by proportionate, risk-based oversight and enforcement that is aligned with WorkSafe's strategy of constructive compliance.

Evaluation

WorkSafe will evaluate the extent to which the introduction of the agreed WEL list has achieved its intended outcomes, including improved worker health and reduced exposure to hazardous substances. The mid-term evaluation is likely to occur in 2032 to align with the mid-term evaluation of the OHS Regulations.

Industry associations and affected businesses will be consulted to provide insights into how compliance with the WEL list is working in practice, any implementation challenges they experience, and any unintended impacts. The evaluation findings are expected to be shared through published reports and briefings.

1 Introduction

This section outlines the purpose and context of this Regulatory Impact Statement.

1.1 Background

Australia adopted workplace exposure standards for airborne contaminants (the WES list) in 1995. A comprehensive review of these standards was undertaken in 2003. Since then, more evidence has emerged in relation to the harmful effects, and the thresholds below which no adverse effects are observed, for many hazardous substances. This evidence prompted SWA to review the WES list between 2019 and 2021 to ensure that standards are based on the highest quality, contemporary evidence and supported by a rigorous scientific approach.[6]

Safe Work Australia

SWA is a national policy body with primary responsibility to develop, maintain and revise national policy relating to work health and safety (WHS) and workers' compensation across Australia. SWA is not a regulator and is not responsible for matters of compliance or enforcement in relation to the model WHS laws or the WES list.

Role of WorkSafe Victoria

WorkSafe is Victoria's workplace health and safety regulator, and workplace injury insurer. WorkSafe's purpose is to reduce workplace harm and improve outcomes for injured workers. It aims to prevent workplace injuries, illness and fatalities through a range of tools such as:

- workplace inspections
- safety campaigns
- education programs
- targeted interventions
- guidance and compliance codes
- enforcement and prosecutions.

Victoria regulates workplace exposure to hazardous substances through its own *Occupational Health and Safety Act 2004* (OHS Act), Occupational Health and Safety Regulations 2017 (OHS Regulations), the *Dangerous Goods Act 1985* (DG Act) and Dangerous Goods (Storage and Handling) Regulations 2022 (DG SH Regulations). Other Australian jurisdictions have adopted the model WHS laws, comprising the model WHS Act and Regulations and Codes of Practice. Although Victoria has not adopted the model WHS laws, it adopts SWA's WES list in its OHS Regulations and DG SH Regulations. Historically the WES have been consistent across all jurisdictions, including Victoria.

The Workplace Exposure Standards

Airborne contaminants exist in the form of dusts, gases, fumes, vapours and mists (including microorganisms), many of which are not visible to the naked eye. These contaminants are potentially harmful in work environments where they do not occur naturally in the air and/or where they present in unnaturally high concentrations. People exposed to airborne contaminants at work may be at risk of adverse health effects, ranging from the irritation of the skin and upper respiratory tract to chronic disease and cancer.

[6] Safe Work Australia, *Workplace exposure standards review*.

A WES means an exposure standard listed in the SWA *Workplace Exposure Standards for Airborne Contaminants* (the WES list) and is a limit on the concentration of a potentially harmful substance or mixture that must not be exceeded.

There are three types of exposure standards. These are listed in Table 3. Some hazardous substances have more than one type of exposure standard.

Table 3 | Types of exposure standards[7]

Exposure standard	Description
Time-weighted average (TWA)	This standard shows an airborne concentration averaged over an eight-hour working day. It applies to a 40-hour working week. A TWA is for hazardous substances that cause medium to long term health effects. If a worker is working overtime and more than 40 hours, calculations of exposure must take this into account.
Short term exposure limit (STEL)	A STEL is an airborne concentration averaged over 15 minutes. Some substances may cause irritation or other acute effects after short periods of exposure. A STEL is applied to a hazardous substance when such irritation or effects may occur and there are appropriate methods for monitoring over short periods. A STEL is for a substance that may cause some people short term health effects.
Peak limitation (PL)	This standard is a maximum airborne concentration that must not be exceeded at any time. This is for hazardous substances that cause short term health effects that can be immediately harmful to health.

Exposure standards have been established in Australia for approximately 700 substances and mixtures. These standards are adopted in Victoria's OHS Regulations and DG SH Regulations.

- The OHS Regulations adopt SWA's WES list as amended from time to time via the definition of "exposure standard," referring to the WES list published on SWA's website. Under regulation 165, employers must ensure that the WES, if any, for a hazardous substance is not exceeded.
- The DG SH Regulations incorporate SWA's WES list as amended from time to time in regulation 38(2)(b)(i) which outlines specific criteria for clearing the atmosphere within a receptacle used in connection with dangerous goods. The regulation requires that if the gas or vapour in the atmosphere is listed in the WES list, the TWA be less than the listed concentration in the WES.

Incorporating SWA's WES list into the OHS Regulations and DG SH Regulations means that:

- Victorian employers must refer to SWA's website for the latest published WES list to ascertain the WES for the substances that they use; and
- must comply with the WES specified for all those substances; and
- must keep themselves updated with changes made to the WES list, to ensure that they remain in compliance with the specified WES.

Exposure standards are based on the airborne concentrations of hazardous substances that should not harm workers' health or cause them discomfort. The Australian exposure standards for airborne contaminants are set at the concentration that is unlikely to cause ill health.

However, exposure standards do not draw a line between a healthy and unhealthy work environment. Differences in people's biology and individual susceptibility mean that some people may experience discomfort or adverse health effects at levels below the exposure standard. Employers should keep exposure levels as low as reasonably practicable, even if they are already below the exposure standard.[8]

[7] WorkSafe Victoria (2024), *Exposure standards and atmospheric monitoring*.
[8] WorkSafe Victoria (2024), *Exposure standards and atmospheric monitoring*.

Achieving compliance with workplace exposure standards

While Victoria maintains its own legislative framework, it adopts the WES list published by SWA.[9] The WES specified in this list are legally enforceable in Victoria through the OHS Regulations and the DG SH Regulations which prohibit exceeding the exposure standard for any hazardous substance listed in the WES list. This approach allows Victoria to maintain consistency with national standards while applying them through its distinct regulatory framework.

The OHS Act requires that employers provide and maintain a working environment that is safe and without risks to health for employees. This includes eliminating or reducing any risks associated with hazardous substances in the workplace. The DG Act aims to keep people and property safe from dangerous goods and explosives.[10]

The OHS Regulations and DG SH Regulations require employers and duty holders respectively to control exposure to an atmospheric concentration of a hazardous substance in a workplace or premises, as appropriate, to below the exposure standard for that substance. This regulatory requirement is in addition to the OHS Act's general obligation on employers to eliminate or minimise risk associated with hazardous substances so far as is reasonably practicable.[11]

Compliance with a hazardous substance's WES can be demonstrated only when the exposure of an individual employee or groups of employees is known, with an accepted degree of certainty, to be below the WES.

The most effective means of complying with a WES value is through eliminating the hazardous substance from the workplace in the first instance.

It may not be reasonably practicable to eliminate a hazard if doing so means an employer is unable to make an end product or deliver a service. If it is not reasonably practicable for an employer to eliminate the hazard, then they must control the risks associated with the hazard to the standard that is reasonably practicable through implementation of the hierarchy of controls.

The hierarchy of controls helps employers fulfil their OHS Act responsibilities. In line with the OHS Act's general obligation to eliminate or minimise risk, and drawn from the model Code of Practice, WorkSafe's hierarchy of control first instructs employers to eliminate hazards and risks, then sets out how they must work through the hierarchy and select controls that most effectively reduce the risk.[12]

The hierarchy of controls lists measures for consideration by employers to control risks in the workplace. The control measures are ranked from the highest level of protection and reliability to the lowest. Employers are required to apply the hierarchy when considering control measures to ensure the highest order control practicable is implemented. Often two or more control measures are implemented to provide a robust system of control. Table 4 lists the hierarchy of controls.

[9] Safe Work Australia (2024), *Workplace exposure standards for airborne contaminants*.
[10] Section 4 of the DG Act.
[11] Section 20 of the OHS Act.
[12] WorkSafe Victoria (2022), *The hierarchy of control*.

Table 4 | Hierarchy of controls[13]

Control measure	Description
Elimination	Employers must, so far as is reasonably practicable, eliminate risks of exposure to hazardous substances in the workplace, which may include eliminating the hazardous substance from the workplace.
Substitution	This involves substituting the hazard with something safer. For example, using water-based paints instead of solvent-based paints.
Isolation	Physically separating the hazardous substance from people by distance or by using barriers. For example, storing hazardous substances in a fume cabinet.
Engineering controls	An engineering control is a control measure that is physical in nature, including a mechanical device or process. For example, using local exhaust ventilation to capture and remove airborne contaminants before they have a chance to be inhaled.
Administrative controls	Should a risk remain after implementing the above control measures, employers should use work methods or procedures designed to minimise exposure to the hazardous substance. For example, limiting exposure time to a hazardous substance.
Personal protective equipment (PPE)	Should there still be a residual risk after implementing the above control measures, employers should use PPE. PPE refers to anything employees use or wear to minimise risks to their health and safety. Examples of PPE include respirators, face masks, gloves, aprons and protective eyewear. PPE limits exposure to the harmful effects of a hazard but only if employees wear and use the PPE correctly.

Even if there is not an exposure standard listed for a specific hazardous substance in the WES list published by SWA, it can still pose a health risk. When there is no exposure standard for a hazardous substance, employers must control exposure by using the hierarchy of controls and any other control measures specified in the OHS and DG SH Regulations.

Employers have a general duty under the OHS Act to provide and maintain a working environment that is safe and without risks to health of an employee. This means that they also have duties in relation to other hazardous substances in the workplace, not only those classified as hazardous.[14] It is recommended that employers use the hierarchy of controls to help them fulfil this duty.[15]

Alongside application of the hierarchy of controls, an employer must ensure that that atmospheric monitoring[16] and health monitoring[17] are carried out as required.

Atmospheric monitoring

Atmospheric monitoring (or personal monitoring) is the only way to test whether workers are breathing in concentrations of a hazardous substance above the exposure standard. It is where a sample of air is taken in the worker's breathing zone over a period of time to find out how much of the substance the worker is breathing in. This is then compared to the relevant exposure standard.

An employer must ensure that atmospheric monitoring is carried out for a hazardous substance (or any of its ingredients) supplied to, or generated at, the employer's workplace, if:

[13] WorkSafe Victoria (2022), *The hierarchy of control*.
[14] Section 21 of the OHS Act.
[15] WorkSafe Victoria (2024), *Exposure standards and atmospheric monitoring*.
[16] As specified by regulation 166 of the OHS Regulations.
[17] As specified by regulation 169 of the OHS Regulations.

- There is uncertainty (based on reasonable grounds) as to whether the exposure standard is or may be exceeded. Situations where this may be the case include:
    - when there is no information available on potential exposure such as previous atmospheric monitoring reports or other sources of information that will provide guidance on likely exposure levels
    - when there is uncertainty regarding effectiveness of risk controls
    - when there are changes to work processes or practices that may affect employee exposure.
- Atmospheric monitoring is needed to determine if there is a risk to health. Situations where there could be a possible health risk include:
    - when there are contaminated surfaces or strong odours in the work area
    - people have reported symptoms which may be linked to hazardous substance exposure.

Sometimes it is obvious that there is a health risk from exposure to a hazardous substance. In these cases, an employer must ensure that employees are not exposed to the hazardous substance above the exposure standard, by controlling exposure risks, in line with the hierarchy of control. Atmospheric monitoring should then be used to make sure the risk controls are effective.[18]

The employer must keep and provide results of atmospheric monitoring to affected employees and maintain these records for the required period.

Atmospheric monitoring and the interpretation of results needs to be done by a competent person, such as an occupational hygienist with a strong knowledge of exposure standards and atmospheric monitoring.

Health monitoring

The OHS Regulations require employers to provide health monitoring for their employees when:

- employees are exposed to a hazardous substance listed in Schedule 9 of the OHS Regulations, and
- there is a reasonable likelihood of an adverse health effect occurring during the employee's time in the workplace.

Employers must ensure that a registered medical practitioner supervises the health monitoring.

Transition to Workplace Exposure Limits

In 2019, SWA commenced a review of the WES list and methodology. The aim of this review was to develop health-based recommendations for WES and advisory notations. The health-based methodology did not consider feasibility of implementation or regulatory burden. This review included:

- Identification of health-based scientific sources in line with international standards for exposure.
- Development of criteria to determine whether hazardous substances should be added to or removed from the WES list.
- Evaluation of data for individual hazardous substances to derive recommended exposure standards and associated notations from 2019 to 2021.
- Peer review and stakeholder consultation.
- Formal health-based recommendations on WES to WHS Ministers. Ministers then decided whether to adopt the agreed WEL value or consider an alternative WEL value.

As part of the SWA review, WHS Ministers agreed to change the terminology from 'workplace exposure standard' to 'workplace exposure limit'. This change aligns with international practice and more accurately reflects the regulatory intent as these are exposure levels that must not be exceeded rather than best practice standards.

[18] WorkSafe Victoria (2024), *Exposure standards and atmospheric monitoring*.

In 2024, WHS Ministers agreed[19] to the changes in the WES list to form the WEL list, and a harmonised transition across Australia for the adoption of the WEL list to commence from 1 December 2026.

SWA has conducted two impact assessments in relation to the agreed WEL list:

- **2019 Decision regulation impact statement: WES framework under the model WHS Laws.**[20] This decision RIS related to the framework for the WES list under the model WHS laws and how it should be kept up to date. This was done at an Australia-wide level and did not specifically consider the impacts on Victorian stakeholders.
- **2024 Impact analysis of the proposed workplace exposure limits for 9 chemicals.**[21] This impact analysis estimated the costs and benefits of the agreed WEL value, relative to the current WES value for benzene, chlorine, copper, formaldehyde, hydrogen cyanide, hydrogen sulphide, nitrogen dioxide, respirable crystalline silica (RCS) and titanium dioxide. State and territory OHS regulators and industry associations have received the results of this impact analysis but these results have not yet been made publicly available.[22]

Amendments to the OHS Regulations are required to adopt the agreed WEL list. In Victoria, amendments to regulations fall within the scope of the Victorian RIS process under the *Subordinate Legislation Act 1994*. The purpose of this RIS is to analyse how the WEL list will be implemented in Victoria and what the impacts are expected to be on Victorians. Impact analysis in this RIS considers Victoria's industrial profile – with relatively higher concentrations of manufacturing, construction and healthcare businesses, many of which are small-to-medium-sized enterprises – which may lead to different compliance costs and implementation challenges than those modelled in the national RISs.

This Regulatory Impact Statement

This RIS analyses the estimated impacts on Victorian businesses of adopting the WEL list. Following expert recommendations from the 2019-2021 SWA WES list review, and subsequent consideration by SWA Members, 278 hazardous substances of the 700-plus hazardous substances with a WES value will have changes to their exposure limits under the agreed WEL list. These 278 hazardous substances will either:

- Have a limit introduced and be added to the WEL list, or/and;
- Have a limit increased (where the WEL value will be less restrictive than the WES value), or/and;
- Have a limit reduced (where the WEL value will be more restrictive than the WES value), or/and;
- Be reclassified as prohibited substances or 'non-threshold based genotoxic carcinogens (NTGCs)'. This means that they will be removed from the WEL list. Prohibited substances will be removed from the WEL list as they are prohibited for import[23], manufacture and use[24] under Australian legislation. NTGCs will be reclassified to a separate list within the regulations with stricter requirements for employers to ensure exposure to these hazardous substances is as low as is reasonably practicable.

This RIS considers the expected impacts of the agreed WEL list being adopted in Victoria from 1 December 2026.

The RIS does not consider the impact of the nine hazardous substances assessed in the 2024 SWA impact assessment. The impact analysis of the agreed WEL for these nine hazardous substances is subject to a separate review process, noting that no adjusted exposure limits for those substances have been agreed by WHS Ministers.

[19] Safe Work Australia, *Workplace exposure standards review*.
[20] Safe Work Australia (2019), *Decision regulation impact statement: Workplace exposure standards framework under the model Work Health and Safety laws.*
[21] Safe Work Australia (2024), *Consultation paper impact analysis on the workplace exposure limits for 9 chemicals*.
[22] as of October 2025.
[23] Prohibited under Regulation 5I, and listed in Schedule 9, of the *Customs (Prohibited Imports) Regulations 1956*, unless permission has been granted.
[24] Australia is a Party to the Stockholm Convention on Persistent Organic Pollutants and has ratified and restricts the import, manufacture, use and export of these substances listed in the Convention.

1.2 Structure of this document

The remainder of this RIS is structured as follows:

- **Section 2: Problem statement** examines why Victoria's current exposure standards require updating.
- **Section 3: Objectives of government intervention** identifies the key objectives of the proposed reform.
- **Section 4: Options** presents two regulatory approaches: maintaining the status quo (Option 1); and adopting the agreed WEL list from 1 December 2026 (Option 2).
- **Section 5: Impacts analysis** provides the assessment methodology and analyses the expected impacts of the options.
- **Section 7: Preferred option** presents the recommended approach based on the impact analysis results and alignment with the government's objectives.
- **Section 7: Small business and competition impacts** examines effects on Victoria's small and medium enterprises (SMEs) and market competition.
- **Section 8: Implementation plan** outlines the practical steps, timelines and support mechanisms for implementation of the preferred option.
- **Section 9: Evaluation strategy** considers monitoring and review mechanisms to ensure the new exposure limits achieve their intended health protection objectives.

Appendices provide detailed supporting information including stakeholder questions, analysis of affected businesses and workers, cost-benefit calculations and consultation materials.

2 Problem statement

This section outlines the problem statement, which articulates the nature and extent of the problem that provides the case for regulatory reform.

2.1 Nature and extent of the problem

Industry stakeholders and WHS regulators have raised concerns that some of the WES values are outdated and place workers at increased risk of illness or disease from exposure to hazardous substances.[25]

Outdated WES values could potentially result in:

- An increase in workplace risks which can result in adverse health outcomes for workers such as illness and disease if the WES values are too lenient, thereby increasing the overall burden of disease on Australian society, and
- Unnecessary compliance costs being imposed on duty holders (employers) when the current WES values are too stringent and where there is no evidence of a corresponding reduction in health risks.[26] [27]

Additionally, the SWA review of the WES list identified that:

- Current exposure limits for some hazardous substances do not reflect contemporary health evidence, allowing exposures to hazardous substances that as per modern toxicology may cause cancer, respiratory disease and other serious health conditions.
- The WES list does not capture a number of hazardous substances used in workplaces, leaving some hazardous substances unregulated while maintaining limits for obsolete hazardous substances.

The potential health and economic burdens of hazardous substance exposure above safe levels are substantial to workers, businesses and the community.

Under-protective WES values

If a WES value is not sufficiently protective, adverse health effects can occur at airborne concentrations below the published WES value.

Exposure to hazardous substances via inhalation, absorption and ingestion can cause immediate, short-term and/or long-term health problems, including disease and illness, poisoning symptoms, irritation, or sensitisation (allergies). In particular, contaminated air that workers may breathe may lead to:

- hearing loss from ototoxicity
- immediate and short-term impacts such as headaches and nausea
- respiratory diseases like asthma, pneumoconiosis and silicosis
- reproductive issues
- cardiovascular diseases, and
- cancers like mesothelioma, leukaemia and lymphoma.[28]

In some cases these diseases are terminal.

[25] Safe Work Australia (2018), *Consultation regulation impact statement: Workplace exposure standards framework under the model work health and safety laws*.
[26] As above.
[27] The SWA Consultation regulation impact statement also highlighted other issues relating to the review process of the WES list framework which have not been included here.
[28] Safe Work Australia (2019), *Decision regulation impact statement: Workplace exposure standards framework under the model Work Health and Safety laws*.

The costs associated with suffering from an illness or disease due to under-protective WES can be significant for an individual and for the community. Many occupational diseases, particularly those resulting from hazardous substance exposures, have long latency periods, sometimes materialising years or decades after exposure, which can further extend the timeline of impacts.

Direct impacts

The direct impact of occupational disease is the change in the quality and length of life of affected workers, known as the burden of disease. The burden of disease is split into non-fatal burden (the number of years lived with disability due to occupational illness or injury) and fatal burden (the number of years of life lost through premature death). The health burden of occupational disease from hazardous substance exposure in Victoria is estimated to be approximately $283 million annually, comprising an estimated $91 million in non-fatal burden costs and $192 million in fatal burden costs. These estimates are based on IHME Global Burden of Disease data for occupational exposures to hazardous substances, monetised using the Commonwealth value of a statistical life year (VSLY).

It is estimated that approximately 530,000 workers in Victoria, particularly in the construction, manufacturing and agriculture industries, are directly affected by exposure to hazardous substances in the workplace. WorkCover compensation data indicates that occupational disease claims cost approximately $3.1 million annually to businesses in Victoria with exposure to hazardous substances.

Affected workers often experience reduced workforce participation and earning capacity, leading to financial instability from medical expenses and reduced income. While WorkCover compensation may help mitigate the financial impact of occupational disease by covering medical costs and some lost income, it may not cover all relevant expenses. Limitations apply, particularly where the illness cannot be clearly linked to workplace exposure, or where personal and non-medical costs fall outside the scope of the scheme. This suggests the true economic impact is greater than the estimated $3.1 million in annual compensation costs.

Some workers may also face social isolation due to disability or illness, along with mental health challenges such as depression and anxiety, all contributing to an overall decreased quality of life beyond the direct health effects.

Indirect impacts

The costs associated with suffering from an illness or disease due to under-protective workplace exposure standards can be significant for an individual and for the broader community.

Individuals affected by occupational disease suffer from a reduced capacity to work which can result in absenteeism and presenteeism (where workers are present for work, but functioning at reduced capacity due to sickness).

Families and close support networks shoulder additional unpaid care responsibilities and many families face financial strain. These impacts are partially addressed through workers' compensation claims, which provide payments to affected workers or their families to at least partially cover lost wages, medical expenses, rehabilitation and legal costs.

Businesses are also indirectly affected through reduced productivity as a result of exposed workers' reduced ability to work, absenteeism and presenteeism. Businesses are also affected through increased insurance premiums as a result of WorkCover claims.

There are also costs on the healthcare system because of an increased number of patients seeking treatment for adverse health effects from exposure to a hazardous substance in the workplace.

Over-protective WES values

An over-protective WES value can place an unnecessary cost burden on an employer in terms of the additional costs incurred to comply with the workplace exposure standard, without necessarily providing any additional health benefits. Additional costs may relate to implementing control measures, such as isolation booths or automated processes, or carrying out air monitoring more regularly to ensure compliance. Higher-order controls which may be implemented to meet an over-protective WES value include isolation and engineering controls. These can provide better protection for workers but cost significantly more than lower order controls such as PPE. For example, the estimated average annual cost of implementing an isolation

control can range from, on average, approximately $3,000 for small businesses to $710,000 for large businesses.

The costs associated with implementing control measures varies based on the profile of hazardous substances used in the workplace and the control measures implemented.

Evolution of scientific understanding reveals current standards for some hazardous substances could potentially result in harmful exposures.

The current WES values are based on scientific evidence from the 1990s and early 2000s, with the previous comprehensive review conducted in 2003. Since then, toxicological and epidemiological research has revealed that some hazardous substances may cause adverse health effects at lower concentrations than previously understood.

The 2019-2021 SWA review of the WES list aimed to develop health-based recommendations for workplace exposure standards and notations. Trusted domestic and international sources based on available toxicological and epidemiological data were used to inform the recommendations for retaining, amending or withdrawing existing WES values.[29] Over 700 hazardous substances were independently examined against current scientific evidence, with the SWA review of the WES list finding that the WES values for some substances were outdated and may not be sufficiently protective against adverse health effects for all persons.[30]

There is often a delay between the findings of research into safe exposure standards, and their implementation. For example, in 2017 the International Agency for Research on Cancer (IARC) reclassified welding fumes from a Group 2B carcinogen (possibly carcinogenic to humans) to a Group 1 carcinogen (carcinogenic to humans).[31] The reduction in the WES value for welding fumes in Victoria (and Australia as a whole) did not come into effect until 2024.[32]

Beyond outdated exposure levels, the current standards do not reflect contemporary Victorian workplaces.

Several hazardous substances that may be used in Victorian industries do not currently have a WES value. These substances are commonly used in workplaces and potentially present significant workplace exposure risks, yet have not been included in the current WES list. Some examples of these substances include:

- **Diesel Particulate Matter (DPM)** is a particulate, generated by diesel engines used across multiple industries such as mining, construction, transportation, agriculture, oil and gas, maritime and vehicle maintenance. DPM was recognised as a Group 1 carcinogen by IARC in 2012 meaning it has been associated with an increased risk of lung cancer.[33]
- **Diacetyl** and its substitutes like 2,3-Pentanedione are used in food manufacturing and as fragrance or flavour ingredients in consumer products including perfumes, cleaning and washing agents and e-cigarette liquids. These hazardous substances have been found to have critical health effects including systemic acute effects from oral exposure, local effects including serious eye damage and skin sensitisation, systemic effects following repeated inhalation exposure (irreversible lung damage), and potential carcinogenicity following repeated inhalation exposure.[34]

Many businesses have taken voluntary action to reduce their use of hazardous substances following evidence of the safety risks they pose. Mining and construction businesses are increasingly investing in upgraded machinery and equipment that reduce emissions of diesel particulates. In food manufacturing, businesses are reducing or replacing Diacetyl with safer alternatives, and are adopting stricter safety protocols, including

[29] Safe Work Australia (2018), *WES Methodology: Recommending health-based workplace exposure standards and notations*.
[30] Safe Work Australia (2019), *Decision regulation impact statement: Workplace exposure standards framework under the model Work Health and Safety laws*.
[31] WorkSafe Victoria (2024), *Controlling exposure to welding fumes*.
[32] WorkSafe Victoria (2024), *New standard for welding fume safety*.
[33] International Agency for Research on Cancer (2012), *IARC: Diesel Engine Exhaust Carcinogenic*, World Health Organisation.
[34] Australian Industrial Chemicals Introduction Scheme (2022), *Acetylpropionyl and diacetyl – evaluation statement*, Australian Government Department of Health.

improved ventilation systems and training programs to educate workers on safer handling of these hazardous substances.

Additionally, the current WES list contains limits for substances that, while hazardous, have become less relevant to modern Victorian workplaces and substances whose over-protective limits require the implementation of control measures out of proportion to any additional health benefits. Many substances were commonly used decades ago or have since been banned or restricted, meaning Victorian businesses today virtually never use or encounter them, yet these substances still carry official exposure limits.

Inclusions of outdated or overprotective requirements can result in regulatory confusion and unnecessary effort to understand obligations without any corresponding health benefit. Some examples of these hazardous substances include:

- **Benomyl** is a hazardous substance with an existing WES value that is no longer used. It is a fungicide formerly used in agriculture and horticulture. Currently there are no products containing benomyl registered for use in Australia. It became illegal to supply or use products after 6 December 2006[35] however a WES value for benomyl still exists.
- **Acetaldehyde** is a hazardous substance with an over-protective WES value which is used in the manufacture of perfumes, resins and vinyls and is a known carcinogen. Current WES values are higher than equivalent exposure standards in other jurisdictions and may be associated with higher level controls and additional air monitoring to achieve compliance, without necessarily providing any additional health benefits.[36]

The WES list also contains limits for carcinogenic substances known as non-threshold based genotoxic carcinogens (NTGCs). NTGCs have the potential to cause cancer at any exposure level. The WES list review concluded that the estimated cancer risk associated with the current WES value for the majority of NTGCs is at a level above international and national benchmarks.

An example of these hazardous substances is ethylene oxide. Ethylene oxide is an NTGC primarily used in the manufacture of other chemicals. Most ethylene oxide is used to manufacture ethylene glycol (used in automotive antifreeze/coolant) and polyester, and is also used for sterilisation of equipment in hospitals and veterinary institutions. Ethylene has an existing WES value but is classified as a probable carcinogen by SWA. There may be no safe level of exposure to a carcinogen.[37]

2.2 Rationale for government intervention

Industries using hazardous substances may not always voluntarily adopt the most stringent exposure limits due to two key market failures: information problems and externalised health costs.

Information problems may prevent workers and employers from making informed decisions about safe levels of exposure to hazardous substances.

Workers and employers often lack the technical knowledge or resources to understand the risks of exposure to hazardous substances. Toxicological data is complex, it is challenging to interpret published toxicological research and government standards, and it can be prohibitively expensive to undertake toxicological research. This is compounded by the fact that airborne contaminants may not be visible to the naked eye nor detected by odour. Further, international safety developments can be hard to track and keep abreast of. Government intervention addresses this by establishing clear, scientifically-validated exposure limits that translate complex health evidence into enforceable standards. This removes the burden of obtaining and interpreting complex material by employers and workers, enabling safer workplaces through compliance with regulated limits.

[35] Australian Pesticides and Veterinary Medicines Authority (2025), *Benomyl chemical review*.
[36] Safe Work Australia (2018), *Consultation regulation impact statement: Workplace exposure standards framework under the model Work Health and Safety laws*.
[37] Department of Climate Change, Energy, the Environment and Water (2022), *Ethylene oxide.*

Significant health and other costs are borne by workers, the community, and the employers using the hazardous substances.

When workers are exposed to hazardous substances, they can suffer severe health consequences such as silicosis and cancer. The burden of medical treatment, lost income and reduced quality of life falls largely on the workers themselves and the public health system. Employers also bear some of the burden of these health consequences through lost productivity due to absent staff and financial liability for WorkCover claims through their premiums.

Government intervention through mandatory exposure limits makes these risks clearer to employers and specifies enforceable standards they must meet. By complying with these limits, employers reduce risk to workers and strain on the public health system. Exposure limits require those who create exposure risks (employers using hazardous substances) to change their behaviour, leading to improved outcomes.

3 Objectives of government intervention

This section identifies the key objectives of the proposed reform.

The Victorian Government's objective is to directly address the identified problems and market failures as discussed in detail above.

The intervention seeks to reduce harm from exposure to hazardous substances for Victorian workers.

The objective of government intervention is to ensure that workers are not exposed to harmful airborne contaminants that can lead to serious, long-term health conditions. Exposure standards informed by the latest scientific evidence and health data ensure that workers are better protected from harmful exposure to airborne contaminants.

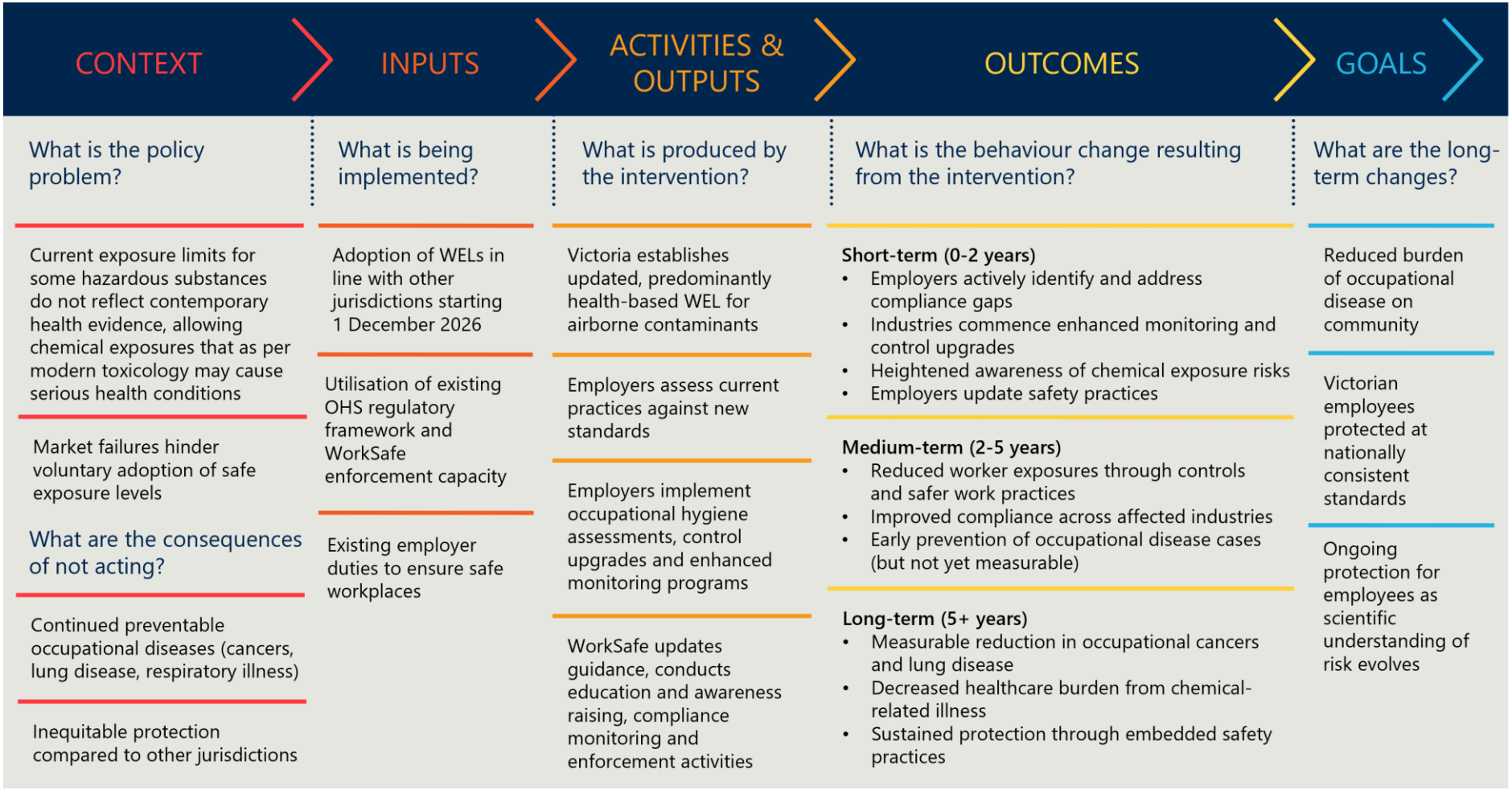
In addition to protecting the health of workers, the proposed intervention aims to achieve secondary objectives:

- Clarity in regulatory requirements: By clearly stating the evidence base for the regulatory change, and noting that the WEL value is a legal maximum not to be exceeded, the intervention supports businesses in understanding and meeting their obligations.
- Minimising economic costs: By preventing occupational illness the intervention is anticipated to reduce the financial impact on both industry and government by lowering WorkCover claims, reducing presenteeism and absenteeism, while also protecting workers from income loss and productivity disruptions.
- National consistency: By having one set of requirements across all jurisdictions, the intervention reduces duplication and complexity in employer compliance systems and enables regulators to draw on nationally developed guidance, training and compliance tools, reducing duplication of effort and improving the quality and consistency of advice provided to employers.

A program logic is used to illustrate why and how the intervention is intended to lead to the desired outcomes. The program logic for the adoption of the agreed WEL list in Victoria details the outputs and outcomes for workers and businesses that result from government intervention to address the identified problems and market failures.

The program logic of the intervention is detailed in Figure 1 on the following page.

Figure 1 | Program logic of government intervention



4 Options

This section presents the regulatory and non-regulatory approaches considered that may address the identified problems and objectives above. It details the reasons why particular approaches have or have not been considered in this RIS.

This section presents the feasible options which will be subject to detailed impact analysis. These are:

1. 'Base case' – Retain the WES (Option 1)
2. Adopt the agreed WEL list from 1 December 2026 (Option 2)

4.1 Option 1: Base case

The base case represents the status quo where the current WES list continues to apply in Victoria over the next 10 years. The base case is included as a point of comparison for the other option analysed in this RIS.

Option 1 maintains the existing policy settings as of October 2025 so that the current WES list for the approximately 700 hazardous substances continues to apply.

4.2 Option 2: Adopt the agreed WEL list from 1 December 2026

Option 2 is to amend the OHS Regulations and DG SH Regulations to incorporate the WEL list as published on SWA's website from 1 December 2026. Victorian employers will be required to comply with the WEL list, in place of the WES list, from 1 December 2026. Option 2 does not consider the adoption of WEL values for nine hazardous substances[38] which are currently being reviewed in a separate SWA impact assessment process.

The WES values were examined in SWA's 2019 review of the WES list using the latest scientific evidence that showed that exposure to certain hazardous substances even at previously accepted levels can lead to adverse health outcomes. As a result of its review, SWA provided health-based recommendations on the WES list to WHS Ministers, proposing a change in terminology from exposure standards to exposure limits, and amendments to the values. Health-based limits for most hazardous substances were agreed to, and in some cases decisions were made to adopt alternative limits. In 2024, WHS Ministers agreed to the changes and to adopt the updated WEL list nationally on 1 December 2026.

Under Option 2, 278 of the approximately 700 hazardous substances in the WES list would be affected. The changes would differ depending on the specific substances involved:

- Additions to the WEL list (31 hazardous substances): This group relates to hazardous substances that are not currently on the WES list, but are included in the WEL list as workplace exposure to these hazardous substances can be harmful above certain concentrations.
- WEL value increase (40 hazardous substances): For these hazardous substances, the WEL value is higher (less stringent) than the current WES value. This means that employers could allow slightly higher levels of exposure than before, based on updated health evidence.
- WEL value reduction (177 hazardous substances): These hazardous substances have lower (more stringent) limits under the WEL list. The agreed WEL values reduce the level of exposure allowed in order to better protect worker health based on scientific evidence.
- Prohibited substances and NTGCs (30 hazardous substances): Prohibited substances will be removed from the WEL list as they are prohibited for import[39], manufacture and use[40] under Australian legislation. Non-threshold based genotoxic carcinogens (NTGCs) will be moved to a separate list within the WEL document, with stricter requirements for employers to ensure exposure is kept as low as is reasonably

[38] The nine hazardous substances are benzene, chlorine, copper, formaldehyde, hydrogen cyanide, hydrogen sulphide, nitrogen dioxide, respirable crystalline silica (RCS) and titanium dioxide.
[39] Prohibited under Regulation 5I, and listed in Schedule 9, of the *Customs (Prohibited Imports) Regulations 1956*, unless permission has been granted.
[40] Australia is a Party to the Stockholm Convention on Persistent Organic Pollutants and has ratified and restricts the import, manufacture, use and export of these substances listed in the Convention.

practicable. In practice, compliance with the requirement to ensure exposure is as low as is reasonably practicable would be through eliminating the NTGC from the workplace in the first instance, or implementing the hierarchy of controls (substitution, isolation, engineering controls, administrative controls, PPE) to control the risks associated with NTGCs to the greatest extent possible.

The specific hazardous substances included in each of the above groups are detailed in Appendix A.

Option 2 will be supported by updates to guidance material by WorkSafe to assist employers in understanding the WEL list terminology, requirements and monitoring and compliance obligations.

4.3 Other options considered

Other regulatory and non-regulatory interventions were considered to address the problems identified, including:

- **Alternative WEL values.** This intervention has not been pursued as determining alternative WEL values for hazardous substances would require detailed analysis beyond what SWA's review process considered. Alternative WEL values in Victoria would also not align with the limits to be adopted by other Australian jurisdictions.
- **Voluntary uptake of the agreed WEL list**. In December 2022, all Australian jurisdictions agreed to the preferred option from the 2019 DRIS which was to continue to adopt mandatory WES values as opposed to voluntary or advisory WES values (an alternative option in the DRIS). The primary reasoning was that voluntary adoption could result in inconsistent implementation across industries, limiting health benefits and potentially placing some employers at a competitive disadvantage. Therefore, this intervention has not been pursued.
- **Enhanced regulatory oversight to improve industry compliance with the existing WES list.** Since some of the existing WES values are based on outdated exposure standards, it is not believed that increased enforcement would sufficiently address the underlying risks based on health evidence. Therefore, this intervention has not been pursued.
- **Targeted industry education to support improved compliance with existing WES list**. This intervention has not been pursued as education alone without legislative change would not address the limitations of the current WES list, some of which do not reflect the latest scientific evidence on safe exposure levels.
- **Industry-led programs and initiatives to improve compliance with the existing WES list and better support employers.** This intervention has not been pursued as reliance on voluntary, industry-led initiatives would not ensure consistent compliance or deliver the regulatory certainty required to protect worker health across Victoria.

5 Impact analysis

This section outlines the estimated impacts of each option to determine the preferred option. The benefits and costs of each option are assessed in relation to the impacts on workers, employers, government and the broader community. The inputs, parameters and methodologies used to estimate the impacts of each option are detailed in Appendix B.

This section presents the impact analysis for adopting the agreed WEL list (Option 2) relative to the base case of retaining the existing WES list (Option 1).

5.1 Approach to impact analysis

The cost-benefit analysis methodology draws from SWA's 2019 Decision RIS[41] and SWA's 2024 impact analysis on the proposed limits for nine hazardous substances on the WEL list.[42] The analysis has been adapted for Victorian circumstances using:

- Victorian-specific industry and employment data
- Stakeholder consultation with Victorian businesses and industry associations
- Victorian workers' compensation data.

The cost benefit analysis is driven by three main components:

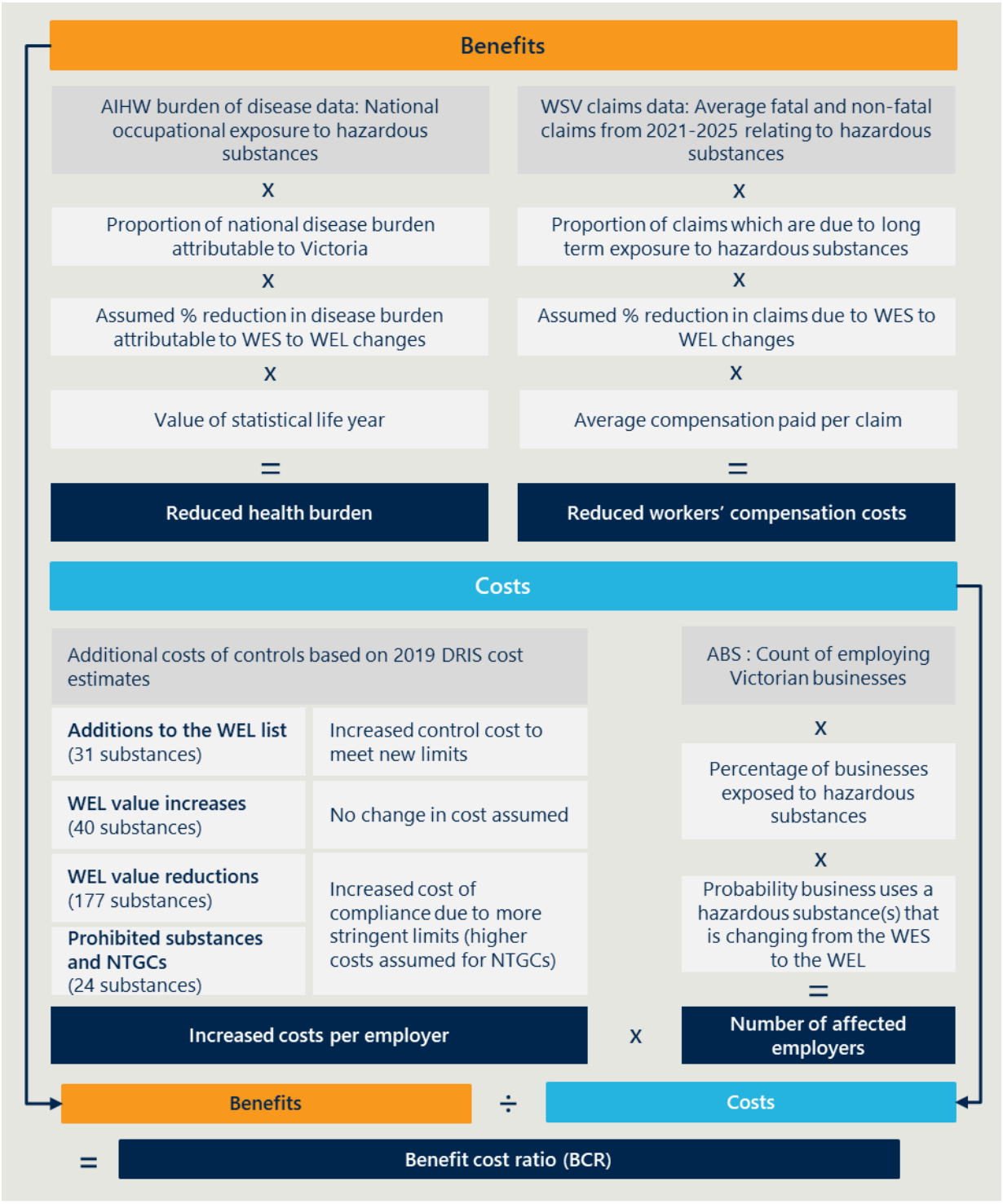
1. The number of Victorian businesses affected,
2. The incremental costs of compliance for employers, and
3. The additional health benefits to workers due to reduced exposure levels under the agreed WEL list.

Figure 2 outlines the logic used to guide the cost-benefit analysis for this RIS.

[41] Safe Work Australia (2019), *Decision regulation impact statement: Workplace exposure standards framework under the model Work Health and Safety laws.*

[42] Safe Work Australia (2024), *Consultation on the workplace exposure limits for 9 chemicals*.

Figure 2 | Model logic flow chart[43]



An expert panel recommended changes to WEL values for 278 hazardous substances, to ensure that the WEL values reflect the latest scientific and toxicological evidence on safe levels of exposure to airborne contaminants.[44] For the purposes of this impact analysis, it is assumed that employers are currently compliant with the existing WES list. Therefore, it assesses the additional costs and benefits of transitioning from the current WES list to the agreed WEL list. It is acknowledged that this may not be the case in practice for all employers.

[43] See Appendix B for more detail on assessment methodology.
[44] See Safe Work Australia, *Workplace exposure standards review*.

This RIS analysis applies a methodology based on the SWA's 2019 Decision RIS which estimates costs that are not industry-specific and do not differentiate between individual hazardous substances. The analysis reflects the type of changes to the WEL value (that is, additions to the WEL list, WEL value increases, WEL value reductions, or reclassification as prohibited substances or NTGCs).

Stakeholder engagement

Targeted stakeholder engagement formed a key part of the RIS development. Industry associations and businesses operating in Victoria were engaged regarding the adoption of the WEL list, using two engagement channels:

- Five interviews with targeted Victorian and national industry associations across a range of affected industries to better understand the potential impacts of adopting the WEL list on Victorian businesses.
- A web-based survey delivered to Victorian businesses across Victoria included in WorkSafe's relevant mailing lists. Eight hundred and twelve respondents provided responses to the web-based survey.

This consultation helped to inform the analysis of expected impacts and provided insights to support the cost benefit analysis. Specifically, stakeholder interviews and business survey responses informed the qualitative assessment of the health benefits and impacts on compliance costs under Option 2.

Survey questions and interview summaries are included in Appendix C.

Key data sources

The analysis draws on several data sources to quantify the number of affected businesses, estimate compliance costs, and measure health benefits.

Affected businesses: To identify and estimate the number of Victorian businesses that will be affected by the changes from the WES list to the WEL list, this analysis uses ABS Counts of Australian Businesses and NPI chemical emissions data. Businesses are categorised by industry at the ANZSIC Division level, and size of business in line with ABS classification, where:

- small businesses employ 1 to 19 people
- medium businesses employ 20 to 199 people
- large businesses employ 200 or more people
- non-employing businesses are excluded from the analysis as they have no employees to benefit from improved exposure limits.

Worker exposure: To estimate the number of Victorian workers currently exposed to hazardous substances, this analysis uses ABS Counts of Australian workforce data, broken down by industry sector.

Benefits: Two categories of benefits are calculated from reduced occupational exposure to hazardous substances:

- Health benefits to workers: To estimate the avoided disease burden from reduced occupational exposure, this analysis uses Institute for Health Metrics and Evaluation (IHME) global burden of disease estimates. These estimates are measured in disability-adjusted life years (DALYs) reflecting fewer cases of premature death and chronic illness attributable to occupational exposures.
- Financial savings to WorkSafe and employers: This analysis used WorkSafe compensation claims data to estimate the avoided compensation costs to WorkSafe and employers from improved health outcomes for workers. It is assumed that these financial savings represent a subset of the broader health benefits described above, noting that not all injured workers lodge compensation claims.

Costs: To estimate the incremental costs to employers of changing from the WES list to the WEL list, the analysis used the established cost estimates from SWA's 2019 Decision RIS, adjusted for inflation. In line with SWA's 2019 Decision RIS methodology, the compliance costs are split into two categories:

1. Control measure costs: Additional expenditure on isolation controls, engineering controls, administrative controls and PPE to comply with the agreed WEL list.
2. Management practice costs: Additional expenditure on air monitoring and occupational hygienist costs to support compliance with the agreed WEL list.

5.2 Impacts of Option 1: Base case

The base case represents the status quo where the current WES list continues to apply. Therefore, there are no additional costs or benefits compared to what is currently experienced by Victorian businesses and their workers.

The base case is included as a point of comparison for Option 2 (adopting the agreed WEL list) which is analysed in this RIS.

5.3 Impacts of Option 2: Adopt the agreed WEL list from 1 December 2026

Under Option 2, where Victoria adopts the agreed WEL list, the main impacts are:

- **Reduced burden of disease**: The key impact of Option 2 is an expected reduction in the incidence of work-related illness and disease caused by hazardous substance exposures.
- **Improved workplace productivity**: With fewer workers developing exposure-related illnesses, there is an expected reduction in absenteeism and improved productivity due to improved worker health. This will benefit both employers and workers.
- **Increased compliance costs for employers**: Some employers will face higher administrative and compliance costs to meet the revised limits. The bulk of these costs will arise from:
    - Additions to the WEL list, where no previous exposure standard was applied and employers need to implement new controls.
    - WEL value reductions, where lower (more stringent) limits for hazardous substances require introduction of new higher order control measures or upgrades to existing controls.
    - Reclassification of substances as NTGCs, as employers will be required to implement the highest practicable control measures to ensure worker exposure to these substances is as low as reasonably practicable.

5.3.1 Summary of impacts

Overall, the analysis found that the estimated costs of adopting the agreed WEL list are expected to exceed the estimated quantified benefits, with a benefit-cost ratio of 0.45. The estimated costs to employers over the next 10 years are approximately $6.3 billion. The estimated benefits are approximately $2.9 billion, noting that a number of benefits were unable to be quantified. These unquantified benefits include benefits accruing from maintaining consistency with other Australian jurisdictions, workplace productivity benefits, and increased community confidence from adopting recommended health-based limits.

Table 5 provides an overview of the costs and benefits associated with Option 2.

Table 5 | Overview of estimated costs and benefits of Option 2 ($M) over 10 years

WEL change group	Total Cost	Total Benefits	NPV	BCR
Additions to the WEL list	2,526	382	-2,145	0.15
WEL value increases	0	0	0	0.00
WEL value reductions	3,249	2,181	-1,068	0.67
Prohibited substances and NTGCs	573	296	-277	0.52
Total	**6,347**	**2,859**	**-3,490**	**0.450**

Additions to the WEL list

- **Additions to the WEL list are estimated to cost $2.5 billion over ten years.** This is because employers will now be required to implement controls to comply with newly introduced exposure limits for certain hazardous substances that previously had no exposure limit.
- **The estimated benefits are $382 million over the same period**, reflecting fewer cases of work-related injury, illness, and disease and improved workplace productivity.

Example – diesel particulate matter (DPM)

Diesel particulate matter (DPM) is a substance emitted by diesel-fuelled equipment across businesses in a range of industries, including mining, manufacturing, construction, transport and automotive repairs. A WEL value for DPM will be added to the WEL list, requiring tighter control of diesel equipment, filtration/ventilation and exposure monitoring, which raises compliance costs while delivering health benefits through reduced exposure.

Automotive industry feedback on the costs associated with the agreed WEL value for DPM included concerns about the feasibility of installing extraction ventilation systems in workshops (particularly for small and medium sized businesses who lease their workshops), as well as increased manual handling risks for workers who would be required to push a car into a workshop rather than drive it in order to comply with the DPM WEL value.

WEL value increases

- **WEL value increases (less stringent limits) are estimated to have no change in costs or benefits**, as employers already using controls are not expected to scale back or remove them due to an increase in the WEL value. While not captured in the cost benefit analysis, higher WEL values may reduce compliance costs over the medium term if businesses are able to rationalise monitoring programs or defer investment in new controls. For new employers, the costs of complying with the WEL values for this group of substances would be expected to be lower than the costs of complying with the WES list. These potential cost savings have not been quantified.

Example – methyl ethyl ketone (MEK)

Methyl ethyl ketone (MEK) is used in the manufacturing, professional, scientific and technical services industries as a solvent. Workers in the construction industry may also be exposed to MEK in the workplace if they use commercial and household paint products containing MEK.[45] Based on contemporary toxicology and human volunteer studies showing no adverse effects at 200 parts per million (ppm), the TWA for MEK will increase from 150 ppm to 200 ppm which aligns with international limits. However, employers are assumed to maintain existing controls such as enclosure/ventilation (and respirators where needed).

WEL value reductions

- **WEL value reductions (more stringent WEL values) are estimated to cost $3.2 billion over ten years**, as employers will need to implement stronger controls to meet the lower (more stringent) limits.
- **The estimated benefits are approximately $2.2 billion over ten years**, again from reduced burden of disease and better workplace productivity.

Example – wood dust (soft wood)

Wood dust is a particulate substance that can be emitted into the air from a wide range of industrial processes and diffuse sources. Any industry that works with wood could be exposed to wood dust,

[45] Department of Climate Change, Energy, the Environment and Water (2022). *Methyl ethyl ketone*.

including forestry, manufacturing, construction, wholesale and retail trade, transport, and repair and maintenance services.

Wood dust will have a more stringent WEL value, which would require tighter extraction/local exhaust ventilation, enclosure of dusty processes, and improved housekeeping. These additional control measures increase upgrade and operating costs but also deliver health benefits resulting from reduced exposure.

Prohibited substances and NTGCs

- **Changes for prohibited substances and NTGCs are estimated to cost $573 million over ten years, with benefits of $296 million.** These costs are associated with hazardous substances reclassified as NTGCs. Prohibited substances are assumed to incur no additional compliance costs as these hazardous substances are already prohibited for import, manufacture and use under Australian legislation.

Example – ethylene oxide

Ethylene oxide is primarily used in the manufacture of other chemicals, and is also used for the sterilisation of medical and veterinary equipment. A small amount is also used to control pests on stored agricultural products.[46] It currently has a Time Weighted Average exposure limit in the WES list of 1 ppm.

Ethylene oxide is being reclassified as an NTGC (reflecting that there is effectively no safe exposure level), requiring stricter controls such as elimination/substitution where practicable, isolation and ventilation, and monitoring, which are expected to lead to higher capital and operating costs for employers.

5.3.2 Benefits of Option 2

Option 2 is expected to deliver approximately $2.9 billion in benefits over 10 years as well as a range of unquantified benefits. The quantified health benefits relate to avoided disease burden by reducing workplace exposure to hazardous substances. The change from the WES list to the WEL list is estimated to avoid approximately 1,700 disability-adjusted life years (DALYs) each year across approximately 530,000 affected workers. The unquantified benefits include maintaining national consistency in exposure standards, reduced absenteeism and enhanced workplace productivity.

Disability-adjusted life years (DALYs)

A DALY is a standard measure of disease burden used in public health and regulatory impact analysis. One DALY represents the loss of one year of healthy life.

DALYs are the sum of:

- Years of Life Lost (YLL): years of life lost due to premature mortality; and
- Years Lived with Disability (YLD): years lived with illness or injury, weighted by severity.

DALYs therefore capture the combined impact of early death and non-fatal health outcomes in a single metric.

The estimated health benefits of Option 2 are expressed in DALYs avoided. For example, avoiding 1,700 DALYs per year equates to restoring approximately 1,700 healthy life years across the affected workforce annually. This is equivalent to approximately one healthy year of life saved for every 310 affected workers each year.

Quantified benefits

Option 2 is expected to improve worker health by reducing illness and injury from exposure to hazardous substances. Table 6 provides a summary of the estimated benefits associated with Option 2.

[46] Department of Climate Change, Energy, the Environment and Water (2022). *Ethylene oxide*.

Table 6 | Direct and indirect health benefits for Option 2 over 10 years ($M)

WEL change group	Avoided workers' compensation payments	Avoided disease burden	Total Benefits
Additions to the WEL list	4	378	382
WEL value increases	0	0	0
WEL value reductions	24	2,157	2,181
Prohibited substances and NTGCs	3	292	296
Total	31	2,827	2,859

Option 2 is estimated to deliver approximately $2.9 billion in benefits over ten years through:

- **$2.8 billion of avoided disease burden over ten years due to reduced exposure** as a result of additions to the WEL list, WEL value reductions, and reclassification of prohibited substances and NTGCs. This reduced exposure is expected to result in fewer substance-related fatalities, injuries, and illnesses.
- **$31 million of avoided workers' compensation payouts over ten years**, reflecting a lower incidence of sickness in workplaces due to exposure to hazardous substances.[47]

Benefits estimation assumptions

The $2.8 billion benefits estimate is based on several assumptions which are outlined in Table 7.

[47] It is assumed that this figure is a subset of the overall avoided disease burden above and has been subtracted out of the $3.5 billion total to ensure the benefits are not double-counted.

Table 7 | Benefits assumptions

Assumption	Rationale
Current exposure level assumptions	The analysis assumes that observed health impacts have occurred at exposure levels within the current WES values. This assumes that current WES values are set above safe levels of exposure, and that lowering them would eliminate all relevant health impacts. It is acknowledged that this may not be the case in practice for all employers. This assumption serves as a baseline for evaluating the potential benefits of more stringent exposure limits. It is important to note that workers' compensation and burden of disease data do not specify exposure levels that caused adverse health effects. Additionally: • It is highly likely that the current data on disease from workplace hazardous substance exposure may include cases where workers were exposed at levels in excess of the current WES values such as worker exposures to respirable crystalline silica in the engineered stone industry. • The current data would not reflect where employers have voluntarily adopted stricter standards, which may have prevented health impacts. • Some health impacts observed today may reflect exposures that occurred decades ago, prior to the introduction of the current WES list.
Disease prevention	The analysis assumes that moving from the WES list to the new WEL list will prevent all occupational disease caused by workplace hazardous substance exposure. This assumption is set on the basis that: • WES values are currently being complied with, and • WEL values were established by an expert panel to reflect the safe level of exposure[48] and that all employers will comply with the WEL list. This assumption likely overestimates the benefits as some workers may still experience adverse health effects due to individual health differences or existing medical conditions, even when exposure is below the new limits. It has also been noted that toxicological and scientific evidence does not guarantee that the new WEL list will result in significantly better health outcomes than the current WES list. This assumption is tested as a part of the sensitivity analysis in section 5.4.
Immediate benefits realisation	The analysis assumes that attributable disease burden is avoided in full from the first year of implementation. For example, all disability-adjusted life years (DALYs) attributable to occupational exposure to arsenic due to the change to the WEL value are assumed to be avoided immediately upon implementation of the agreed WEL list. This simplifying assumption likely overstates benefits in the short term, as many occupational diseases have long latency periods and will not decline immediately after exposure reductions. It should also be noted that immediate full compliance is unlikely, given the education, training and capacity-building required, which would further delay the timing of benefits. The analysis considers benefits over a 10-year appraisal period, which reflects the life of the regulations. A key limitation of this approach relates to the timing of when benefits are realised, as this affects not only when health benefits occur but also their present value once discounting is applied. Accordingly, while the overall quantum of health benefits is not overstated, their net present value would be lower if benefits were to materialise later or beyond the appraisal period. This assumption is tested as a part of the sensitivity analysis in section 5.4.
Compliance levels	The analysis assumes all employers are currently compliant with existing WES list requirements. Without this assumption it would not be possible to arrive at an estimate of the additional cost of controls required to move from the WES list to the WEL list. It is acknowledged that this may not be the case in practice for all employers.

[48] The safe limit of exposure is generally based on the 'critical effect' of an airborne contaminant. This is the lowest airborne concentration that someone can usually be exposed to before they have an adverse effect. The critical effect can be a short-term health effect, like nausea or dizziness, or a long-term health effect like organ damage or cancer. Importantly, exposure standards do not identify the dividing line between a healthy and unhealthy work environment. Natural human biological variations and

The primary benefit of Option 2 is improvement in health outcomes. The change from the WES list to the WEL list is estimated to avoid approximately 1,700 DALYs each year across approximately 530,000 affected workers. This equates to about one healthy year of life saved per 310 workers per year, reflecting reductions in both premature deaths and chronic illness from occupational exposures. These DALYs currently arise from exposures to hazardous substances such as particulate matter, gases and fumes, and asthmagens. By lowering exposure to these hazardous substances, Option 2 delivers substantial reductions in the overall burden of work-related disease.

These health benefits are estimated at $2.9 billion over ten years, based on the reduced risk of illness and disease on approximately 530,000 Victorian workers exposed to hazardous substances. Table 8 breaks down the estimated avoided burden of disease by exposure type, showing the relative contribution of particulates, gases and fumes, asthmagens, and other hazardous substances. Particulate matter, gases and fumes account for the largest share of benefits, as this category captures the broadest range of hazardous substances.

Table 8 | Estimated health benefits by type of exposure over ten years ($M)

Type of exposure	Avoided fatal burden	Avoided non-fatal burden	Total benefits
Particulate matter, gases, and fumes[49]	1,599	280	1,878
Asthmagens[50]	87	632	719
Other hazardous substances[51]	258	4	262
Total	1,943	916	2,859

These health benefits come from preventing serious workplace illness and disease that are assumed to otherwise occur under current WES values, including:

- Respiratory conditions such as occupational asthma, lung disease, and breathing difficulties that result from exposure to asthmagens and particulate matter.
- Cancer cases that develop from workplace exposure to carcinogenic substances.
- Acute health effects including poisoning, chemical burns, and immediate health impacts from gas and fume exposure.
- Chronic conditions involving long-term organ damage and systemic health problems caused by prolonged exposure to hazardous substances.

If some WES values are outdated and not reflective of the latest scientific and toxicological evidence, these health conditions could continue to harm Victorian workers, resulting in medical costs, and reduced quality of life for affected workers. Better protection of worker health is therefore the primary benefit of the change from the WES list to the WEL list.[52]

There are a range of stakeholder views about the sufficiency of the current WES values in the WES list.[53] On the one hand, a stakeholder consulted in the development of this RIS noted that it is hard to argue against the health benefits of adopting the agreed WEL list. On the other hand, another stakeholder suggested that the changes will not have a material impact on worker exposure and health. For the purposes of this analysis, and noting that an expert panel recommended the changes to WEL values to reflect the latest scientific and

individual susceptibilities (such as an existing medical condition) mean that a small number of people may still experience adverse health effects from exposure at levels below the WES.

[49] Includes airborne contaminants generated workplace processes, including dusts (e.g. wood dust), metal fumes (e.g. welding fumes), and combustion products (e.g. diesel exhaust, carbon monoxide). Does not include silica.

[50] Substances that can cause or worsen occupational asthma through sensitisation or irritation of the respiratory system. Examples include flour dust, isocyanates, and cleaning/disinfectant chemicals.

[51] Substances with toxicological profiles not captured in the above categories, including agents linked to cancer, organ damage, or other chronic health effects (e.g. arsenic, beryllium, cadmium).

[52] The quantified health benefits in this RIS are based on valuing avoided DALYs using the Value of Statistical Life Year measure, which reflects willingness to pay for improved health and longevity but does not directly measure medical system savings.

[53] See the summary of stakeholder consultations at Appendix C.

toxicological evidence on safe levels of exposure, we have assumed that better health outcomes will likely result.

Unquantified benefits

There are also a range of important additional benefits which have not been quantified, including significant regulatory efficiency benefits for employers from maintaining national consistency with other Australian jurisdictions. These gains arise relative to Option 1. Under the current arrangements, Victoria's WES values are already aligned with the national WES list, and this alignment would continue by adopting the agreed WEL list. However, if Victoria retained the existing WES list (Option 1), these efficiency gains would be lost as Victorian standards would diverge from the national framework. Adopting the agreed WEL list will also support greater community confidence that Victorian workplaces provide a safe working environment in relation to airborne contaminants.

Productivity benefits for employers

Productivity-related benefits arise when fewer workers develop illnesses arising from occupational exposure to hazardous substances, resulting in reduced absenteeism, faster recovery times and improved workplace performance. Across Victoria, adopting the WEL list is expected to reduce exposure risks for an estimated 530,000 workers, preventing approximately 1,700 DALYs lost to illness or premature death, equivalent to roughly one healthy year of life gained for every 310 affected workers.

Productivity-related benefits have not been quantitatively analysed, but include:

- **Reduced workplace disruption and absenteeism**: Healthier workers are less likely to experience prolonged absences, meaning businesses face fewer interruptions to day-to-day operations and less need to reorganise shifts or workloads.
- **Lower recruitment and training costs**: Fewer health-related exits from the workforce are likely to reduce the need for replacement hiring. This lowers recruitment costs and avoids the loss of role-specific knowledge that occurs when experienced staff leave due to illness.
- **Preserved workforce capability and culture**: By reducing the incidence of serious illness, businesses can maintain the skills, experience and continuity of their workforce. This stability supports stronger workplace culture and reduces the time managers spend addressing health-related issues.

These productivity improvements represent ongoing value to Victorian businesses that extend beyond the quantified workers compensation savings, as more workers avoid illness, recover faster and take fewer absences from work.

Retaining consistency with model WHS laws

Victoria currently adopts the WES list in line with other Australian jurisdictions. Harmonisation of exposure limits across Australia delivers important efficiency gains that provide ongoing value. These benefits would be lost if the current WES list was retained (Option 1):

- Employers operating in more than one jurisdiction currently benefit from a single set of requirements. If Option 1 was retained, employers would not need to change practices in Victoria however they would need to manage different exposure standards across jurisdictions. Harmonisation of exposure limits reduces duplication and complexity in employer compliance systems and lower administrative costs, which is expected to support better compliance outcomes.
- By maintaining consistency with other jurisdictions, regulators are able to draw on nationally developed guidance, training and compliance tools, reducing duplication of effort and improving the quality and consistency of advice provided to employers.

Increased community confidence

Adopting the WEL list enhances community confidence and trust in regulators:

- Victoria's standards will reflect the latest available scientific evidence on safe exposure levels for hazardous substances. This strengthens community confidence that employers are providing a safe and healthy working environment, and demonstrates Victoria's commitment to maintaining high workplace safety standards.

- Adopting the agreed WEL list signals an ongoing commitment to evidence-based regulation and continuous improvement in protecting worker health. This provides important public benefits by showing that regulatory decisions are based on current scientific understanding.
- Victorian workers will be required to receive the same level of protection from their employer as workers in other jurisdictions. This supports broader policy objectives of maintaining community trust in regulatory frameworks. It would also avoid the perception that workplaces in some jurisdictions are safer to work in than others.

Reduced pressure on the healthcare system

While the analysis captures the direct, individual health benefits of reduced disease incidence through Value of Statistical Life measures, these estimates do not include broader system-level efficiencies. A decline in occupational disease incidence would also lessen demand on the healthcare system over time. Fewer cases of chronic respiratory and cancer-related illnesses arising from workplace exposures would reduce the number of hospital admissions, specialist consultations, and ongoing treatments required. This would help to ease pressure on public hospitals and primary care services, free up capacity for other patients, and contribute to long-term savings in healthcare expenditure, as well as improved public health outcomes over time.

5.3.3 Costs of Option 2

The estimated costs to employers under Option 2 are approximately $6.3 billion over ten years. These costs reflect the extra control measures and management practices that employers will need to implement to meet the agreed WEL list requirements. The nature and extent of these measures will vary depending on the employer. The analysis assumes that employers are already meeting current WES list requirements, so these estimates capture only the additional costs of complying with the new limits. Employers will need to evaluate their current controls and determine if extra measures are necessary to ensure compliance with the agreed WEL list.

These estimated costs are significantly higher than those provided in the SWA 2019 DRIS. The SWA DRIS noted that its cost estimates were indicative only and were intended to represent just part of a range of potential outcomes. It noted that the actual impacts would depend on the nature of the changes to the WES values and the number of businesses affected. The cost estimates developed for this RIS reflect that significantly more employers are expected to be affected by the agreed WEL changes and that business costs are significantly higher today than in 2017 (the 2019 SWA DRIS cost base) due to inflation.

Table 9 provides an overview of the costs associated with Option 2.

Table 9 | Control measure and management practice compliance costs under Option 2 over 10 years ($M)

WEL change group	Isolation	Engineering	Administrative	PPE	Air monitoring	Occupational hygienist	Total costs
Additions to the WEL list	417	454	1,353	156	48	98	2,526
WEL value increases	0	0	0	0	0	0	0
WEL value reductions	1,228	1,341	0	313	133	234	3,249
Prohibited substances and NTGCs	216	236	0	55	23	41	573
Total	**1,861**	**2,032**	**1,353**	**524**	**204**	**374**	**6,347**

Additions to the WEL list

- **Additions to the WEL list are estimated to cost $2.5 billion over ten years.** This is because employers will be required to implement controls to comply with newly introduced exposure limits for certain hazardous substances that previously had no exposure limit.
- For example, diesel particulate matter is a hazardous substance with a new WEL value, meaning employers will need to implement controls such as substituting or minimising the use of diesel equipment, tightening maintenance and idling practices, and where residual risk remains, providing respiratory protection and verifying exposures via personal monitoring.

WEL value increases

- **WEL value increases are not expected to add costs**, because employers already using controls are not assumed to reduce or remove them if WEL values are increased.
- For example, methyl ethyl ketone (MEK) will have a higher (less stringent) limit compared to the existing WES value. MEK is typically controlled via enclosed handling and local/general exhaust ventilation and, where needed, organic-vapour respirators. In this case, no new controls are expected, and it is assumed that employers maintain these controls going forward despite the higher WEL value. As employers would continue to be bound by their duties under the OHS Act to provide a working environment that is safe and without risks to health, so far as is reasonably practicable, it is assumed that existing controls would not be wound back solely because the exposure limits are being made less stringent.
- While not captured in the modelling, in practice higher WEL values may reduce compliance costs over the medium term if businesses are able to rationalise monitoring programs or defer investment in new controls.

WEL value reductions

- **WEL value reductions are estimated to cost $3.2 billion over ten years**, as employers strengthen or upgrade controls to meet lower (more stringent) limits. This group makes up the largest share of anticipated costs, given the significant number of hazardous substances and employers affected.
- For example, wood dust (soft wood) will have a lower limit, meaning employers must tighten controls – upgrading on-tool extraction and local exhaust ventilation at saws/sanders, enclosing or isolating dusty processes, increasing exposure monitoring, and using RPE for residual risk – which is why additional upgrade and operating costs may arise.

Prohibited substances and NTGCs

- **NTGCs are estimated to cost $573 million over ten years**, as employers will be required to implement higher order and more costly control measures to ensure they are meeting the requirements to keep exposures as low as is reasonably practicable.
- For example, the safe exposure limit for ethylene oxide (classed as an NTGC) is effectively zero, requiring employers to keep exposures as low as reasonably practicable. In practice this means applying higher order control measures (elimination/substitution; isolation in dedicated negative-pressure rooms with adequate air changes), which results in higher compliance costs.
- In the case of prohibited substances, it is expected that no additional costs will be incurred as these hazardous substances are already prohibited for import, manufacture and use under separate Australian legislation.

There will also be other costs that have not been quantified, such as any disruptions to business operations during installation, downtime for fitting new controls, training, and the need for specialist equipment or advice to be obtained.

Costs estimation assumptions

The estimated compliance cost of $6.3 billion is based on several key assumptions due to limited data availability. These assumptions are outlined in Table 10.

Table 10 | Costs assumptions

Assumption	Rationale
Individual employer circumstances	The analysis provides aggregated cost estimates but does not account for individual employer circumstances. Costs are broken down by business size and control type, drawing on analysis and inputs from SWA's 2019 Decision RIS and stakeholder engagement. This means that in practice, individual business costs will vary from the provided estimates.
Affected employers' numbers	There is no dataset showing exactly how many Victorian employers will be affected. The number of affected employers is estimated using ABS business counts and emissions data, combined with assumptions about how many hazardous substances are typically used in each industry.
Allocation to WEL change groups	The number of employers affected within each WEL change group is assumed to be proportional to the number of hazardous substances in that WEL change group. For instance, WEL value reductions are expected to affect the largest number of employers, as this group contains the largest share of hazardous substances. These assumptions may overestimate or underestimate the proportion of employers and workers affected for particular WEL change groups.
Number of hazardous substances per employer	The precise number of hazardous substances for which each employer would need to update its controls has not been directly factored into this analysis. Once a business is allocated to a WEL change group, it is assumed to incur the representative cost associated with that group. This reflects the simplifying assumption that controls implemented for one hazardous substance will generally also manage other affected hazardous substances at the same site. This may not always hold true – for example, where substances require specialised monitoring, filtration media, or incompatible engineering solutions.
Compliance costs for managing more than one hazardous substance	As above, this analysis assumes that an employer's controls for one hazardous substance are also used to control for other hazardous substances used by that employer. This is assumed to result in negligible incremental costs for managing additional hazardous substances. This may not be the case for all affected employers and could result in under-estimation of costs for some employers.
Uplift factor for NTGCs	WorkSafe experts have advised that employers currently using hazardous substances that will be reclassified as NTGCs are likely to face additional compliance costs beyond those associated with reduced WEL values. This is because these employers will need to implement higher order control measures to ensure exposure is as low as is reasonably practicable. To reflect this, the impact analysis applies an uplift factor of 30 per cent to the estimated compliance costs for these employers. This factor accounts for the additional effort and expense involved in meeting the more stringent regulatory requirements.

Compliance cost impacts on employers

Employers could face a range of compliance costs depending on their current exposure levels relative to the agreed WEL values, and their existing control measures. The majority of employers are expected to be affected by exposure limits that are lower (more stringent) than the current WES values. Out of the 278 in-scope hazardous substances, 238 are affected by either a agreed WEL value being introduced, a WEL value reduction or being reclassified as a prohibited substance or NTGC, where the agreed WEL value is more stringent than the current WES value.

As noted in stakeholder feedback, where the agreed WEL value is more stringent, achieving lower exposure levels may require different approaches depending on an employer's starting position prior to adoption of the WEL list:

- **Employers currently complying with the WES values but exceeding the agreed WEL values** will need to reduce exposure levels. This may require upgrading existing controls, implementing additional measures, or investing in higher-grade equipment depending on the gap between current and required exposure

limits. For example, a cabinetmaking business working with wood dust (softwood) currently complies with the existing WES value of 5 mg/m³ (TWA) using general ventilation and basic local exhaust ventilation. With the new, lower WEL value of 2 mg/m³ (TWA), the business would likely need to tighten controls, potentially upgrading capture efficiency (e.g. on-tool extraction), enclosing dusty processes, switching to high hazard industrial vacuums, and increasing monitoring, thereby incurring additional capital and operating costs.

- **Employers already meeting or approaching agreed WEL values** may require minimal additional controls or administrative adjustments to demonstrate compliance. For example, a laboratory already managing acetone exposures well below the WES value of 500 ppm (TWA), and close to the agreed WEL value of 250 ppm (TWA), may only need to update its exposure monitoring program and record-keeping to demonstrate compliance, rather than invest in major new engineering controls.
- **Employers using substances reclassified as NTGCs** will need to implement higher order control measures to ensure worker exposure is as low as is reasonably practicable. For example, a research laboratory that uses dimethyl sulfate for chemical synthesis may need to find an alternative substance to ensure the risk of worker exposure to dimethyl sulfate is as low as is reasonably practicable beyond current control measures.
- **Employers with no existing controls** (particularly for agreed WEL values) will need to implement appropriate control systems. The category and extent of controls required will depend on their operational requirements and the degree of exposure reduction needed. For example, a small logistics depot operating several diesel forklifts indoors has not previously been subject to a limit for diesel particulate matter. Under the agreed WEL value of 0.01 mg/m³ (TWA for respirable elemental carbon), the business would need to implement controls such as upgrading to electric forklifts where practicable, retrofitting diesel particulate filters, improving building ventilation and introducing exposure monitoring to ensure compliance.

In addition to an employer's starting position, a business' size may affect the complexity of their workplace health and safety operations, and the different compliance approaches they can afford:

- **Small and medium-sized businesses** are more likely to rely on lower-order controls such as PPE and administrative controls. This is because higher-order controls such as mechanical extraction and ventilation equipment and systems can require significant capital investment in comparison and may not always be possible where premises are leased. In addition, the nature of the work may make PPE the only reasonably practicable option, for example, mobile or off-site activities such as pest control or fumigation, where fixed engineering controls are not possible. Installing or validating higher-order controls often requires downtime, disrupting operations. There are also ongoing costs for training, maintenance, and monitoring, which can be significant for smaller businesses. Industry associations commented that implementing higher-order controls measures may not be financially viable for some smaller businesses.
- **Large businesses** are more likely to be able to invest in higher-order engineering and isolation controls because of their scale and existing safety infrastructure. Industry associations noted that reputational risks for large businesses make them more likely to implement comprehensive controls to manage safety risks.

Some industries are expected to be more affected by the agreed WEL requirements than others. Industry impacts were considered at a high level when estimating the number of businesses likely to be affected by the adoption of the WEL list. For example, sectors such as mining, manufacturing and construction were assumed to have a higher proportion of affected employers compared to other industries. However, detailed industry-by-industry analysis was not undertaken as part of this RIS, and the modelling assumes that compliance costs do not differ across industries. However, stakeholders have provided information on the implications of moving to the WEL across certain industries:

- **Agriculture**: Longer ventilation periods post-fumigation to meet the lower WEL values may cause supply chain delays and operational downtime, with costs likely to be passed onto end customers where possible. One industry group noted that for phosphine, the primary fumigant used in stored grain, existing detection methods may not reliably measure concentrations at or below the WEL value, posing practical challenges for compliance. Stakeholders indicated that compliance could be achieved through extended aeration times, enhanced ventilation practices, and conservative re-entry intervals, even where precise measurement is difficult. Over time, improvements in monitoring technology and equipment retrofits could also support more consistent measurement and control of exposure levels, although these may involve additional costs for some employers.

- **Construction**: Lower (more stringent) WEL values could slow job completion, increasing costs and project timeframes. Accurate on-site monitoring becomes more difficult and expensive under lower (more stringent) WEL values, due to equipment limitations and site variability. Many small construction businesses may rely heavily on PPE, while larger firms may be better equipped to implement more infrastructure intensive controls.

Although it has not been explicitly considered as part of the estimates, business location may also affect the cost of compliance. An industry association noted that access to occupational hygienists, particularly in regional and rural areas, is a constraint that could increase costs and cause delays.

Feedback from employers further noted that scheduling and downtime to install or validate control measures were additional costs that would be incurred, along with training requirements and ongoing maintenance and monitoring expenses.

Table 11 presents the estimated annual cost impact, on average, for employers by business size and WEL change group. Actual costs for businesses will vary and depend on a range of factors. For example, a small business that uses hazardous substances which will be subject to a agreed WEL value is estimated to spend, on average, an additional $9,200 per year on administering stricter controls. In practice, this could include higher-grade personal protective equipment (such as full-face respirators instead of half-masks, or disposable coveralls instead of standard workwear) to reduce workers' exposure.

Table 11 | Estimated average annual cost increase per employer by business size and WEL change group ($)[54]

WEL change group	Business size		
	Small	Medium	Large
Additions to the WEL list	9,200	35,900	1,379,200
WEL value increases	0	0	0
WEL value reductions	1,400	6,500	419,200
NTGCs	1,800	8,400	544,900

The estimated costs in Table 11 vary substantially across small, medium and large employers:

- Larger employers often run multiple processes and work areas, requiring integrated engineering controls (e.g., enclosure and balanced local exhaust ventilation across several bays), centralised exposure monitoring and more extensive change-management.
- Medium employers often face a mix of engineering upgrades and procedural changes. For example, a transport depot tightening diesel controls through improved maintenance, retrofitted filters and enhanced ventilation.
- Smaller firms can sometimes meet requirements through measures such as upgraded PPE, housekeeping and product substitution.

However, it is not the case that only large businesses invest in higher-order controls: where risks are significant, small firms may still need capital upgrades (e.g., a spray booth for solvent use or high hazard industrial dust extraction in joinery) to achieve compliance.

The values presented are indicative averages and do not represent site-specific quotes. Actual costs for each business will depend on factors such as baseline controls, facility layout, duty cycle, process mix and supplier pricing.

[54] Based on data from the SWA 2019 Decision RIS, indexed to 2025 values.

Compliance costs associated with additions to the WEL list (new limits introduced for certain hazardous substances)

Employers affected by additions to the WEL list are those that use hazardous substances which previously had no regulatory exposure limits. While all employers are required to provide a safe working environment, these employers are expected to face higher compliance costs because the scale, extent and rigour of controls required under the new limits will likely go beyond what may have been in place previously. In many cases this will involve establishing or upgrading control frameworks, including isolation controls, engineering systems, administrative procedures and personal protective equipment programs. Unlike employers complying with existing WES values, those affected by additions to the WEL list may have fewer existing systems to build upon and therefore need to make more substantial investments to meet the new requirements.

Employers affected by additions to the WEL list may face costs that vary by business size and the specific control measures required. This RIS sought to obtain updated estimates for the impact analysis through the survey of Victorian businesses, however, while some estimates were provided, the number and level of detail of responses were insufficient to draw meaningful conclusions for the quantitative impact analysis. In the absence of robust new primary data, the analysis has drawn on the cost estimates developed in the SWA 2019 Decision RIS, updated to 2025 values. Table 12 shows the estimated average annual costs of each control measure and management practice by business size in 2025. These estimates apply broadly across all employers and should be interpreted as indicative rather than precise measures of compliance costs.

Table 12 | Estimated average annual cost of control measures and practices by business size ($)[55]

Control measure or management practice	Business size		
	Small	Medium	Large
Isolation controls	2,984	20,430	710,707
Engineering controls	3,220	7,988	806,483
Administrative controls	14,256	35,431	422,409
PPE	808	3,606	170,932
Air monitoring	1,230	5,513	280,736
Occupational hygienists	2,768	14,398	334,861

Compliance costs associated with WEL value reductions (more stringent exposure limits)

Employers affected by WEL value reductions that already operate in compliance with existing WES values may have established control measures and management practices to comply with current requirements. However, the more stringent limits could require these employers to upgrade or strengthen their existing control systems to comply with lower exposure limits.

The compliance costs for these WEL change groups are generally lower per employer than for agreed WEL values because employers can build upon their existing control infrastructure rather than implementing new systems. The incremental cost represents the estimated additional investment needed to bridge the gap between current control effectiveness and the performance required under the agreed WEL value changes.

[55] Total costs in Table 9 are higher than the per-business costs in Tables 8 because the latter are weighted by the proportion of businesses likely to use each control, while Table 9 presents unweighted (raw) costs per control. For instance, not all small businesses exposed to hazardous substances would implement every control measure. Weighting the estimates in Table 9 by control usage and business size therefore produces lower average per-business costs.

Compliance costs associated with NTGCs (to ensure exposure is as low as reasonably practicable)

Employers using substances that earlier had WES values, but now are being reclassed as NTGCs without any safe exposure limit will need to implement higher order control measures beyond what may be required to comply with defined limits. For example, an employer who is required to ensure exposure is as low as is reasonably practicable[56] for an NTGC may be required to eliminate the substance from their business processes or, if this is not reasonably practicable, find an alternative substitute to replace the NTGC.

This impact analysis assumes that the costs incurred by employers to implement these higher order control measures for NTGCs are greater than the costs incurred by employers that currently use substances affected by WEL value reductions.

5.4 Sensitivity analysis

A sensitivity analysis of the estimated costs and benefits associated with the adoption of the WEL list was conducted to test the robustness of the estimates by exploring how variations in key assumptions and data inputs may influence the overall results.

The analysis compares the estimated costs and benefits of the adoption of the WEL list across three scenarios – low, central, and high. The central scenario represents the best estimate based on available data and inputs. The low scenario assumes all variables are set to their lower bound values, while the high scenario assumes all variables are set to their upper bound values.

For example, in the low scenario, the number of affected employers, compliance costs, and WEL value effectiveness at reducing disease burden are all assumed to be 25% lower than the base estimates, while the burden of disease estimates are set to their lower values. Conversely, in the high scenario, each of these variables is set to its upper bound value. The discount rate is maintained at 7% for all scenarios.

Table 13 summarises the variables and values used in the sensitivity analysis.

Table 13 | Sensitivity analysis scenario variables and values

Variable	Low	Central	High
Discount rate	7%	7%	7%
Number of employers	75%	100%	125%
Compliance cost	75%	100%	125%
Number of relevant hazardous substances	75%	100%	125%
Burden of disease estimates[57]	Low	Mean	High
WEL value effectiveness	75%	100%	125%

Uncertainty in estimated costs

The costs estimated in this analysis are uncertain due to the diversity of affected employers and the range of hazardous substances covered by the WEL list. Employers vary in their existing control measures, management practices, and capacity to implement changes. To account for this, the cost scenarios incorporate:

[56] WorkSafe defines "reasonably practicable" as an objective test that requires duty-holders to act as a reasonable person would in providing the highest level of health and safety protection and proactively managing risks, weighing the likelihood and severity of harm, the state of knowledge about the hazard and controls, the availability and suitability of risk-reduction measures, and their cost, with a clear presumption in favour of safety (WorkSafe Victoria, *How WorkSafe Applies the Law in Relation to Reasonably Practicable*).

[57] High, mean, and low estimates were sourced from AIHW and used as inputs to the analysis.

- **Number of employers affected:** to reflect uncertainty in the proportion of businesses using hazardous substances or affected by the agreed WEL list.
- **Individual compliance costs:** to capture variation in the cost of implementing controls, recognising that expenses will differ by employer depending on existing systems, workforce size, and operational complexity.
- **Number of relevant hazardous substances:** to test how differing the number of substances used per business affects total compliance costs.

These variations reflect the lower and upper bounds of incremental compliance costs across small, medium, and large employers.

Uncertainty in estimated benefits

Benefit estimates are also uncertain. The benefits scenarios consider:

- **Burden of disease estimates:** to reflect statistical uncertainty in the estimated health impacts associated with occupational exposure, using lower, mean, and upper bounds from the IHME Global Burden of Disease Study.
- **WEL list effectiveness:** to account for uncertainty of the extent to which adopting the WEL list reduces occupational disease burden, acknowledging that not all exposure-related health outcomes may be fully eliminated.

These scenarios aim to capture the full spectrum of potential health and economic benefits to workers, employers, and the broader community.

Summary of results

The sensitivity analysis shows that the total estimated costs range from $3.6 billion to $9.9 billion over ten years, compared to the central estimate of $6.3 billion used throughout this analysis. The total estimated benefits range from $1.3 billion to $4.3 billion, compared to the central estimate of $2.9 billion.

Table 14 provides a summary of the range of estimated costs and benefits across the low, central and high scenarios.

Table 14 | Summary of estimated costs and benefits under all scenarios ($ billions, discounted)

Scenario	Total costs	Total benefits
Low scenario	3.6	1.3
Central scenario	6.3	2.9
High scenario	9.9	4.3

The sensitivity analysis shows that varying key assumptions together – including the number of affected employers, compliance costs, and health burden estimates – has a significant impact on model outputs. This is expected, as these parameters are direct drivers of both total costs and total benefits in the model.

Changes in costs and benefits occur largely in proportion to the input changes across the low, central, and high scenarios. In other words, when key inputs increase or decrease, both costs and benefits tend to shift by a similar proportion. This suggests that while the model is sensitive to the magnitude of these inputs, the underlying responsiveness of costs and benefits to those inputs is similar.

The main factors driving variance across scenarios are:

- **Number of employers and compliance costs:** Based on the current methodology, these are near-linear multipliers for total costs. Changing either assumption by 25% will result in an almost equivalent 25% change in overall costs.
- **Burden of disease estimates:** Drawn from AIHW data, these directly determine the number of DALYs avoided and therefore have a significant influence on the total benefits estimated.

- **WEL list effectiveness:** This parameter reflects the assumed proportion of disease burden avoided through adoption of the WEL list. It operates as a direct multiplier and accounts for much of the variation in total benefits.

Across all scenarios, however, total costs remain greater than total benefits, indicating that the overall cost–benefit relationship is not sensitive to these assumptions and that the direction of the results remains unchanged.

Sensitivity to discount rate

To assess how sensitive the results are to changes in the discount rate, a separate analysis was conducted where all other variables were held constant at their central values. This isolates the impact of the discount rate on the estimated total costs and total benefits.

Table 15 summarises the results across the low (4%), central (7%), and high (10%) discount rate scenarios.

Table 15 | Summary of estimated costs and benefits when varying the discount rate ($ billions, discounted)

Scenario	Total costs	Total benefits
Low scenario (4%)	7.8	3.5
Central scenario (7%)	6.3	2.9
High scenario (10%)	5.2	2.4

Varying the discount rate has a moderate but predictable effect on the model outputs. As expected, higher discount rates reduce the present value of both costs and benefits by decreasing the weight placed on future impacts.

The results show that both costs and benefits decline in broadly similar proportions as the discount rate increases from 4% to 10%, indicating that the relationship between these variables and the discount rate is consistent across scenarios.

While the magnitude of both costs and benefits changes, total costs remain higher than total benefits under all discount rate assumptions, suggesting that the overall cost–benefit balance is not materially affected by the discount rate.

Sensitivity to timing of benefits realisation

The analysis assumes that the attributable disease burden is avoided in full from the first year of implementation. For example, all DALYs attributable to occupational exposure to arsenic due to the agreed WEL list are assumed to be avoided immediately upon implementation. This simplifying assumption likely overstates benefits in the short term, as some occupational diseases have long latency periods and would not reduce immediately once the agreed WEL list is adopted.

The health benefits considered in this analysis can be grouped according to the different latency periods of diseases caused by occupational exposures, which influence the timing of when benefits are likely to be realised. For example:

- **Short latency period | Occupational asthma resulting from exposure to asthmagens.** The latency period for occupational asthma is relatively short, ranging from weeks to months, with the highest risk typically occurring within the first year of exposure.[58]
- **Long latency period | Chronic obstructive pulmonary disease (COPD) resulting from exposure to occupational particulate matter, gases and fumes (OPMGF).** The latency period for COPD is long, with risk factors often requiring decades of cumulative exposure before abnormal lung function can be detected.[59]

[58] British Thoracic Society (2022), *Clinical Statement on Occupational Asthma*.
[59] Lu, Zeng & Chen (2021), Early Chronic Obstructive Pulmonary Disease: A New Perspective.

- **Long latency period | Lung cancer resulting from exposure to substances** such as arsenic, beryllium, and cadmium, which have an extended latency period of at least a decade and often much longer.[60]

The current analysis does not adjust for the latency periods for COPD and lung cancer, and therefore likely overestimates the net present value of benefits, as many of these benefits will accrue beyond the 10-year life of the OHS Regulations.

To test the sensitivity of this assumption, two alternative scenarios were modelled. One in which all health benefits are realised immediately, and another where only asthmagen-related benefits are realised immediately, and benefits associated with COPD and lung cancer are assumed to occur outside the 10-year period. This results in significantly lower estimated benefits overall. However, this does not mean the actual benefits from these exposure reductions are not realised, rather, they are expected to occur beyond the 10-year appraisal period, which is common for occupational diseases with long latency periods. Table 16 provides an overview of costs and benefits across the two scenarios.

Table 16 | Summary of costs and benefits varying timing of benefits realisation ($ billions, discounted)

Scenario	Total costs	Total benefits
Immediate realisation	6.3	2.9
Delayed realisation	6.3	0.7

[60] Howard (2014), Minimum Latency & Types or Categories of Cancer, World Trade Center Health Program.

6 Summary of preferred option

This section details the preferred option (Option 2) based on the impact analysis of each option, stakeholder feedback and alignment with government objectives.

In line with the WHS Ministers' decision to adopt the WEL list from 1 December 2026, Option 2 is the preferred option. This position is consistent with the government's objective to reduce harm in the workplace and protect the wellbeing of Victorian workers.

The agreed WEL list reflects the latest scientific evidence on safe levels of exposure to hazardous substances and is expected to offer stronger protection for workers' health and safety by reducing the risk of harm from exposure to hazardous substances in the workplace. Adopting the agreed WEL list will also ensure that national consistency for exposure standards is maintained.

Under Option 2, employers will be required to review the hazardous substances used in their workplaces to identify any that are affected by changes from the WES list to the WEL list. For substances with lower (more stringent) WEL values, employers will need to assess whether their current control measures remain adequate. Where necessary, they must update risk assessments, revise work practices, and implement additional controls such as improved ventilation or enhanced personal protective equipment to ensure compliance with the new limits.

However, the impact analysis found that the estimated costs of adopting the agreed WEL list are expected to significantly exceed the estimated quantified benefits. The estimated compliance costs for Victorian businesses are approximately $6.3 billion over 10 years, compared with estimated benefits of approximately $2.9 billion over 10 years. The sensitivity analysis shows that the total estimated costs range from $3.6 billion to $9.9 billion over ten years and the total estimated benefits range from $1.3 billion to $4.3 billion.

Based on these quantified impacts, the conclusion of the impact analysis would be to maintain the status quo (Option 1). However, this does not account for a range of unquantified benefits including increased employer productivity, continued national regulatory alignment and improved public confidence that workplaces are safely managed. For the overall benefits of the preferred option to bridge the costs and benefits gap, the unquantified benefits would need to be valued by stakeholders at approximately $3.4 billion over the next 10 years.

Option 2 would maintain national consistency for workplace exposure standards and provide significant long-term health and productivity benefits to workers, employers and the community. These include:

- **Improved health outcomes and reduced burden of disease**: The adoption of the WEL list is estimated to avoid 1,700 disability-adjusted life years (DALYs) per annum, reflecting fewer cases of premature death and chronic illness attributable to occupational exposures to hazardous substances. This equates to about one healthy year of life per 310 workers saved per year.
- **National regulatory alignment and simplified compliance:** Continuing to align Victoria's exposure limits with other Australian jurisdictions will avoid future regulatory duplication and differing compliance requirements for employers operating across multiple jurisdictions.
- **Increased productivity in the workplace:** Employers are expected to see improved workforce performance with reduced illness, faster recovery times through reducing the incidence of serious illness, and lower absenteeism and presenteeism.
- **Improved public confidence**. Adopting standards based on the latest scientific evidence can strengthen community confidence that Victorian workplaces are being managed safely and responsibly.

Stakeholder feedback

During consultation on the preparation of this RIS, stakeholders expressed a range of views on adopting the WEL list. These are summarised in Appendix C.

While some stakeholders acknowledged the potential health benefits of adopting the agreed WEL list, others raised concerns about the financial impacts on employers. These perspectives have been considered in the development of this RIS.

The release of this RIS provides an opportunity for stakeholders to further consider the options presented and share their feedback on the estimated impacts of adopting the agreed WEL list.

7 Small business and competition assessment

This section assesses the small business and competition impacts of the preferred option.

7.1 Small business impacts

Small businesses may face greater challenges in meeting the new regulatory requirements. They may experience disproportionate effects from regulation because they often have more limited resources to understand and comply with requirements compared to larger businesses. Small businesses may also lack the economies of scale to absorb the costs of implementing new control measures which can be relatively better managed in larger businesses.

These limitations mean that small businesses are likely to be more significantly affected by the adoption of the WEL list. The additional costs of complying with the WEL list will vary by which WEL change group affects them. Small businesses are estimated, on average, to face additional annual costs ranging from $1,400 for WEL value reductions up to $9,200 for additions to the WEL list (previously unregulated hazardous substances).

The cost of implementing higher order control measures and associated requirements, such as air and/or health monitoring, and sampling and measurement, to comply with the WEL list, where relevant, could be challenging for smaller and medium-sized operations, and could potentially adversely affect business viability. One example raised in industry consultation was the impact of the WEL for diesel particulate matter (DPM) on small and medium-sized businesses in the automotive industry. These businesses could incur significant capital investment costs to install new control measures (e.g. ventilation infrastructure in mechanic repair shops) beyond current practices. Industry stakeholders noted that installation of these control measures may be less feasible for some small and medium-sized businesses that lease the buildings they operate in.

Feedback from stakeholders indicates that small businesses often need more time and support to understand requirements, secure specialist advice and maintain records. These insights reinforce the need for tailored support and transitional arrangements to help small businesses to comply with the WEL list without undue hardship.

> *"The WEL may improve clarity around safe chemical use, but for small family farming operations, the administrative and compliance burden is significant. The need to track limits, maintain records, and possibly engage specialists adds pressure to already stretched resources. Any benefit will depend on whether support is provided to help smaller businesses meet these new requirements without excessive cost or complexity."*
>
> Web-based survey respondent

To help address these impacts, the implementation plan for the WEL list includes targeted support for small businesses. This will involve providing clear guidance, education, and training materials to employers well ahead of the commencement date for the new requirements, ensuring that small businesses are informed and prepared to comply with WEL list. WorkSafe will also look to leverage guidance and communication materials being developed by SWA.

7.2 Competition assessment

This RIS has considered whether the adoption of the WEL list from 1 December 2026 will restrict competition for affected businesses by limiting or preventing the ability of employers and individuals to enter and compete in particular markets. In undertaking this competition assessment we have considered questions such as:

- Is adopting the WEL list likely to affect the market structure of the affected sector(s) – i.e. will it reduce the number of participants in the market, or increase the size of incumbent businesses?
- Will adopting the WEL list make it more difficult for new businesses or individuals to enter the industry?

- Will the costs/benefits associated with adopting the WEL list affect some firms or individuals substantially more than others? (e.g. small businesses)?
- Will adopting the WEL list restrict the ability of businesses to choose the price, quality, range or location of their products?
- Will adopting the WEL list lead to higher ongoing costs for new entrants that existing businesses do not have to meet?
- Is the ability or incentive to innovate or develop new products or services likely to be affected by adopting the WEL list?

The adoption of the WEL list in Victoria may affect competition across a range of industries that use hazardous substances in the workplace. Table 17 considers the potential extent of these impacts.

Table 17 | Potential competition impacts of the adoption of the agreed WEL list

Competition impact	Assessment
Industry concentration and business viability	The costs of implementing higher order control measures have the potential to impact industry concentration and business viability. Industry stakeholders consulted as part of this RIS process noted concerns for the viability of smaller businesses that do not have existing control measures in place, or for businesses where implementation of higher order control measures would be challenging.
Increased barriers to entry	Adopting more stringent exposure limits may impose additional barriers to entry through increased compliance costs associated with implementing higher order control measures (e.g. installation of isolation or ventilation infrastructure).
Disproportionate impacts on small business	Adopting more stringent exposure limits may have disproportionate impacts on businesses that incur increased compliance costs to ensure exposure to hazardous substances in the workplace does not exceed the limits. Consultation with industry associations noted that these cost impacts may not be proportional – larger businesses who already have existing controls in place may not incur the same additional costs (on a proportional basis) as smaller and medium-sized businesses.
Restrictions on business choice	It is not anticipated that the adoption of the agreed WEL list will significantly restrict the ability of businesses to choose the price, quality, range or location of their products.
Increased ongoing costs for new entrants	It is not expected that the adoption of the agreed WEL list will lead to higher ongoing costs for new entrants that existing firms do not have to meet. Any ongoing costs related to the necessary control measures would be incurred by both new entrants and existing firms.
Incentives to innovation	It is not anticipated that the ability or incentive to innovate or develop new products or services is likely to be affected by the adoption of the agreed WEL list.

The adoption of the WEL list from 1 December 2026 is not expected to significantly affect competition for Victorian businesses compared to businesses operating in other jurisdictions because:

- All Victorian businesses that use substances with a agreed WEL value are subject to the same regulatory requirements
- Victoria's adoption of the WEL list would align with the adoption of the WEL list nationally, meaning that employers operating across jurisdictions will face consistent standards.

Any potential adverse impacts on competition are considered to be much lower than the potential health benefits from reduced exposure to hazardous substances in the workplace in these industries.

The implementation plan for the agreed WEL list includes targeted support for small businesses designed to help manage the potential impacts on competition in affected industries.

8 Implementation plan

This section outlines the implementation plan for the preferred option. It sets outs the proposed deliverables for the implementation phase, and the compliance and enforcement approach.

8.1 Implementation and support

In 2024, WHS Ministers agreed to the changes in the WES list to form the WEL list, and a harmonised transition across Australia for the adoption of the WEL list, excluding the nine hazardous substances that are still under review by SWA. WHS Ministers also agreed to a harmonised transitional period for duty holders to comply with the WEL list, with an implementation date of 1 December 2026.[61]

To support Victorian employers in implementing the agreed WEL list from 1 December 2026, a transitional period is proposed to align with the national adoption timing agreed by WHS Ministers. Therefore, the new requirements would commence in Victoria on 1 December 2026.

Stakeholders consulted as part of the development of this RIS emphasised the importance of guidance on WEL list terminology and practical tools to support employers to comply with the WEL list. Stakeholders uniformly noted that there is low baseline awareness of the WES and WEL list among many small- and medium-sized businesses. Some industry associations indicated that some operators may be unfamiliar with the WES terminology and requirements for monitoring and compliance.

> *"Need simple guidance for small business owners in the different sectors. Some guidance on what we should be typically aware of in our industry and the best methods of protection for my workers. Love to have a document or PDF that lists the typical substances and chemicals we should be aware of and how best to work safely with them."*
>
> Web-based survey respondent

WorkSafe will work closely with industry groups to support implementation of the WEL list through:

- **Education and awareness**: education and awareness activities will be undertaken to communicate the changes from the WES list to the WEL list.
- **Practical tools and resources**: appropriate guidance would be developed or existing guidance updated to support duty holders, including plain English guidance tailored to those small businesses with low baseline awareness of WES and WEL list terminology.
- **Clarity on compliance**: clear explanations of the hierarchy of controls, its application in the WEL list context, and how compliance will be assessed would be provided, especially for hazardous substances where there are significant reductions to exposure levels in the WEL list.

At a national level, SWA is also developing technical guidance (for occupational hygienists) as well as non-technical guidance (for employers and duty holders) to support the transition to the WEL list. WorkSafe will leverage the resources being developed by SWA and will coordinate with SWA to ensure consistent messaging and avoid duplication.

WorkSafe will also monitor stakeholder feedback during the transition and may refine guidance materials or support strategies as needed.

[61] Safe Work Australia, *Workplace exposure standards review*.

8.2 Compliance and enforcement

WorkSafe's approach to compliance and enforcement following the introduction of the agreed WEL list will be in line with its existing compliance and enforcement policy.[62]

WorkSafe recognises that the move to the agreed WEL list will be a significant change for many employers. Employers may need to:

- undertake exposure monitoring to identify work groups at risk of exceeding a more stringent exposure standard
- identify new controls required
- implement the controls (some of which may be relatively costly engineering controls) and review
- demonstrate compliance with new controls.

Following the implementation of the agreed WEL list requirements, WorkSafe will seek to employ an educative approach to compliance in the initial period, followed where necessary by proportionate, risk-based oversight and enforcement that is aligned with WorkSafe's strategy of constructive compliance that includes (but is not limited to):

- capability building for inspectors and operational WorkSafe staff to ensure consistent and informed monitoring of compliance with the agreed WEL list
- encouraging compliance through engagement with and guidance to employers, workers, health and safety representatives and other stakeholders
- addressing non-compliance using existing mechanisms (e.g. undertaking workplace inspections, issuing improvement notices, prohibition notices etc.).

This broadly aligns with the suggestions of stakeholders consulted as part of developing this RIS, with stakeholders generally supporting a nuanced and proportionate enforcement approach.

[62] WorkSafe Victoria (2021), *Occupational health and safety compliance and enforcement policy*.

9 Evaluation strategy

This section details the evaluation strategy to assess how well the preferred option has been implemented in practice. It sets out who will be responsible for evaluating the effects of the preferred option, the timing of the evaluation, the baseline and progress indicators to evaluate the effects of the preferred option, and key evaluation questions that should be answered as part of the evaluation.

9.1 Objectives of the evaluation

WorkSafe will evaluate the extent to which the introduction of the agreed WEL list has achieved its intended outcomes, including improved worker health and reduced exposure to hazardous substances.

9.2 What will be measured

Key questions of the evaluation will include:

- How well have employers complied with the agreed WEL list?
- What impact has the regulatory change had on exposure levels and health outcomes?
- What impact has the regulatory change had on compliance costs?

Indicators will include compliance rates, exposure monitoring data, compliance and enforcement activity data and stakeholder feedback. Data will be sourced from WorkSafe inspections, industry surveys and administrative records. Baseline data will be collected prior to the 1 December 2026 commencement to enable meaningful comparison over time. Any evaluations undertaken by SWA will be considered as part of the Victorian evaluation.

9.3 Timing and oversight

WorkSafe proposes to undertake the mid-term evaluation aligned with the mid-term evaluation of the OHS Regulations, as the WEL is an integral part of the OHS regulatory framework. The OHS Regulations are due to sunset in April 2027, if not remade prior. The mid-term evaluation of the remade OHS Regulations would likely be in 2032.

WorkSafe will lead the evaluation, with consultation with relevant industry stakeholders. Better Regulation Victoria will also be engaged to provide guidance.

9.4 Stakeholder involvement and reporting

Industry associations and affected businesses will be consulted to provide insights into how compliance with the WEL list is working in practice, any implementation challenges they experience, and any unintended impacts. Evaluation findings are expected to be shared through published reports and briefings. Insights from the mid-term review may inform adjustments to the implementation support provided by WorkSafe, particularly for small businesses.

Resources for the evaluation will be coordinated by WorkSafe in collaboration with Better Regulation Victoria.

Appendix A Hazardous substances

The following hazardous substances have been grouped for the purpose of the impact analysis for this Regulatory Impact Statement.

The substances in each group have been identified from the SWA *Changes to Workplace Exposure Limits – Effective from 1 December 2026* document.

Table 18 | Additions to the WEL list (31 hazardous substances)

Hazardous substance			
1,3-Dioxolane	Benzoyl chloride	Dimethyl sulfide	Peracetic acid
1-Bromopropane	Bisphenol-A	Diquat (respirable)	Phenyl isocyanate
2-Methylbutyl acetate	But-2-yne-1,4-diol	Ethylene thiourea	Polyvinyl chloride (respirable dust)
2,3-Pentanedione	Diacetyl	Flour (cereal) dust	Silicon carbide (non-fibrous dust) (inhalable)
2,4-Pentanedione	Dichloroacetic acid	Gallium arsenide	Terephthalic acid
2-Ethylhexanoic acid	Diesel particulate matter (as respirable elemental carbon)	Glyoxal	Tetrafluoroethylene
2-Ethylhexanol	Diethylene glycol monobutyl ether	Hexahydrophthalic anhydride	Tungsten, metal and compounds (as W)
5-nitro-o-toluidine (inhalable)		Indium phosphide	
Barium sulfate (respirable)			

Table 19 | WEL value increases (40 hazardous substances)

Hazardous substance			
2-Butoxyethyl acetate	Ethyl acrylate	Nitrous oxide	Propane-1,2-diol (particulates only)
Acetic anhydride	Ethylidene norbornene	n-Propyl nitrate	Propylene glycol dinitrate
Acrylic acid	Hexane (n-Hexane)	o-Chlorobenzylidene malononitrile	Resorcinol
Amitrole	Methyl ethyl ketone (MEK)	Osmium tetroxide (as Os)	Sodium persulfate
Ammonium persulfate	Methyl isocyanate (see Isocyanates, all)	Pentaborane	Tin, organic compounds (as Sn)
Azinphos-methyl	Methyl-tert butyl ether	Pentane	Tungsten, soluble compounds (as W)
Caprolactam (dust)	Monochloroacetic acid	Perchloryl fluoride	Uranium (natural), soluble & insoluble compounds (as H)
Cyclohexane	Naphthalene	Phorate	Zinc chloride (fume)
Dichloroethyl ether	n-Butyl alcohol	Phosgene	
Dimethylamine	Nitric acid	Potassium persulfate	
Enflurane			
Ethylamine			

Table 20 | WEL value reductions (177 hazardous substances)

Hazardous substance
1,4-Dioxane
1-Methyl-2-pyrrolidone
2,4,6-Trinitrotoluene (TNT)
2-Butoxyethanol
2-Ethoxyethanol
2-Ethoxyethyl acetate
2-Methoxyethanol
2-Methoxyethyl acetate
2-N-Dibutylaminoethanol
Acetone
Acetonitrile
Acrolein
Allyl alcohol
alpha-Chloroacetophenone
Ammonia
Ammonium perfluorooctanoate
Aniline & homologues
Arsenic & soluble compounds (as As)
Atrazine
Barium sulphate
Benomyl
Beryllium & compounds
Bitumen fumes
Borates, tetra, sodium salts (anhydrous)
Borates, tetra, sodium salts (decahydrate)
Borates, tetra, sodium salts (pentahydrate)
Boron tribromide
Boron trifluoride
Cadmium and compounds (as Cd)
Calcium cyanamide
Calcium hydroxide
Calcium oxide
Calcium sulphate
Camphor, synthetic
Carbaryl
Carbon disulphide
Carbon monoxide
Carbon tetrachloride
Chlorobenzene
Chloroform
Chlorpyrifos
Clopidol
Cobalt, metal dust & fume (as Co)
Cotton dust, raw
Cyanamide
Cyanides (as CN)
Cyanogen
Cyclohexanone
Cyclohexylamine
Cyclonite
Diacetone alcohol
Diazinon
Diborane
Dibutyl phosphate
Dibutyl phthalate
Dichlorvos (DDVP)
Dicyclopentadiene
Dicyclopentadienyl iron
Diethanolamine
Diethylamine
Diethyl ketone
Dimethylformamide
Dinitolmide
Diphenylamine
Di-sec-octyl phthalate
Disulfoton
e-Caprolactam (dust and vapour)
Epichlorohydrin
EPN
Ethion
Ethyl alcohol
Ethyl benzene
Ethyl butyl ketone
Ethyl chloride
Ethyl formate
Ethyl silicate
Ethylene glycol dinitrate
Ethylene glycol (particulate)
Fenamiphos
Fensulfothion
Ferbam
Furfural
Furfuryl alcohol
Glutaraldehyde
Grain dust (oats, wheat, barley)
Hydrogenated terphenyls
Hydrogen chloride
Hydrogen fluoride (as F)
Hydrogen peroxide
Iodine
Iron pentacarbonyl (as Fe)
Isoamyl alcohol
Isobutyl acetate
Isopropoxyethanol
Isopropyl acetate
Isopropyl alcohol
Lithium hydride
Malathion
Maleic anhydride
Manganese, dust & compounds (as Mn)
Manganese, fume (as Mn)
Mesityl oxide
Methomyl
Methyl 2-cyanoacrylate
Methyl acrylate
Methyl alcohol
Methyl bromide
Methyl chloride
Methyl formate
Methyl isoamyl ketone
Methyl isobutyl ketone
Methyl isopropyl ketone
Methyl n-butyl ketone
Methyl parathion
Methyl propyl ketone
Methylcyclohexane
Mevinphos
Mineral turpentine
Molybdenum, insoluble compounds (as Mo)
Molybdenum, soluble compounds (as Mo)
Monocrotophos
Naled
n-Butyl acetate
n-Butyl glycidyl ether (BGE)
Nickel carbonyl (as Ni)
Nickel sulphide roasting (fume & dust) (as Ni)
Nickel, metal
Nickel, powder
Nitric oxide
Nitroglycerine (NG)
N,N-Dimethylethylamine
n-Propyl acetate
Paraquat (respirable sizes)
p-Dichlorobenzene
Perchloroethylene
Petrol (gasoline)
Phenyl mercaptan
Phosphine
Phosphorus (yellow)
Phosphorus oxychloride
Phthalic anhydride
Piperazine dihydrochloride
Platinum, metal
Portland cement
Propane-1,2-diol total (vapour & particulates)
Propylene imine
Propylene oxide
Pyrethrum
Pyridine
Ronnel
sec-Butyl acetate
Silicon carbide
Sodium fluoroacetate
Stearates
Styrene, monomer
Sulphur dioxide
Sulphuric acid
Sulprofos
Talc (containing no asbestos fibres)
Temephos
tert-Butyl acetate
tert-Butyl alcohol
Tetrahydrofuran
Thallium, soluble compounds (as Tl)
Thionyl chloride
Toluene
Triethylamine
Trimellitic anhydride
Trimethyl benzene
Tungsten, insoluble compounds (as W)
Vinyl acetate
Vinyl toluene
Warfarin
White spirits
Wood dust (soft wood)
Zinc oxide (dust)
Zinc oxide (fume)

Table 21 | Prohibited substances and NTGCs (30 hazardous substances)

Hazardous substance			
NTGCs		**Prohibited substances**	
(bis)chloromethyl ether	Coal tar pitch volatiles (as benzene solubles)	Aldrin	Dieldrin
1,3-Butadiene	Dimethyl sulfate	Chlordane	Endrin
2-Nitrotoluene	Dinitrotoluene	DDT (Dichlorodiphenyl-trichloroethane)	Heptachlor
4,4′-Methylene bis(2-chloroaniline) (MOCA, MBOCA, 2,2'-Dichloro-4,4'-methylenedianiline)	Ethylene dichloride (1,2-Dichloroethane)		
Acrylamide	Ethylene oxide (Oxirane)		
Acrylonitrile (Vinyl cyanide)	Ethylenimine (Aziridine)		
Allyl chloride (3-Chloro-1-propene)	Hydrazine (Diamine)		
Allyl glycidyl ether (AGE, Allyl 2,3-epoxypropyl ether)	Lead chromate (as Cr)		
beta-Chloroprene (2-Chloro-1,3-butadiene)	o-Anisidine		
Catechol (Pyrocatechol, o-Dihydroxybenzene)	p-Anisidine		
Chromium VI compounds (including zinc chromates)	Tetranitromethane (TNM)		
	Vinyl Bromide (Bromoethylene)		
	Vinyl chloride, monomer (Chloroethylene)		

Appendix B Assessment methodology

This RIS applies the methodology established in SWA's 2019 Decision RIS and 2024 impact assessment, adapted for Victorian circumstances using:

- Victorian-specific industry and employment data.
- Stakeholder consultation with Victorian businesses and industry associations.
- Victorian workers' compensation data.

This approach ensures consistency with national assessments while capturing Victoria's unique regulatory and industry context. The cost and benefits are driven by three main components, the number of businesses affected, the additional cost of compliance, and the additional health benefits as a result of the WEL list changes.

Number of businesses affected

The businesses where workers may be exposed to the hazardous substances subject to changes represent a notable proportion of the total businesses operating across Victoria. Given the nature of the WEL list changes, it is expected that a large number of businesses will be impacted by the WEL list changes. This figure is calculated as follows:

- The total number of businesses in Victoria, by ANZSIC division, as of 2025, was identified using the count of businesses from ABS by business size.
- Based on figures estimated in the SWA 2019 Decision RIS, an estimated proportion of businesses assumed to have regular exposure to hazardous substances was applied to each ANZSIC Division.
- The probability that businesses in an ANZSIC Division use at least one of the in-scope hazardous substances was calculated based on the average number of hazardous substances used by those businesses in that Division, drawn from the National Pollution Inventory.
- This figure is then apportioned across the WEL change groups based on the number of hazardous substances in each WEL change group. Recognising that most businesses affected by WEL value increases are also likely to be affected by other WEL value changes (e.g. additions to the WEL list or WEL value reductions). As a result, no businesses are separately allocated to the WEL increase group.

The number of businesses which are estimated to be affected by the changes are provided in Table 22 below.

Table 22 | Affected businesses by WEL change group and business size in 2025

WEL change group	Business size		
	Small (1 – 19 employees)	Medium (20 – 199 employees)	Large (200+ employees)
Additions to the WEL list	16,149	1,230	102
WEL value reductions	92,208	7,021	584
Prohibited substances and NTGCs	12,503	952	79

The number of businesses estimated to be affected (by industry) for the purposes of the analysis is provided in Table 23 below.

Table 23 | Estimated number of businesses affected by WEL value changes, by industry and business size

Industry	Small	Medium	Large	Total
E - Construction	28,549	976	35	29,560
M - Professional, Scientific and Technical Services	17,820	992	48	18,860
G - Retail Trade	9,458	883	73	10,413
H - Accommodation and Food Services	9,019	724	55	9,797
Q - Health Care and Social Assistance	7,772	1,584	162	9,518
C - Manufacturing	7,939	1,139	42	9,120
S - Other Services	8,285	161	9	8,455
A - Agriculture, Forestry and Fishing	5,265	267	34	5,565
N - Administrative and Support Services	4,585	637	56	5,279
I - Transport, Postal and Warehousing	4,587	516	99	5,202
F - Wholesale Trade	4,543	206	10	4,759
L - Rental, Hiring and Real Estate Services	3,447	191	7	3,645
K - Financial and Insurance Services	3,454	141	25	3,621
P - Education and Training	2,355	345	46	2,746
R - Arts and Recreation Services	1,543	153	15	1,711
J - Information Media and Telecommunications	942	84	13	1,039
D - Electricity, Gas, Water and Waste Services	756	113	22	891
O - Public Administration and Safety	280	56	11	347
B - Mining	262	34	5	301
Total	**120,860**	**9,203**	**765**	**130,828**

Cost of complying with the WES list and additional costs of compliance from changes to the WEL list

The compliance costs associated with the agreed WEL list represent the incremental burden on businesses beyond current workplace exposure standard requirements. Given the scope of the changes across the 278 hazardous substances, significant additional compliance costs are expected across affected Victorian businesses.

In line with the methodology used in SWA's 2019 Decision RIS: Workplace Exposure Standards, this analysis splits costs into two categories:

- **Control measure costs:** Additional expenditure on isolation controls, engineering controls, administrative controls and personal protective equipment (PPE) to comply with the agreed WEL changes.
- **Management practice costs:** Additional expenditure on air monitoring and occupational hygienist costs to support compliance with the agreed WEL list.

The analysis uses standardised cost estimates from SWA's 2019 Decision RIS. These costs are outlined in Table 24 and are estimated as follows:

- Base case compliance costs are established for each WEL change group based on costs of complying with the current WES list, with baseline costs differing by WEL change group.
- Intervention case costs are determined for each WEL change group based on the additional control measure and management practices required to meet the changed WEL values.
- Cost weighting factors are applied to reflect the proportional change in compliance burden per WEL change group, based on the magnitude of WEL change and the corresponding control measure response required.
- The incremental compliance costs per business are calculated as the difference between the intervention case and base case costs within each WEL change group.

Table 24 | Average estimated incremental compliance cost per business by WEL change group and business size

WEL change group	Business size		
	Small (1 – 19 employees)	Medium (20 – 199 employees)	Large (200+ employees)
Additions to the WEL list	9,200	35,900	1,379,200
WEL value increases	0	0	0
WEL value reductions	1,400	6,500	419,200
Prohibited substances and NTGCs	1,800	8,400	544,900

Benefits to businesses and workers affected

The benefits of the agreed WEL list changes have been estimated using two complementary approaches: analysis of workers' compensation claims data and application of Global Burden of Disease (GBD) estimates. Together, these approaches provide a measure of both the financial impacts on the workers' compensation system and the broader health and productivity impacts to the Victorian workforce.

Workers' compensation claims

Workers' compensation benefits were estimated using data provided by WorkSafe for the mechanism group *"62 – Long Term Contact with Chemicals or Substances."*

- **Timeframe:** A five-year average of claims (2021–2025) was used to establish the baseline.
- **Fatal vs non-fatal split:** Claims were divided into fatal and non-fatal categories.
- **Attribution to hazardous substance exposure:** It was assumed that a proportion of selected claims were reasonably attributable to long-term exposure to hazardous substances.
- **WEL change factor:** To reflect that 278 WEL values are changing out of approximately 700, 40 per cent of the resulting claims were attributed as benefits of the WEL list.

This method provides an estimate of the avoided compensation payouts to employers and WorkSafe resulting from reduced occupational illness and injury under the agreed WEL list.

Global Burden of Disease (GBD) estimates

The broader health benefits of reduced occupational exposure were estimated using the IHME Global Burden of Disease study.

Exposure categories considered:

- occupational particulate matter, gases, and fumes
- occupational asthmagens
- occupational exposure to arsenic, cadmium and beryllium.

Categories not affected by WEL value changes were excluded.

- **Timeframe:** A five-year compound annual growth rate (CAGR) (2016–2021) was applied to account for recent trends.
- **DALY components:** Health impacts were split into fatal burden (years of life lost, YLL) and non-fatal burden (years lived with disability, YLD).
- **Scaling to Victoria:** GBD absolute estimates (national level) were scaled to Victoria using the proportion of national level worker compensation claims relating to hazardous substances or other substances which are from Victoria.
- **Monetisation:** The avoided DALYs were multiplied by the Australian Government's Value of a Statistical Life Year (VSLY), set at approximately $253,000, to derive the dollar value of health benefits.

This approach provides an estimate of the broader societal value of improved worker health and reduced premature deaths attributable to lower workplace exposure to hazardous substances.

Appendix C Stakeholder engagement

C.1 Objectives of consultation

Stakeholder engagement formed a key part of the RIS development. The objectives of the engagement were to better understand:

- the impact of the agreed WEL changes on Victorian employers
- the incremental costs for businesses and
- the benefits to workers, communities and businesses.

C.2 Consultation method

Industry associations and businesses operating in Victoria were engaged about adoption of the WEL list using two engagement channels:

- interviews with targeted Victorian and national industry associations, and
- a web-based survey of Victorian businesses.

The purpose of these consultations was to inform the analysis of the expected impacts of the reforms.

Meetings with targeted Victorian and national industry associations

Virtual interviews were conducted with representatives from five Victorian and national industry associations across a range of affected industries to better understand the potential impacts of the agreed WEL list on Victorian businesses.

A summary of the questions provided to industry stakeholders is included in Appendix C.5.

Web-based survey

The survey was delivered to businesses across Victoria included in WorkSafe Victoria's relevant mailing lists. Businesses were asked to provide feedback to inform the RIS through:

- identifying any challenges in meeting the new limits
- understanding the costs and operational impacts
- learning about any benefits that the changes may bring.

The survey questions for businesses are provided in Appendix C.6.

812 businesses responded to the web-based survey.

C.3 Key issues raised during consultation

Several issues were raised across the interviews with Victorian and national industry associations and by businesses through the web-based survey. These issues are summarised in Table 25.

Table 25 | Key issues raised during industry consultation

Issue	Findings
Awareness and understanding of the WES and WEL	• Stakeholders generally indicated that there is low baseline awareness of the WES and WEL lists among many small and medium sized businesses. • Some industry associations indicated that some operators may be unfamiliar with the workplace exposure standards terminology, and requirements for monitoring and compliance.
Concerns with justification for the WEL	• An industry association asked for clearer articulation of the evidence base underpinning the revised WEL list, especially for hazardous substances with a significant reduction in the agreed WEL values. They noted that they had not seen the information and analysis used by the expert panel to determine the new exposure levels.
Anticipated costs and operational impacts	• Businesses anticipate there will be additional costs for engineering controls, ventilation upgrades, process redesign, PPE, air monitoring, occupational hygiene services, training, documentation, and compliance administration. • Scheduling and downtime to install or validate controls were frequently noted as additional costs that would be incurred by business. These delay costs due to modifications to equipment and processes were noted by survey respondents as challenging to predict. • An industry association noted that access to occupational hygienists, particularly in regional areas, is a constraint likely to increase costs and cause delays. • Another industry association noted that cost impacts may not be proportional – larger businesses who already have existing controls in place will not incur the same additional costs as smaller and medium sized businesses who do not. Some industry associations noted that measurement and monitoring challenges at the lower exposure limits would increase both technical and administrative burden.
Industry-specific impacts	• An industry association flagged potential supply chain delays and downtime delays from longer ventilation periods for some processes to allow fumigation concentration levels to fall sufficiently. • An industry association indicated that increased controls may slow job completion which could create friction between employers and subcontractors who are paid per job. • An industry association noted the limitations for small and medium sized businesses who lease their workshops and may be less able to install the ventilation and mechanical extraction equipment required to meet their obligations under the revised WEL list – for example for diesel particulate matter.
Small business impacts	• Several stakeholders emphasised the cumulative burdens on small businesses and sole traders, including time to understand requirements, secure specialist advice and maintain records. • An industry association cited recent business closure and insolvency statistics[63] for Victoria as context for businesses being sensitive to further regulatory change.
Anticipated benefits	• Stakeholders had mixed views on the anticipated benefits of adopting the WEL list. • An industry association noted that it is hard to argue against the health benefits of adopting the agreed WEL list, while another industry association suggested that the changes will not have a material impact on worker exposure and health due to existing control practices being sufficient. • Approximately a third of the 43 survey respondents who responded to the question "What benefits do you anticipate from transitioning from the WES to the WEL?" noted improved health outcomes or reduced exposure to hazardous substances as an anticipated benefit. However, over half of the 43 survey respondents anticipate no additional benefits from adopting the WEL list.
Broader or unintended consequences	• An industry association stated that the potential requirement for smaller businesses to introduce higher order control measures would see a lot of businesses face financial challenges.

[63] Noting these are stakeholder-reported figures and were not independently verified within this consultation.

Issue	Findings
Transition arrangements and support to help industry	• There was strong support for a lenient implementation approach, with suggestions from one industry association to introduce a grace period to allow businesses sufficient time to adapt processes and control measures without immediate enforcement of non-compliance. • A stakeholder suggested that the 1 December 2026 implementation date is optimistic for allowing businesses in their industry time to prepare to be compliant with the revised WEL list. • A stakeholder suggested that businesses would benefit from Plain English, sector-specific guidance on "what good looks like" with supporting examples of the requirements related to WEL values. The association emphasised a preference for practical, prescriptive guidance over abstract principles. • In response to the survey, businesses asked for low-cost training and ready-to-use tools for small businesses to understand what is changing and what they need to do to comply. • Suggestions to support industry's transition to the WEL list included early targeted education, shared learning and monitoring data that can be applied from site to site, sector factsheets and templates.

C.4 Web-based survey responses

Demographics

Respondents were asked to provide responses to 17 questions in the survey. Approximately half of the 812 survey respondents reached the end of the survey questions (Table 26).

Table 26 | Number of respondents that reached the end of the survey (n=812)

Survey completion	Count
Reached the end of the survey	403
Did not reach the end of the survey	409
Total	**812**

450 survey respondents answered the survey question "Will your organisation be affected by the proposed change(s) from the WES to WEL?". Of these, 28 per cent indicated their organisation would be affected by the changes (Table 27).

Table 27 | Number of survey respondents affected by the agreed WEL (n=450)

Affected by WEL	Count
Yes	124
No	326
Total	**450**

492 survey respondents provided details on which industry their organisation operates in, and the size of their business. 77 per cent of respondents indicated their organisation is a small business (1-19 employees). More than 60 per cent of respondents operate in the construction, manufacturing or agriculture industries (Table 28).

Table 28 | Number of respondents, by ANZSIC industry and business size (n=492)

ANZSIC industry	Business size			
	1-19 employees	20-199 employees	200+ employees	Total
Construction	104	16	6	**126**
Manufacturing	73	26	4	**103**
Agriculture, forestry and fishing	59	10	3	**72**
n/a	38	6	1	**45**
Other services	32	2	5	**39**
Health care and social assistance	10	5	3	**18**
Professional, scientific and technical services	15	2	1	**18**
Unsure	10	4	1	**15**
Transport, postal and warehousing	9	2	0	**11**
Electricity, gas, water and waste services	7	3	1	**11**
Retail trade	2	0	5	**7**
Mining	5	0	1	**6**
Wholesale trade	2	3	0	**5**
Accommodation and food services	2	0	1	**3**
Public administration and safety	0	0	3	**3**
Education and training	2	1	0	**3**
Administrative and support services	3	0	0	**3**
Information media and telecommunications	2	0	0	**2**
Finance and insurance services	2	0	0	**2**
Arts and recreation services	0	0	0	**0**
Total	**377**	**80**	**35**	**492**

Compliance costs

More than half of the 75 survey respondents who responded to the question "If the WEL changes come into effect, do you expect to incur additional costs beyond your current costs of WES compliance?" indicated that they expect to incur additional costs if the WEL is adopted in Victoria. Of these 75 respondents, 23 indicated that they anticipate significant additional costs to implement additional control measures.

Respondents were asked to provide current cost estimates for complying with the WES list, and additional cost estimates for complying with the agreed WEL list beyond current costs of WES list compliance. Around 2 per cent of all survey respondents provided current cost estimates (Table 29) and additional cost estimates (Table 30) across all industries and business sizes.

Table 29 | Number of respondents that provided current cost data (n=812)

Current cost data provided	Count
Data provided	15
Data not provided	797
Total	**812**

Table 30 | Number of respondents that provided additional cost data (n=812)

Additional cost data provided	Count
Data provided	13
Data not provided	799
Total	**812**

Given the low number of survey responses where quantitative data has been provided, there was not sufficient costing data to incorporate into the impact analysis.

C.5 Stakeholder interview questions

1. What is your current level of awareness and understanding of the agreed WEL?
2. Are there specific hazardous substances in the agreed WEL that will significantly affect businesses in your industry?
3. What challenges do you foresee for businesses in your industry in implementing the agreed WEL? (e.g. technical feasibility, workforce training, compliance monitoring, monitoring equipment availability)
4. What are the expected additional costs of complying with the agreed WEL for businesses in your industry? For example, capital expenditure, operational equipment or administration costs.
5. Do you anticipate any unintended consequences of introducing the agreed WEL for businesses in your industry?
6. What benefits do you anticipate from adopting the agreed WEL? (e.g. improved worker health, productivity gains, or reduced absenteeism)
7. What support or resources would help businesses comply with the agreed WEL? (e.g. guidance materials, transitional arrangements)

C.6 Web-based survey questions

Section 1 – About your organisation

1. Is your organisation a private or public sector organisation?
2. What industry sector does your organisation primarily operate in? The options below follow the Australian and New Zealand Standard Industrial Classification (ANZSIC) system. If you're unsure, please describe your organisation in Question 3 below. (for ANZSIC Industry definitions, see link here: ANZSIC Industry definitions)
3. Please describe your organisation. (optional, complete this if you selected 'Unsure' in Question 1 or want to provide more detail)
4. How many sites does your organisation operate in Victoria?
5. How many employees does your organisation employ in Victoria?

Section 2 – Impact of agreed WEL changes

6. Does your organisation currently use hazardous substances that require active compliance with the WES? For more information on the WES, see link here: Workplace exposure standards for airborne contaminants - Safe Work Australia
7. Will your organisation be affected by the proposed change(s) from the WES to WEL? For more information about the proposed change(s), see link here: Workplace exposure limits for airborne contaminants - Safe Work Australia
8. If the WEL is implemented in Victoria, what percentage of your employees will be exposed to hazardous substances with WELs?
9. Are you aware of which specific hazardous substances in your workplace will be affected by the WEL changes?
10. The following hazardous substances are subject to changes from the WES to the WEL. They have been grouped into four categories based on the type of change. Select the relevant hazardous substances your organisation works with in Victoria.

Section 3 – Costs

11. The tables below includes control cost estimates from SWA's 2019 Decision regulation impact statement: WES framework under the model WHS Laws. Please indicate if these costs broadly reflect your organisation's control costs for each cost category.
12. Where you have answered 'No' in the previous question, please provide your organisation's current costs for complying with the WES.
13. If the WEL changes come into effect, do you expect to incur additional costs beyond your current costs of WES compliance?
14. If the WEL changes come into effect, what will be your organisation's estimated additional compliance costs for each cost category?
15. Are there any other impacts that you anticipate from transitioning from the WES to the WEL? For example, this may include implementation downtime costs or process changes.

Section 4 – Benefits

16. What benefits do you anticipate from transitioning from the WES to the WEL? For example, improved health outcomes for employees, financial benefits, social capital gain, sustainable competitive advantage facilitating entry to new markets with stricter exposure limits, brand trust, better stakeholder relationships, employer of choice, reduced staff turnover, improved audit and certification outcomes or other.

Section 5 – Additional information

17. You have arrived at the end of the survey. Is there any other feedback you would like to provide about the agreed WEL in Victoria as it relates to your organisation?