Impact Statement: Health and Safety at Work regulatory reform: Protecting people working with plant, structures, and doing hazardous work

Advising agencies	*Ministry of Business, Innovation and Employment*
Decision sought	*Approve regulatory obligations under the Health and Safety at Work Act 2015 to protect people working on plant and structures, at height and on excavations.*
Proposing Ministers	*Minister for Workplace Relations and Safety*

Summary: Problem and proposed approach

Problem definition

What problem or opportunity does this proposal seek to address? Why is Government intervention required?

Work-related risks from working with plant, structures, at height and on excavations are not being sufficiently managed by New Zealand's workplaces to prevent harm, resulting in a significant proportion of our work-related harm – a total of 652 deaths between 2008 and 2019 (averaging 54 per annum), which was 79% of the work-related fatalities.

Inconsistencies in managing these risks leads to workers and others being persistently exposed to avoidable risks, and continuing high rates of work-related harm. These risks are long-standing (such as those arising from inadequate guarding of dangerous machinery, falls from height, and unsafe machinery modifications) and are continuing to evolve in their complexity and nature with changes in technology and workplace practices (eg more wide-spread use of extended contracting chains). Risks are not being properly managed due to a variety of factors:

- The increasing complexity of risks and working arrangements
- Inconsistency of practices or conformity in compliance across duty holders, for the full range of risks of plant, and across its full life cycle (design and purchase through to disposal)
- The lack of a level playing field, resulting from regulations that are outdated, piecemeal and hard to understand and apply
- The prevalence of aging plant and poor quality secondhand plant in New Zealand.

Voluntary mechanisms – such as guidance – have not been enough on their own to address the high levels of harm caused by unsafe plant and poor working practices. Government regulation in this area is long-standing and required because of the complexity of risks, information asymmetry and externalisation of costs. Following the Pike River Coal Mine Tragedy, the health and safety at work regulatory system has undergone significant reform, leading to the introduction of modernised, performance-based requirements set by the Health and Safety at Work (HSW) Act 2015. Supporting regulations, however, are outdated, out of step with the HSW Act changes, difficult to understand, and have a series of weaknesses. Improvements recommended by both the

Royal Commission and Independent Taskforce on Workplace Health and Safety[1] are yet to be fully implemented.

Other countries have rates of work-related harm that are comparatively much lower, with New Zealand's rate of work fatalities approximately twice as high as that of Australia, and four times that of the United Kingdom (UK). These countries have more comprehensive regulations to manage the risks of plant, compared to New Zealand, providing more clarity to duty holders.

MBIE's view is that continued regulatory intervention is required:

- because of the significance of the risks and harm, with these risks predominantly having been covered by long standing regulation.
- to provide for similar risks to be treated consistently across sectors under a clear, logical framework.
- to ensure conformity of compliance across duty holders, where existing voluntary mechanisms such as approved codes of practice have been shown not to achieve consistency in compliance or a level playing field.
- to enable existing outdated regulations to be adjusted to correct specific weaknesses and modernised from prescriptive to largely performance or process based requirements. These provide more flexibility for the duty holder to determine the best way of meeting the obligation in their particular circumstance, while still providing the clarity and obligation needed to support them in meeting the primary duties of care. Where additional supporting information is needed, this can be provided for by safe work instruments, approved codes of practice, and/or guidance.
- to achieve consistency with the HSW Act legislative framework by allowing a proportionate layering of controls according to the level of risk being managed.

Summary of preferred option or conclusion (if no preferred option)

How will the agency's preferred approach work to bring about the desired change? Why is this the preferred option? Why is it feasible? Is the preferred approach likely to be reflected in the Cabinet paper?

The preferred option is a package of regulatory provisions, based on Australian Model Regulations, that require businesses to:

- provide and maintain safe workplace plant and structures, with extra protections for the highest risk plant such as boilers and cranes
- provide for the safety of operators of mobile plant (such as tractors, quad bikes, and forklifts) and passengers, through a suitable combination of safety devices flexible for the circumstances (such as roll-over and crush protection, seatbelts and helmets), and safe operating methods

[1] https://pikeriver.royalcommission.govt.nz/; and http://hastaskforcegovt.nz

- design, manufacture, import, and supply plant and structures that are safe for use in New Zealand workplaces by providing critical safety information and taking action to address identified risks early on in the supply chain
- ensure safe working at height and on excavations through risk management processes that are proportionate to the risk and harm.

Appendix 3 and the conclusions section provide further details on the requirements recommended.

This package is the preferred option because it implements a balanced set of provisions that are not unduly prescriptive, cater proportionately to different levels of risk, support existing Health and Safety at Work Act duties, and are equitable and cost effective. MBIE is proposing regulatory controls given the continuing high level of risks that less formal measures (eg guidance) have not been able to overcome.

The Cabinet paper will seek approval to this package of changes.

Summary impacts: Benefits and costs

Who are the main expected beneficiaries and what is the nature of the expected benefit?

The main expected beneficiaries from the package of proposals are:

- Workers, particularly in high risk sectors, from reduced workplace harm
- Owners and users of plant and structures from:
    - increased clarity and consistency of expectations
    - improved staff productivity from less work time lost as a result of workplace harm
- Purchasers and suppliers of plant, from improved condition and quality of the plant
- The wider public, due to:
    - improved consistency in the management of public safety risks (eg from large-scale industrial boilers, and amusement devices like rollercoasters and fairground rides)
    - reduced societal/economic costs from work-related harm.

For businesses who own and operate high-risk plant, MBIE's proposals for design registration and item registration are expected to lead to:

- better design and manufacturing standards for new classes of machinery, which sector and professional engineering groups also expect to see benefits from
- improved availability of specialist engineering expertise and higher maintenance and inspection standards
- improved levels of conformity with standards for classes of machinery currently covered by the regulations.

MBIE's assessment is that the scale of resulting benefits will be significant. We have formed this assessment based on:

- General agreement across submitters that changes will be offset by commensurate benefits
- The effectiveness of comparable regulations in Australia in terms of observable rates of workplace harm
- The current scale of the harm involving plant and structures (79 per cent of the work-related fatalities), which offers significant potential for improvement.

Work-related harm involves a variety of underlying causal factors, complicating the exercise of quantifying overall benefits from the proposals. MBIE's indicative estimates, based on comparable Australian statistics, are that the proposals can be expected to reduce fatalities and serious injuries by approximately 20 and 25 per cent respectively, equating to benefits of

approximately $43 million per annum in lives saved[2]. Our conclusions section sets out further details on our approach to calculating these estimates.

Where do the costs fall?

Proposals will mainly involve direct costs to duty holders that own or manage plant, with some wider costs to industries that make use of plant and structures, and purchasers of services involving plant.

Requirements for general plant and structures provisions – the general plant, mobile plant and upstream duties – will lead to the most widely distributed costs, as plant and structures are owned and operated throughout the economy and across a broad range of firm sizes.

Costs will mainly be operational, with additional training, inspection and engineering services, and some minor registration/documentation requirements.

In general, we consider these costs will be minor and diffuse throughout the economy. There are two likely exceptions to this:

- minor increases in costs to the agriculture sector through proposed changes to requirements for operator protection for mobile plant, and
- marginal cost increases for the manufacturing, retail, warehousing and transport sectors through new requirements on businesses to manage the risks of collision with pedestrians and objects.

In some cases there will be capital costs where equipment will need alteration or in some cases replacement to be made safe, but we consider these costs to be marginal for most businesses.

The more targeted regulatory proposals – high-risk plant, work at height and excavations duties – will have the most significant cost impacts on the engineering, construction, forestry, manufacturing, and leisure industries. These costs will also be distributed according to who holds equipment, but will be more significant for some larger businesses with significant stocks of industrial pressure boilers and other specialised equipment, such as tower cranes, chair lifts and gondolas. We have included a proposal for reducing registration and associated costs for operators of larger scale pressure equipment, which still allows the central plant registration process to achieve the desired outcomes.

There will be some additional costs for new classes of equipment subject to registration and associated inspection and/or verification of the plant's design. These are itemised for each class of equipment in chapter 5, "High-risk plant". We expect these costs will not be high for any but the largest businesses, and in most cases businesses are already meeting much of the expected inspection costs under current industry guidance. Current law requires regular inspection and maintenance of equipment by competent personnel, and the additional costs of registration and more formalised inspection processes will be marginal for businesses. At

[2] This figure is calculated based on the value of a statistical life ($4.56 million, on the basis of Treasury guidance), certain industry specific estimates of lives saved, and an estimate of a 20% reduction in fatalities for other industries.

the same time, we expect significant improvement in standards and conformity of compliance.

Associated fees are described in more detail in the Cost Recovery Impact Statement accompanying this document. Fees payable to WorkSafe will be distributed among individual owners and operators of high-risk plant:

- as registration fees for individual items of plant, or
- as a marginal cost added to the cost of plant that requires design registration (eg scaffolding and support systems used in the construction sector and vehicle hoists)
- as recognition fees for operators or large industrial installations.

There will be new fees payable to WorkSafe for recognition of inspection bodies which will be recovered from plant owners and operators through (marginal) increases in inspection costs.

There will be revised fees for:

- issuing of scaffolding licences, and
- territorial authority permitting of amusement devices (in a smaller number of situations).

There will be capital costs for some businesses where equipment that is currently uninspected is found to not meet standards and needs repairs or modification or needs to be replaced. Examples of this are “black steel” tubular scaffolding components that are likely to be phased out with new requirements, or clearer rollover protection standards for quad bikes and for pre-1967 tractors still used in a limited number of workplaces. As above, in general these increases in costs to individual businesses will be marginal.

We do not consider there will be any significant additional costs to businesses as a result of the proposed changes to regulations for working at height and excavations. The proposed new duty on businesses who manage or control workplaces to determine the presence of underground services before excavations begin will involve some additional costs to construction businesses that are not already following industry good practice.

In the main, stakeholders have confirmed costs will be offset by commensurate benefits.

What are the likely risks and unintended impacts? How significant are they and how will they be minimised or mitigated?

The risks involved with introducing recommended provisions fall into five broad categories:

- Implementation readiness risks
- Materially higher costs and/or lessened realised benefits
- Risks regarding low compliance by businesses
- Risks of associated adverse consequences from the proposals
- Risks of inconsistent or incomplete application by the regulator

Further details, including an assessment of the scale of the risk and relevant mitigating actions, are provided in the table below:

Risk	Assessed level of risk	Mitigation

Implementation readiness risks eg which lead to:
• Delays in delivering high-risk plant register of appropriate functionality
• Delays in the delivery of supporting WorkSafe guidance
• Insufficient WorkSafe personnel capacity
  ○ Technical
  ○ Programme and sector engagement
	Medium	Matters of implementation readiness will be further considered and accounted for in deciding on implementation phasing for different proposals, following further consultation.
		
		WorkSafe's implementation planning is underway, including for the following:
		• WorkSafe organisational training and internal policy development
		• The establishment of necessary infrastructure, such as the new centralised WorkSafe high risk plant registers
		• Supporting guidance material.

Materially higher costs and/or lessened benefits, eg due to • Inaccurate implementation costings for high risk plant registration and/or scaffolding licences • An unduly prolonged lead time, resulting in significant foregone benefits.	Low	Implementation timeframes will determined based on broad considerations such as: • Capital and business costs, which for high risk plant registration and scaffolding licences will be confirmed by further consultation • The need to ensure benefits for workers and others are not unduly delayed. MBIE and WorkSafe will continue to monitor impacts in accordance with the approach described in this RIA (see chapter 10), and will respond with corrective actions as appropriate.
Risks of low compliance by businesses eg due to: • Insufficient lead time • Limited capacity and resources of businesses to respond to the changes (eg due to COVID-19) • PCBUs encountering difficulties in accessing specialist advice and/or equipment inspectors • Lack of awareness and/or understanding of the requirements	Medium	Implementation phasing is being developed and will be further consulted on with stakeholders. MBIE notes that there are initiatives already underway (such as HASANZ's active programme to increase the number of health and safety specialists), targeting accessibility of specialist advisors. MBIE also is continuing to engage with wider groups (such as specialist engineering groups, and the Certification Body for Inspection Personnel (CBIP)) on implementation matters. WorkSafe has initial planning work underway on an extensive programme of supporting guidance updates.
Risks of adverse consequences eg from • A rise in the sale of poor quality plant 'as is' • Undue burden on PCBUs sourcing plant from offshore	Low-medium	MBIE has carried out extensive consultation on the changes. As recommended proposals incorporate a range of adjustments made in response to stakeholder feedback, MBIE has assessed the risk rating as low to medium for the series of changes recommended. Submitters had the following concerns about the proposed upstream duties: • That the requirements do not accommodate the complexities posed where plant is sourced from overseas. This is mitigated by the fact that the requirement is to take reasonable steps to

Risk	Assessed level of risk	Mitigation
		obtain information from offshore suppliers, rather than being absolute. WorkSafe guidance will also help duty holders to understand the requirements. • Suppliers may, in response to the requirements proposed, opt to supply secondhand plant 'as is'[3] rather than meet the new information requirements. This potential risk will be mitigated through the design of the regulation – purchasers will either be provided the required information about the plant by the supplier under the new requirement, or know they have to check the plant for faults if it is sold "as is" with no information provided. The requirements in the general plant section support this, as they require the PCBU who purchases the plant for use in their business to ensure it is safe for use. WorkSafe guidance will explain how this provision works. MBIE notes that requirements proposed for importers to exchange information from overseas-based designers is to be specified not as an absolute requirement, but instead as a requirement to do everything reasonably practicable to ensure this is achieved. MBIE has concluded, on balance, that recommended "upstream" requirements allow New Zealand's culture of purchasing secondhand plant, often with repurposing or modifications, to continue, but more safely than currently.[4]
Risks of inconsistent or incomplete application by the regulator	Low	WorkSafe has been extensively involved in the Plant and Structures Review from its early stages. A series of refinements to the proposals have been incorporated on the advice of WorkSafe. WorkSafe has implementation planning work underway, incorporating an extensive programme of inspector training as one element.

[3] Defined in section 42(7) of the primary Act as "sold without any representations or warranties about its quality, durability, or fitness and with the entire risks in those respects to be borne by the buyer".

[4] See for further details the 'Upstream Duty' Chapter of this RIA. .

Evidence certainty and quality assurance

Agency rating of evidence certainty?

MBIE has confidence there is a sound evidence basis for the changes recommended.

New Zealand has comprehensive administrative (SWIFT) data on outcomes in work health and safety covering injuries and work-related fatalities, these being the most severe types of harm we are seeking to address. On the basis of this data we are confident that the overall scale of benefits will be large, with 79 per cent of work-related fatalities able to be confirmed as linked to plant and structures.

Because of the way SWIFT data is collected[5], we have less depth of evidence as to the specific underlying causes of injuries and fatalities, inhibiting our ability to estimate impacts for individual recommended proposals. MBIE's assessments of benefits as a result draws on other sources such as:

- Coronial investigations – providing reporting into factors contributing to work-related fatalities
- WorkSafe inspectorate knowledge and experience
- Information on notifiable incidents reported to WorkSafe.

MBIE's expectation of large overall benefits has been guided by consideration of:

- The comparatively much lower rates of work-related harm experienced in Australia, under arrangements similar to those proposed
- The scale of notifiable events reported (1,800 notifiable incidents of exposure to risks of serious and immediate risk of harm, and 32,000 work-related injuries requiring a week or more absence from work, in 2019) and that these proposals will address the major causes of those incidents.[6]

Given the wide range of industries that these regulations cover, MBIE's in-depth consultation process formed an integral part of our cost analysis. Most feedback indicated that costs were acceptable, minor, or would be covered by significant benefits that outweighed costs imposed. Where consultation indicated disproportionate costs, we engaged with sector participants to modify the proposals.

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[5] Injury data comes from New Zealand's no fault accident compensation scheme, and is focused on identifying the nature of injury or illness that a person has, and the support they will need in recovering from, or living with their injury. While there is some data on the event that led to injury, and whether this was at work or out of work, the reason for injury is not the focus of this data collection.

[6] The most common injuries notified relate to:
- muscular stress whilst handling objects,
- falls (on the same level or from height),
- hitting or being hit by objects, and
- vehicle incidents.

To be completed by quality assurers:

Quality Assurance Reviewing Agency:
A Quality Assurance Panel with representatives from the Ministry of Business, Innovation, and Employment (MBIE) and the Regulatory Strategy Team at the Treasury has reviewed the 'Health and Safety at Work regulatory reform: protecting people working with plant, structures, and doing hazardous work' (RIA) produced by MBIE in March 2021.
Quality Assurance Assessment:
The Panel considers that the information and analysis summarised in the Impact Statement meets the criteria necessary for Ministers to make informed decisions on the proposals in this paper.
Reviewer Comments and Recommendations:
N/A.

Responsible Manager (signature and date):
Lisa Collins, Policy Manager Health and Safety Policy Workplace Relations and Safety Policy MBIE **11 March 2021**

Reader's Guide to this Regulatory Impact Statement

This Impact Statement covers a very broad set of issues for New Zealand's workplaces. It describes a wide range of options and proposals for change in six specific topic areas. This guide outlines the contents for ease of use for the reader.

The overview chapter provides an introduction and high level discussion, and each chapter provides more detailed problem definition, submitter feedback, option and impact analysis for each specific topic area. The conclusions chapter brings together recommendations across all topic areas.

Key terms and acronyms

Amusement Devices Regulations	***Amusement Devices Regulations 1978***
Approved Code of Practice (ACOP)	Regulator guidance and expectations on how to comply with HSW duties. Not legally binding but can be relied on in court for evidence of compliance.
Australian Model Work Health and Safety Law	A single set of work health and safety law to be implemented across Australian jurisdiction. Comprises the Model Act, the Model Regulations (AMR), and Model codes of practice. Provides the basis for New Zealand's *Health and Safety at Work Act 2015* and regulations.
Excavations	Excavations are a type of structure and vary from small scale trenching to deeper pits and shafts.
Design verification	A process of independent and expert peer review of the design of an item of plant.
General Risk and Workplace Management Regulations	***Health and Safety at Work (General Risk and Workplace Management) Regulations 2016***
Health and Safety in Employment Regulations	***Health and Safety in Employment Regulations 1995***
HSW Act	***Health and Safety at Work Act 2015***
Hierarchy of controls	A hierarchy of health and safety measures that is worked through to determine the most effective controls to manage health and safety risks in the circumstances. Part of a risk management process.
MBIE	Ministry of Business, Innovation and Employment
PCBU / business	Person conducting a business or undertaking (s 17, HSW Act). May be an individual but most commonly a business entity.
Operator protective device (OPD)	An engineered attachment that is fitted to mobile plant, designed to protect operators from injury, eg seat belts. Crush protection devices (CPD) are a type of OPD designed to protect operators from crush related injuries in the event of a rollover.
Plant	Includes any machinery, vehicle, vessel, aircraft, equipment (including personal protective equipment), appliance, container, implement, or tool; and any component of those things; and anything connected to any of those things (s 16, HSW Act), eg cranes, scaffold components, conveyors, forklifts, power tools, boilers, amusement devices such as theme-park rides
Prescribed Risk Management Process (PRMP)	PCBUs must deal with prescribed risks by following the risk management process prescribed in regulations 5 to 8 of the General Risk and Workplace Management Regulations (see page 22)

Pressure Equipment, Cranes, and Passenger Ropeway Regulations (PECPR)	***Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999***
Reasonably practicable	In relation to a duty of a PCBU, reasonably practicable means that which is, or was, at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters, including: likelihood, degree of harm, what the PCBU knows (or ought reasonably to know) about the hazard or risk and ways of eliminating or minimising the risk, the availability or suitability of ways to eliminate or minimise the risk, and after assessing the above, the cost, including whether the cost is grossly disproportionate to the risk (s 22, HSW Act).
Risk management requirement	A duty imposed under the HSW Act requires the duty holder to manage risks by, first, eliminating risks to health and safety so far is as reasonably practicable, and, if it is not reasonably practicable to eliminate risks, to minimise those risks as far as possible (s 30, HSW Act).
Safe Work Instrument (SWI)	Safe Work Instruments set out technical requirements for matters covered by regulations. Have the legal effect given them in regulation.
Structure	Means anything that is constructed, whether fixed, moveable, temporary, or permanent; and includes buildings, masts, towers, frameworks, pipelines, quarries, bridges, and underground works (including shafts or tunnels); and any component of a structure; and part of a structure (s 16, HSW Act).
Upstream businesses	Businesses that are upstream in the supply chain, such as designers, manufacturers, importers, suppliers, and installers of plant and structures in workplaces. Have specific duties in the HSW Act.
Working at height	Working at height includes civil and residential construction, roofing and associated trades such as plastering, painting and plumbing, and working at height in other sectors such as manufacturing and forestry.

Chapter 1: Overview

Section 1: General information

2.1.1 Purpose

The Ministry of Business, Innovation and Employment is solely responsible for the analysis and advice set out in this Regulatory Impact Statement, except as otherwise explicitly indicated. This analysis and advice has been produced for the purpose of informing final decisions to proceed with a policy change to be taken by Cabinet.

This Regulatory Impact Statement informs Cabinet policy decisions on proposed regulatory obligations under the *Health and Safety at Work Act 2015* (HSW Act) for protecting people:

- working with plant and structures
- working at height
- working on and in excavations.

The following regulations will be needed to implement these proposals:

- Health and Safety at Work (Plant and Structures) Regulations
    - Protections for people working with general plant, mobile plant, high risk plant and structures, and requiring these risks to be managed at the appropriate point in the supply chain.
- Health and Safety at Work (Hazardous Work) Regulations
    - Protection for people working at height and on excavations.

The proposed regulations will revoke and replace these existing regulations:

- components of the *Health and Safety in Employment Regulations 1995* (the HSE Regulations 1995)
- the *Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations 1999* (the PECPR Regulations)
- the *Amusement Device Regulations 1978*.

They will modernise and replace the obligations contained in the *Machinery Act 1950*, which was revoked by the HSW Act on its coming into force in 2016.

The regulatory obligations will provide the underpinning detail for duty holders to meet their primary duties of care under the HSW Act, by establishing the appropriate controls that the duty holders must put in place to do what is reasonably practicable to manage the risks arising from the work that they conduct.

These proposed controls will contribute to reducing the significant proportion of New Zealand's work-related harm caused by the risks from working with plant, structures, at height and on excavations.

The regulatory proposals are based on the Australian Model Regulations, adapted for New Zealand's circumstances. Section 217 of the HSW Act requires consultation with all appropriate persons and organisations, before making any recommendations for regulations. Significant consultation has been undertaken in developing these proposals.

2.1.2 Key limitations or constraints on analysis

The **scope** of this package of reform is broad. Risks arising from working with plant and structures, working at height and excavations occur in a wide range of New Zealand workplaces and are involved in the majority of New Zealand's work-related fatalities and serious injuries. The scope covers work-related risks arising from the full lifecycle of plant and structures, starting at design, through manufacture, import, use and maintenance, through to disposal.

The health and safety regulatory system provides the outer scope or constraint for the analysis – it covers risks arising from work and high risk plant, and has an explicit and long standing set of regulatory instruments and interventions.

Previous Cabinet decisions in the wake of the Pike River Coal Mine tragedy included reforming New Zealand's work health and safety legislation, through the adoption of the Australian Model Work Health and Safety Law (the Model Law), adapted to New Zealand conditions. This regulatory reform is a multi-year work programme.

This specific set of risks have been chosen as the focus for this stage of regulatory reform as they are used in or a part of a majority of New Zealand's workplaces, the controls for managing them are often inter-related, and collectively they result in a significant proportion of New Zealand's work-related harm.

Out of scope are:

- managing the risks arising from hazardous work (eg registration and certification for specific high risk occupations, noise, manual handling etc.), which will be considered as part of the next package of regulatory reform work. The exceptions are those closely linked to plant and structures – working at height and on excavations – which are included within this work stream.
- risks arising from structures already regulated under the *Building Act 2004*
- purely public safety risks, apart from those arising from amusement devices.

The range of options available are those contained within the established the HSW Act legislative framework – from regulations through to safe work instruments, approved codes of practice, and other forms of guidance. Figure 10 sets out further details on these options.

Assumptions underpinning our analysis include:

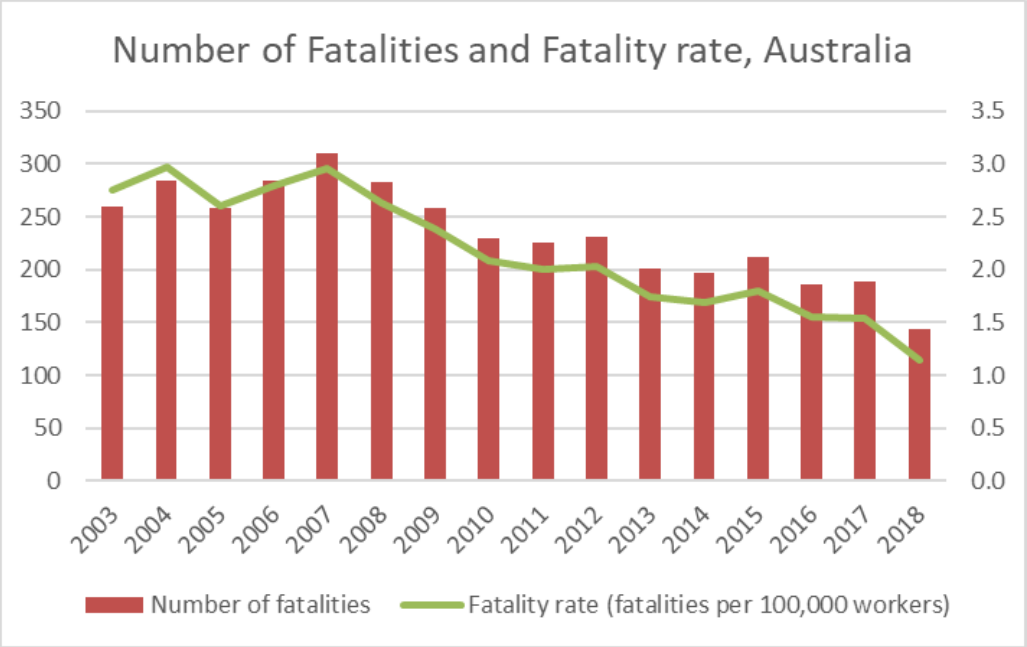
- that clearer regulatory requirements will prompt duty holders to comply by increasing understanding of how to manage their specific risks and by providing clear and proportionate penalties for non-compliance.
- that the New Zealand and Australian contexts are sufficiently similar that it is relatively straightforward to adapt the Australian Model Law to a New Zealand context. Basing the new regulatory regime on the Australian Model Law has significant advantages as it reduces the risk, time and resources required to

modernise the regulations, offers stakeholders greater certainty and consistency, and allows duty holders and regulators to take advantage of the Australian jurisprudence and operational experience.

- that implementation by WorkSafe will support duty holders to be aware of, understand, and meet the requirements

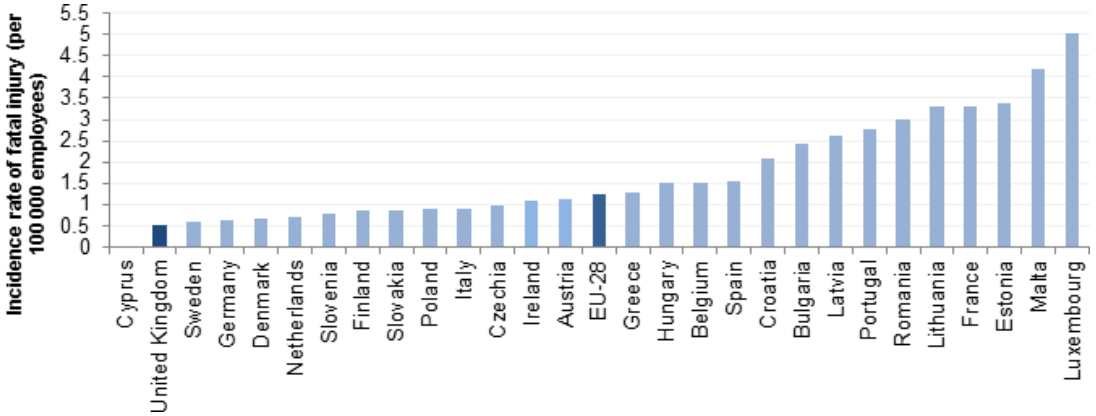
A further assumption is that following the Australian and United Kingdom (UK) requirements will allow for similar improvements in work health and safety outcomes. Australia has continued to improve its work health and safety outcomes following the development of its model laws in 2011, as shown by Figure 1.

Figure 1: Australian work-related fatalities and fatality rate



The UK, from which our duties-based legislation has developed, has a long-standing and world-leading health and safety record. The long term success of the UK can be seen in comparisons from Eurostat, where in 2016 the UK has the second lowest fatality rate amongst EU countries, at a rate of 0.5 fatalities per 100,000 workers, as shown by Figure 2. This is roughly a quarter of the rate of harm in New Zealand, which had a rate of 2.1 fatalities per 100,000 workers in the most recent confirmed data.

Figure 2: EU work-related fatality rates (2016)



New Zealand has improved its data quality over time for work health and safety outcomes at the system level. However, determining the causal impact of any specific regulatory change on those outcomes is more difficult. This limits the certainty in our options analysis, as we are not able to easily monetise the scale of benefits from the incremental regulatory change or separate out its contribution from the general duties in the primary Act. We cannot easily determine how many fatalities and injuries could be avoided through the better regulation of plant, structures, working at height and on excavations.

Our approach to monitoring and evaluation is similarly limited by this difficultly. We are also somewhat limited on the availability of data for specific regulatory changes. To mitigate this we intend to take the approach of monitoring the harm data we have available at a high level, and looking more deeply into specific proposals if we find harm is not decreasing over time.

In recognition of the wide range of stakeholders, our consultation[7] included a thorough process to ensure good feedback, inclusive of both an open invitation to submit on the discussion document and an extensive series of MBIE-facilitated stakeholder workshops, held at a range of regional centres over the course of the consultation period. Further targeted stakeholder workshops were held on those areas that needed the most additional input, where the initial feedback did not clearly support an option, or targeted stakeholder input was likely to clarify the costs and benefits.

Details on the consultation feedback are included in the option analysis section.

[7] The public consultation document is available at: https://www.mbiegovt.nz/dmsdocument/5932-implementing-the-health-and-safety-at-work-act-2015-better-regulation-plant-structures-and-working-at-heights-discussion-paper

Section 2: Problem definition and objectives

2.2.1 What is the current state within which action is proposed?

Plant, structures, working at height and excavations are used in or are part of **most** if not all **New Zealand workplaces**. They are used heavily in construction, forestry, agriculture, manufacturing and transport, and are found in all other workplaces that use machinery, vehicles and equipment. Businesses involved cover the lifespan of plant and structures, and include manufacturers, importers, designers, suppliers, end users, and those involved in decommission and disposal.

The risks arising from these types of work result in a significant proportion of New Zealand's work-related harm – 652 deaths involved plant and structures between 2008 and 2019, which was 79% of the work-related fatalities during that period. Of the 37,000 entitlement claims made to ACC in 2019 (these are more serious claims that include rehabilitation and compensation for lost earnings), plant and machine operators and assemblers had the highest number of claims (8,000) followed by trades workers (5,800), who also work predominantly with plant and structures. [8]

While there has been some progress in reducing the overall number of work-related acute fatalities in the last decade, plant and structures have steadily continued to account for about 50 fatalities per annum. This has remained even with the establishment of the stand-alone, single focus work health and safety agency in 2013, significant increase in work health and safety funding in 2014 and the new HSW Act and regulations in 2016[9]. Those broad reforms were not however targeted specifically at plant and structures risks and harms, unlike these regulatory proposals.

Figures 3 and 4 below describe the associated harm in more detail.

[8] Injury statistics – work-related claims: 2019 (provisional tables for 2019): https://www.stats.govt.nz/information-releases/injury-statistics-work-related-claims-2019

[9] While there is some variation, annual deaths from plant and structures have consistently been around 50, ranging from 41 to 58 over the 2014 – 2019 period.

Work-related harm involving plant and structures

Figure 3: Work-related harm involving plant and structures

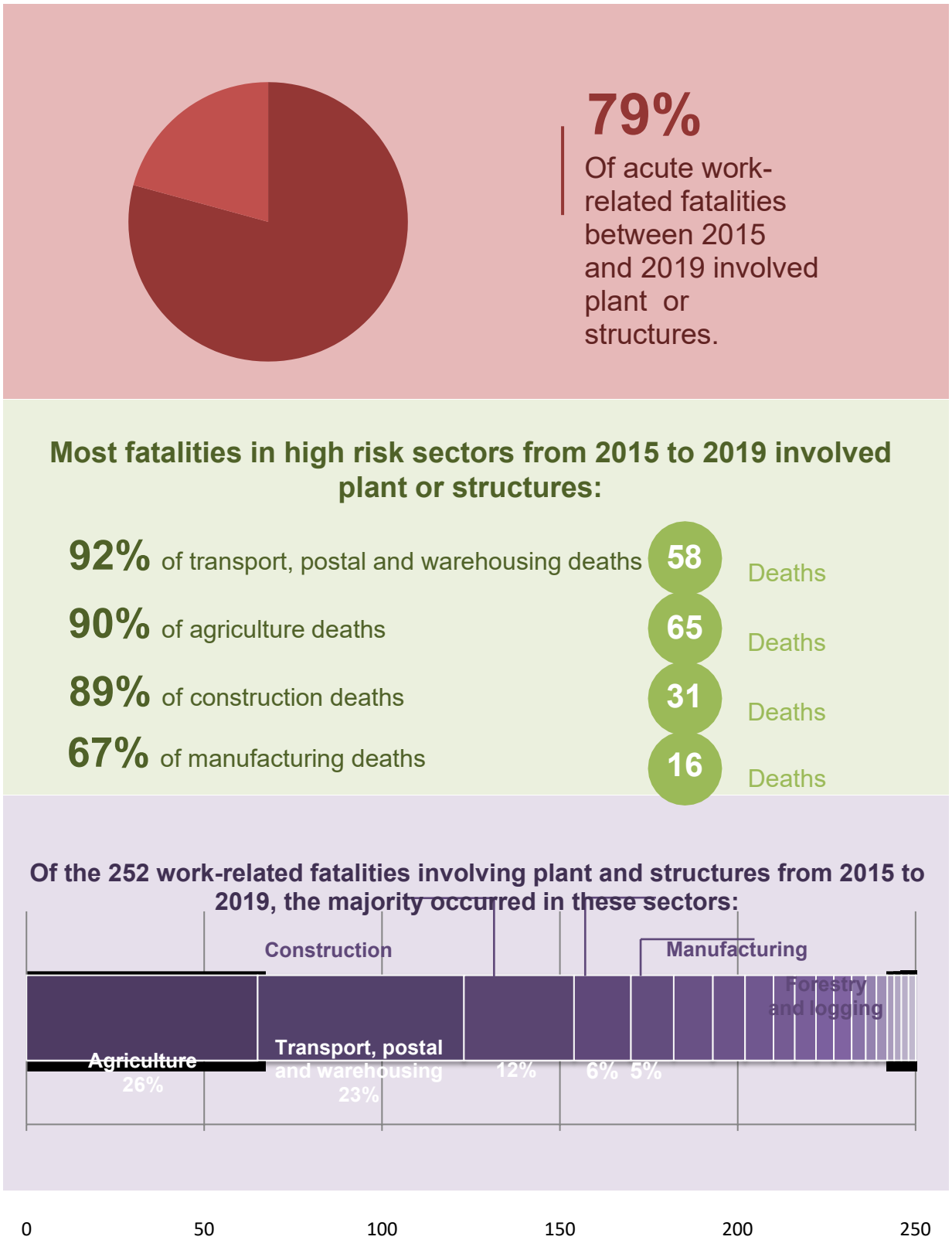
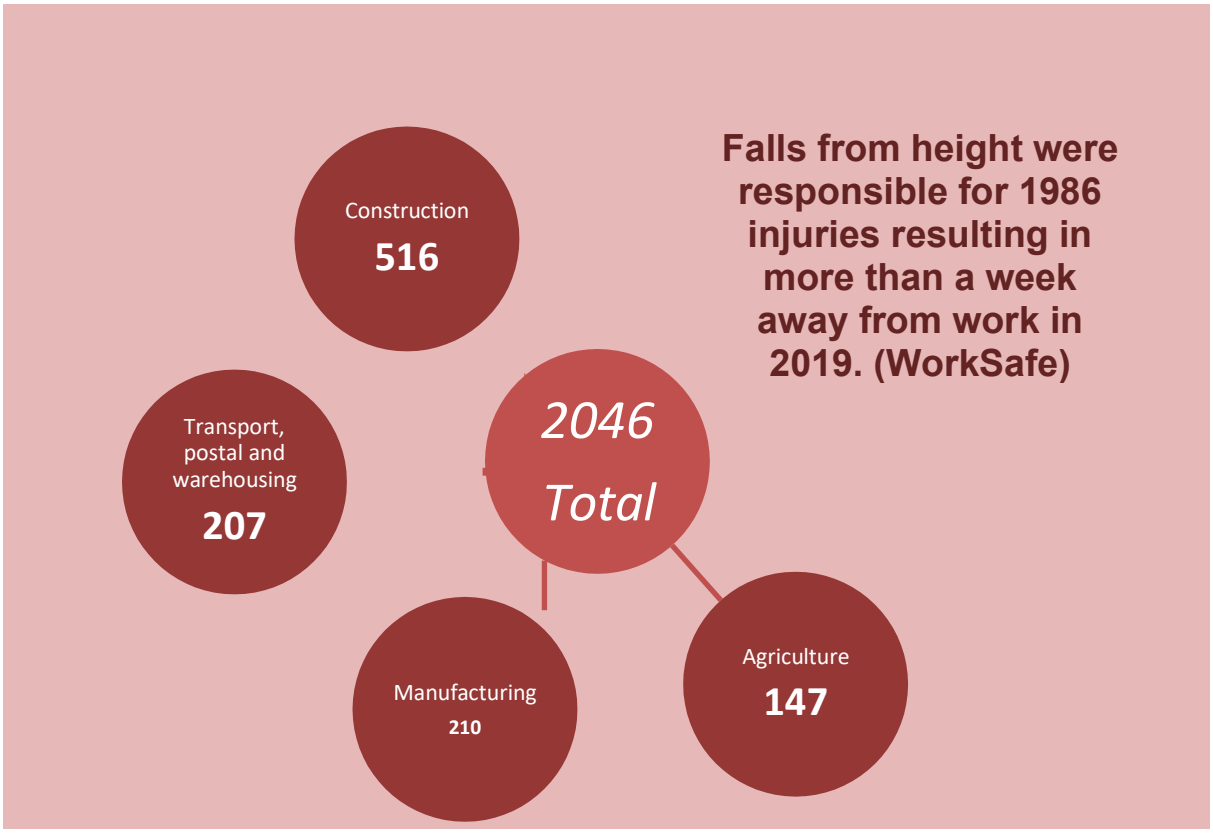


Figure 4: Work-related harm involving working at height and on excavations



Falls from height cause significant harm in the ***construction*** sector

Levels of harm are particularly high for residential construction. The average cost of falls in the construction sector is also 2x greater than other sectors.

2008-2018

5 **Fatalities**

32 **Injuries resulting in more than a week away from work**

From ground/excavation collapse

Other serious injuries and fatalities associated with excavation work include:

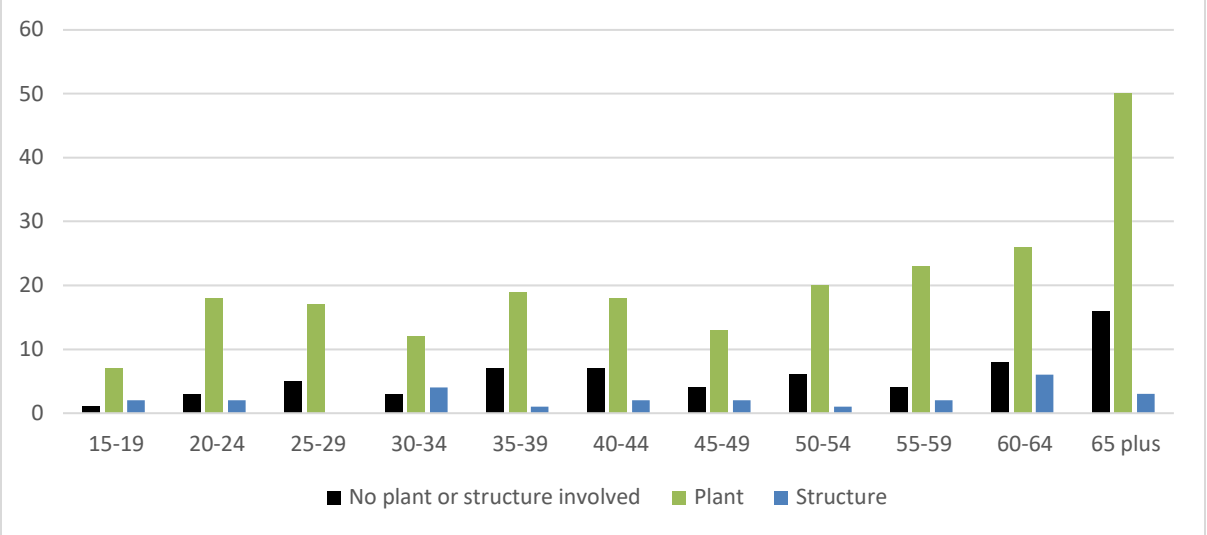
- Falls
- Unsafe atmospheres and substances
- Striking underground services, eg pipes, power lines
- Water and other hazards

Workers and others affected by the harm largely reflect the working population in the high risk industries, with overrepresentation in harm amongst males. From 2015 – 2019, 288 of the 318 plant and structures fatalities were suffered by males.

We have limited data on ethnicity of fatalities, as ethnicity data requires some level of self-identification. From injury data, we know that Maori have had higher rates of injury when accounting for sector. The sectors with the highest number of excess injuries[10] for Māori are manufacturing, construction, and transport, postal and warehousing – sectors where fatalities from working with plant and structures are concentrated.

We also know that harm is more concentrated amongst older workers, particularly for working with plant.

Figure 5: Worker fatalities by age group and plant or structure involvement: 2015 to 2019



While significant progress has been made with the new *Health and Safety at Work Act 2015* and initial suite of underpinning regulation (see Figure 7 below), and the establishment of WorkSafe New Zealand as a single focus regulator, **New Zealand's rates of work-related harm are still high by international standards**. Most notably, our rate of fatalities at work is approximately twice that of Australia. Latest official statistics suggest that progress in meeting our targets of reducing work-related fatal and serious injury by 25% by 2020 has stalled.[11]

At a national level, the Health and Safety at Work Strategy 2018 – 2028 sets the direction for improving work health and safety in New Zealand. It has two goals – focusing effort on what will make the biggest impact in reducing harm, and building everyone's capability to do this well. The Strategy is aimed at driving the workplace culture and capability that is needed to

[10] Excess injuries are the number of acute injuries for Māori that would have been prevented if Māori had the same injury rate as non-Māori.

[11] See https://worksafegovt.nz/research/towards-2020/

support and ensure effective compliance with regulatory obligations such as those being proposed in this document.[12]

2.2.2 What regulatory system(s) are already in place?

The HSW Act and its underpinning regulations are the key legislative components of New Zealand's work health and safety regulatory system. The HSW Act provides for a balanced framework creating broad performance-based obligations on duty holders to protect the health and safety of workers and others affected by work, by managing the risks arising from work. A guiding principle of the HSW Act is that workers and other persons should be given the highest level of protection against harm to their health, safety, and welfare from hazards and risks arising from work or from specified types of plant as is reasonably practicable.

The HSW Act follows the United Kingdom and Australia in applying the **Robens approach to work health and safety legislation**. It seeks to increase awareness, knowledge and competence in managing health and safety at work, rather than relying on traditionally prescriptive requirements focusing on a narrow range of risks at work.

This approach provides for a general duties framework in the primary Act, ensuring broad coverage of work and workplaces and duties that are all-encompassing, flexible, and that do not date over time. To be effective, this approach relies on underpinning regulations and guidance – which can be more easily updated – to provide the detail on how to meet the general performance based duties in the Act for specific risks and in specific circumstances.

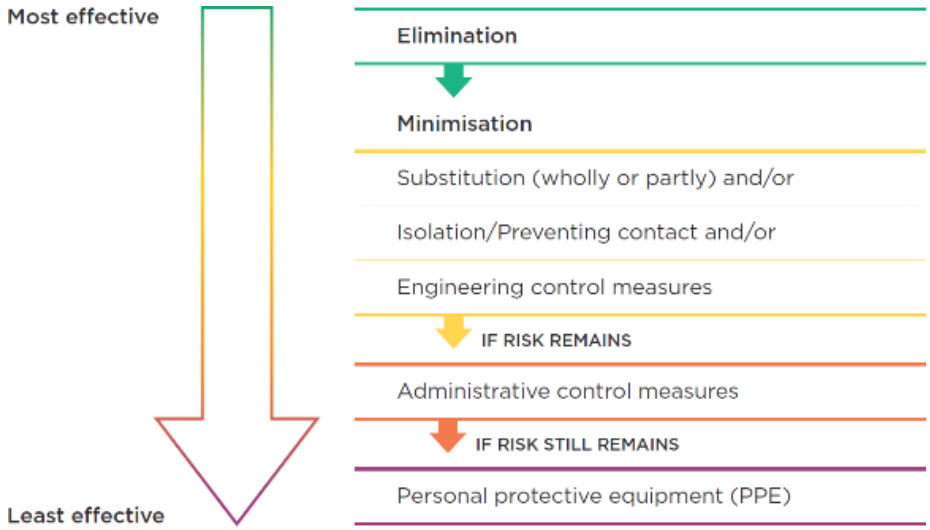
Risk management is a core component of the legislative framework. Under section 30 of the HSW Act, a duty imposed under the Act requires the duty holder to manage risks by, first, eliminating risks to health and safety so far is as reasonably practicable, and, if it is not reasonably practicable to eliminate risks, to minimise those risks as far as possible (s 30, HSW Act).

This risk management requirement is expanded further for common critical risks prescribed in regulation – mandating the **Prescribed Risk Management Process**, outlined in Figure 6 below. The PRMP is set out in Part 1 of the *Health and Safety at Work (General Risk and Workplace Management) Regulations 2016*. The process requires businesses to identify and focus more closely on risks that are critical but need a flexible approach, rather than specifying the same prescriptive controls for all situations.

The PRMP requires businesses to work through and implement a hierarchy of controls, which provides that if it is not reasonably practicable to eliminate risks to health and safety, they must minimise those risks, so far as is reasonably practicable, by implementing one or more of the listed risk control measures. The risk control measures are ranked from the highest level of protection and reliability (substitution, isolation and engineering) to the lowest (administrative controls and personal protective equipment). Businesses must also check that the controls are working, maintain and review them. HSW regulations currently apply the PRMP to remote work, raised or falling objects, explosive atmospheres, and substances hazardous to health.

[12] Available at https://www.mbiegovt.nz/assets/69361d5a98/health-safety-at-work-strategy-2018-2028.pdf

Figure 6: prescribed risk management process



The Royal Commission on the Pike River Coal Mine Tragedy and the Independent Taskforce on Workplace Health and Safety both found that New Zealand's implementation of the Robens approach was weak, and underpinning regulations were required so that the Act could work as intended.[13] [14]

The Taskforce called for "an urgent, sustainable step-change in harm prevention activity and a dramatic improvement in outcomes". To achieve this, it recommended fundamental reform of the New Zealand work health and safety regulatory system, through the adoption of the Australian Model Work Health and Safety Law (the Model Law), adapted to New Zealand conditions.

Both the Royal Commission (in October 2012) and the Independent Taskforce on Workplace Health and Safety (in April 2013) found that the previous *Health and Safety in Employment Act 1992* (the HSE Act) was insufficiently supported by appropriate regulation and guidance, which:

- did not provide the support duty holders need to comply with their general duties
- did not adequately manage the risk of catastrophic harm
- were a piecemeal collection of legacy requirements
- lacked a coherent logical structure, were weak and outdated in places, contained gaps or were inaccessible and hard to understand.

These problems result in poor risk management, expensive overly conservative approaches, or poor work health and safety outcomes.

[13] See https://pikeriver.royalcommission.govt.nz/

[14] See http://hstaskforcegovt.nz/

In response to the findings of the Royal Commission and Independent Taskforce, the work health and safety regulatory system has undergone significant review and reform. MBIE's ongoing health and safety at work legislative reform work, under its regulatory stewardship role, is aimed at addressing the weaknesses. [15] [16] This package of regulatory proposals is the second significant tranche of reform.

The first set of reforms was the new HSW Act, which came into effect in 2016 with nine sets of newly made regulations. These prioritised the general regulations needed to support the new Act, those addressing catastrophic risk, and those that had been recently made – major hazard facilities, adventure activities, asbestos, petroleum, and mining and quarrying.[17] A further set of hazardous substances regulations followed in 2017, shifted from the *Hazardous Substances and New Organisms Act 1996* (the HSNO Act).

Seven sets of pre-existing health and safety related regulations made under earlier legislation were saved under the new HSW Act. These saved regulations are the focus of MBIE's ongoing regulatory reform programme.

Figure 7 below shows the initial tranche of regulatory changes made to accompany the HSW Act's introduction (in blue) and remaining elements of the regulatory reform programme (marked in yellow and green), including those that are the focus of this RIA.

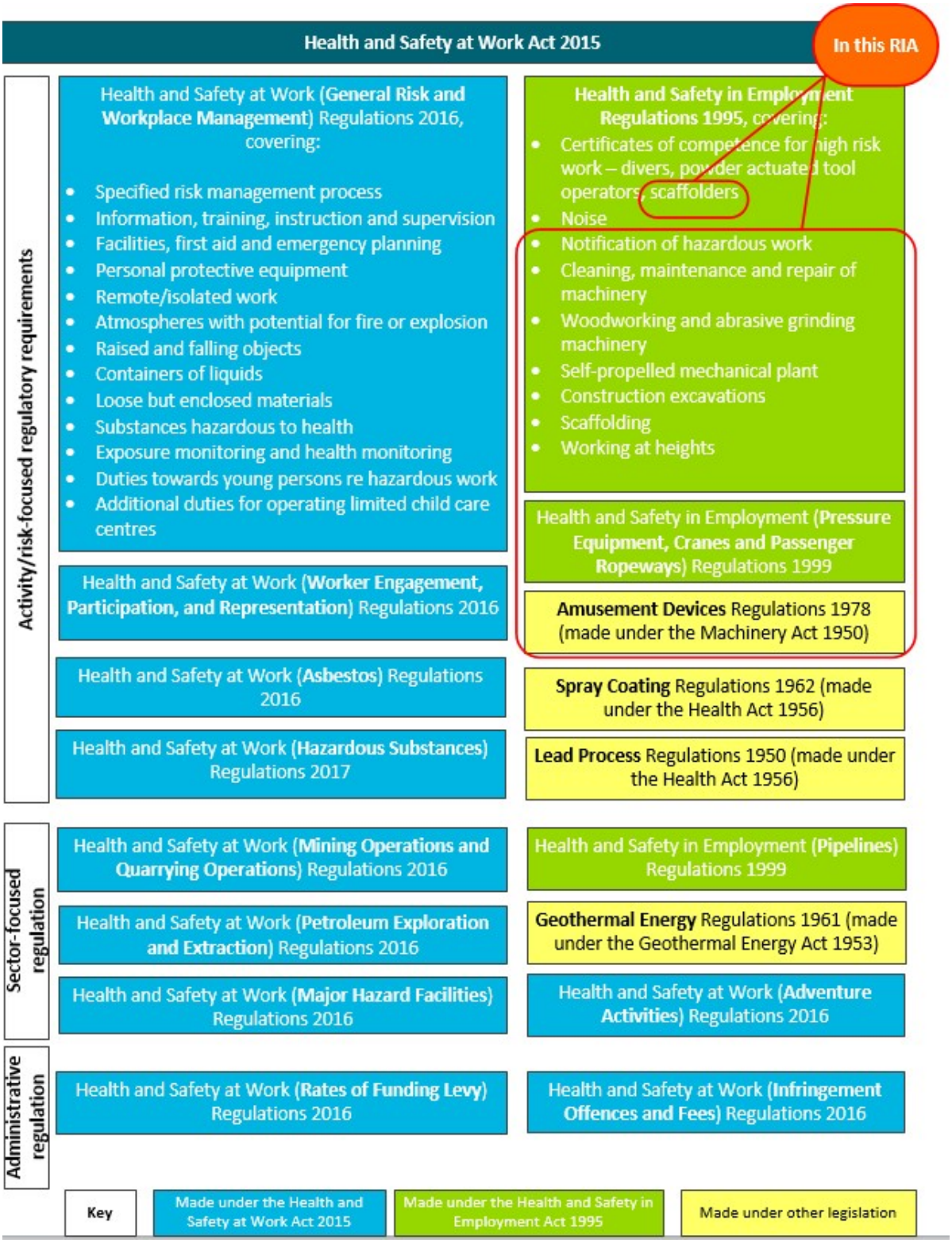
This regulatory reform package forms part of a multi-year work programme. Further work includes reform of the work-related hazardous substances regulations and hazardous work regulations (eg licensing of specific high risk occupations, noise, manual handling etc).

[15] For instance, see the Regulatory Impact Statement for the Introduction of the Act: https://treasury.govt.nz/sites/default/files/2014-01/ris-mbie-whs-jan14.pdf

[16] Currently available at: https://www.mbiegovt.nz/cross-government-functions/regulatory-stewardship/regulatory-systems/health-and-safety-at-work-regulatory-system/

[17] The content of these regulations is covered in the RIS: https://treasury.govt.nz/sites/default/files/2015-03/ris-mbie-adi-mar15.pdf

Figure 7: Health and Safety at Work regulations



Government regulation in this area is long-standing and preferred to private arrangements due to:

- complexity of risk and potential for harm – regulation provides certainty on when and how risks must be managed, where the potential for failure and harm is high, where detailed technical knowledge is needed, or there is long latency of harm.
- information asymmetry – a core concept of the Robens approach is that it places obligations on the people who create the risk to manage the risk. The primary duty holder is the PCBU or business, which creates the risk and so holds the most knowledge about the risk and the potential for harm to workers and others, and so has the obligation to manage that risk.
- externalised costs – direct and indirect costs of the harm to workers and others affected by work falls not only on the business, but also on the individual, their families and communities, and on the Accident Compensation scheme and the public health system.

These factors drive the use of regulatory instruments over non-regulatory options. For these reasons non-regulatory options, such as approved codes of practice, education and awareness campaigns or government funded incentive schemes are not generally a focus of the analysis in the following chapters.

The regulatory system also comprises the **leadership, strategy and coordination system.** Major participants are MBIE as the regulatory steward and policy agency, WorkSafe as the primary work health and safety regulator, Maritime New Zealand and the Civil Aviation Authority as designated regulators for their sectors, ACC, and the Health and Safety Association of New Zealand (HASANZ) representing work health and safety professionals. There are close intersections with many other government portfolios and agencies.

2.2.3 What is the policy problem or opportunity?

Without intervention, New Zealand's rates of work-related fatalities and serious injuries are expected to develop in line with the current levels and trends. These rates are high relative to other countries and have recently started to plateau and in some cases increase, rather than decreasing in line with government targets.

The continuing level of fatality and injury arising from working with these long standing risks indicates that reliance on the primary duties in the legislation is not sufficient to ensure workers have the level of protection from harm that is reasonably practicable. The existing regulations are out-dated, piecemeal and hard to understand and apply.

In total, WorkSafe has calculated that 50,000 Disability Adjusted Life Years (DALYs) are lost annually to work-related harm, whether from injury or ill-health.[18] This translates into a social

[18] Of the 50,000 lost DALY total, acute injuries (including fatalities) account for 11 per cent of the losses, with the remaining 89 per cent involving chronic harm (eg musculoskeletal harm (27 per cent of total DALY losses), mental health harm (17 per cent of losses), cancers (16 per cent of losses) and respiratory harm (15 per cent of losses). These are overall estimates, addressing the harm caused by injuries and ill health – from plant, structures, work involving excavations and heights, and other causes.

cost of at least $2 billion each year. A significant proportion – 79 percent – of the acute harm comes from working with plant, structures, at height and on excavations. The specific contribution from these areas to other (chronic) harm is not easily measurable, but will be significant from plant in particular (eg due to the scale of plant-related muscular skeletal harm, and respiratory illness from exposure to harmful fumes). Improving the management of these risks can be expected to have a large impact on the achievement of the overall system objectives.

The underlying causes of the problem is that the work-related risks arising from working with plant, structures, at height and on excavations are not being sufficiently managed by workplaces to prevent harm to workers and others, for a range of reasons. These risks are both long standing, but also conversely evolving:

- Increasing complexity of risks – through technological change such as automation, robotics, lasers etc, which are reducing some risks and introducing new risks.
- Increasing complexity of working arrangements – reducing clarity on who has the obligation to manage the risk eg for work involving subcontracting or labour hire workers, common to those workplaces involving plant, structures, height and on excavations. These arrangements often increase the distance in the contracting chain between the business that controls the risk and the workers that are exposed to the risk.
- Increasing globalisation – increasing importation of plant, including directly by businesses as the end user, which can reduce their ability to ensure the plant is optimally designed and manufactured for safe use in their specific circumstances.
- Poor regulatory framework – regulations that are out-dated, piecemeal and hard to understand and apply.
- Lack of a level playing field – duty holders that proactively comply with the primary duties of care and manage the risks appropriately compared with those that do not comply to gain financial benefits.
- Inconsistency of practice or conformity with standards across duty holders – arising in part from a lack of interaction with or feedback loop on compliance to the regulator, particularly where inspection is done at large in the industry by third parties.
- The prevalence of aging plant and poor quality secondhand plant in New Zealand, which increases risk to users from poor maintenance or repair by previous owners and which may not be apparent to the new owners.

These factors hinder individuals and firms from successfully using informal, private, or non-regulatory arrangements to address the poor management of these risks. They mean that regulatory controls must be flexible and adaptive to new risks or new presentation of existing risks. This requires a general shift away from the older prescriptive, one-size-fits-all controls to more proportionate performance or process-based controls.

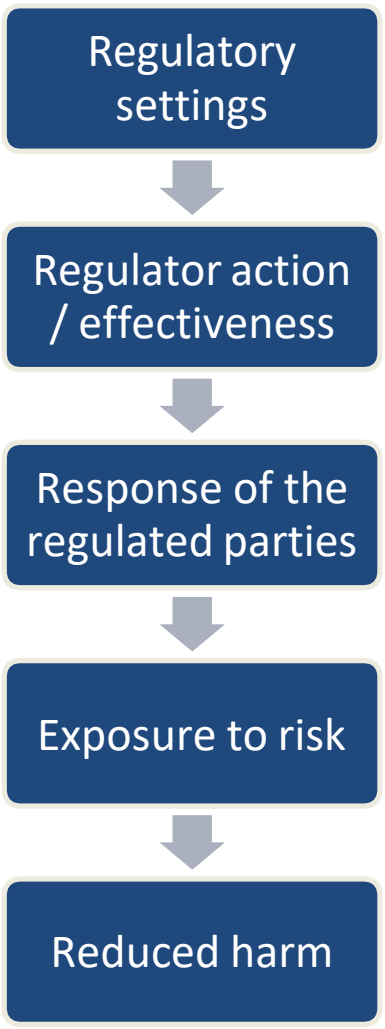
The available data from WorkSafe NZ on the harm caused is based on accident compensation claims lodged on a “no-fault” claims basis. By its nature, it is coded by health outcome, and not necessarily reliable as a description of the agency or mechanism of harm, or cause more generally. This means that, while we can tell the overall scale of the impact

arising from poorly managed risks from plant, structures, height and excavations, specific and direct causal impacts are more difficult to clearly estimate on a case by case basis for each of the regulatory proposals. This is further confounded by proposals being interwoven and expected to work collectively to improve risk management and reduce harm. For further explanation refer to the section “Evidence certainty and quality assurance” in the preamble to this document.

The high injury and fatality rates from work with plant, structures, height and excavations arise from several, interrelated factors. Improving the regulatory obligations alone will not address all of these factors, and there will not be an instantaneous change in outcomes even with clearer regulations in place. To be effective, the obligations will need to be reinforced by good implementation and operational support, such as education, engagement and enforcement where appropriate. The HSW Act-specific tertiary legislative tool of Safe Work Instruments will be required where additional detail is needed, but which would not be appropriate to place in regulation. These are developed by the regulator and approved by the Minister. This is further outlined in the implementation chapter below.

The regulations proposed will need to work with broader components of the regulatory system to effectively reduce harm, as figure 8 describes.

Figure 8: Guiding intervention logic



Regulatory settings: the regulations need to be fully in place, with their supporting components, including safe work instruments, the registers for high-risk plant items and designs, and supporting guidance.

Regulator action / effectiveness to support the regulated parties and to enforce the regulations. To do this the regulator needs to allocate resource to develop internal policies and procedures, implement necessary infrastructure (such as high risk plant registers), and ensure inspectors are sufficiently trained.

Response of the regulated parties: this includes PCBUs, workers and industry health and safety bodies. Regulated parties need to be aware of their responsibilities and take action. Industry health and safety bodies can support their industries with practical advice and encouraging a positive health and safety culture.

Exposure to risk: risks from plant and structures are eliminated, and where that is not possible, minimised. Workers and others are not exposed to risk arising from work.

Reduced harm: reduced injuries and fatalities is the ultimate aim of the regulations. To achieve this, each stage in the intervention logic needs to be working.

Improved health and safety performance and better outcomes will flow through to other systems, notably the impact on the public health system and accident compensation and rehabilitation under the Accident Compensation scheme.

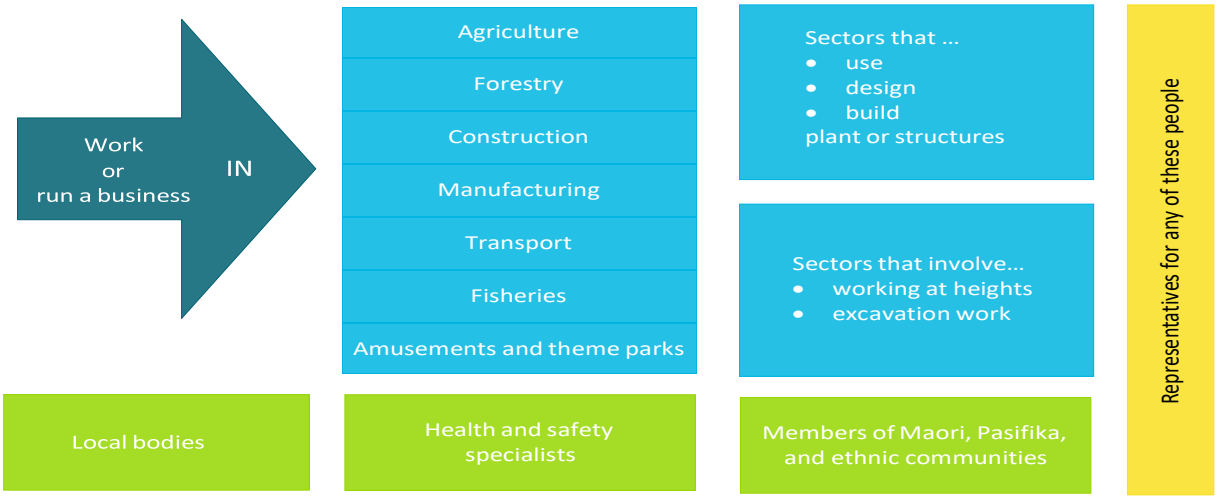
To improve outcomes in the long term, it is envisaged that over time, the regulatory obligations will work to gradually improve:

- the quality of New Zealand's stock of workplace plant and structures, improving work-related health and safety outcomes
- the workplace practices of working with plant, structures, at height and on excavations, through better understanding and management of risks and the controls to address those risks.

2.2.4 What do stakeholders think about the problem?

Section 217 of the HSW Act requires consultation with all appropriate persons and organisations, before making any recommendations for regulations. MBIE has undertaken an extensive engagement stakeholder engagement process. Stakeholders with an interest in the proposals are wide and varied, as outlined in Figure 9.

Figure 9: Stakeholders with an interest in plant and structures



MBIE developed the policy proposals for consultation with input and engagement with selected sector stakeholders. MBIE then released a public consultation document in July 2019 for a 12 week period of consultation, with a range of supporting materials targeted at specific sectors and stakeholder groups. MBIE held 16 public and sector-focused meetings across New Zealand, from Auckland to Invercargill, and met with upwards of 20 organisations and multiple individuals with an interest in the proposals. MBIE received 172 submissions from organisations, businesses and individuals representing a range of interests and sectors. A summary of submissions will be made publicly available on MBIE's website.

Key feedback from stakeholders included:

- The analysis of the risks and issues was generally endorsed by submitters, with a particular focus on poor quality imported plant, deficient guarding and maintenance, and poor risk management practice.
- There was broad support for the proposals and the clarity they would provide, and broad acceptance that the Australian Model Regulations offer the best foundations for the regulatory obligations.
- A few submitters generally opposed the proposals, expressing instead a preference for relying on the general risk management requirement in the Act for identifying and mitigating risks and hazards.
- There was resistance to the introduction of mandatory controls instead of reliance on approved codes of practice and guidance from the forestry and fishing sectors in particular.
- Submitters frequently commented that the proposals were consistent with their status quo in practice, especially by those with responsibility for high risk plant. This was not the case for all submitters, with some in the agriculture and forestry sectors noting concern about the implications for the use of aging plant.
- There was concern about insufficient health and safety competency, and access to advice.
- Applying the Prescribed Risk Management Process (PRMP) for working with plant, working at height, and working on excavations, was supported by the clear majority of submitters.

Following the consultation period, MBIE held a further series of targeted workshops with stakeholders on proposals where there was finely balanced support and greater clarity was needed, or where there were particular sectors that would be strongly affected by proposals and MBIE needed to actively consider how better regulation would work in practice, to not be overly burdensome. Section 3 below provides more detail on the specific regulatory areas.

2.2.5 What are the objectives sought in relation to the identified problem?

The objective is to reduce New Zealand's high rates of work-related fatality and injury from working with plant, structures, at height and on excavations, to reduce the harm to workers and the associated social and economic burden to New Zealand. This policy objective has not changed and is also the purpose of, but is not being met by, the status quo.

The supporting criteria are outlined in section 2.3.2 below.

Section 3: Option identification

2.3.1 What options are available to address the problem?

Retaining the status quo is not supported, given the problems identified. This will involve retaining a mixture of outdated regulations and relying on the HSW Act primary duties where no regulatory requirements exist that address the specific risks. MBIE has discounted this option on the basis that it will not address the long standing rates of harm in these areas.

Remaining options are:

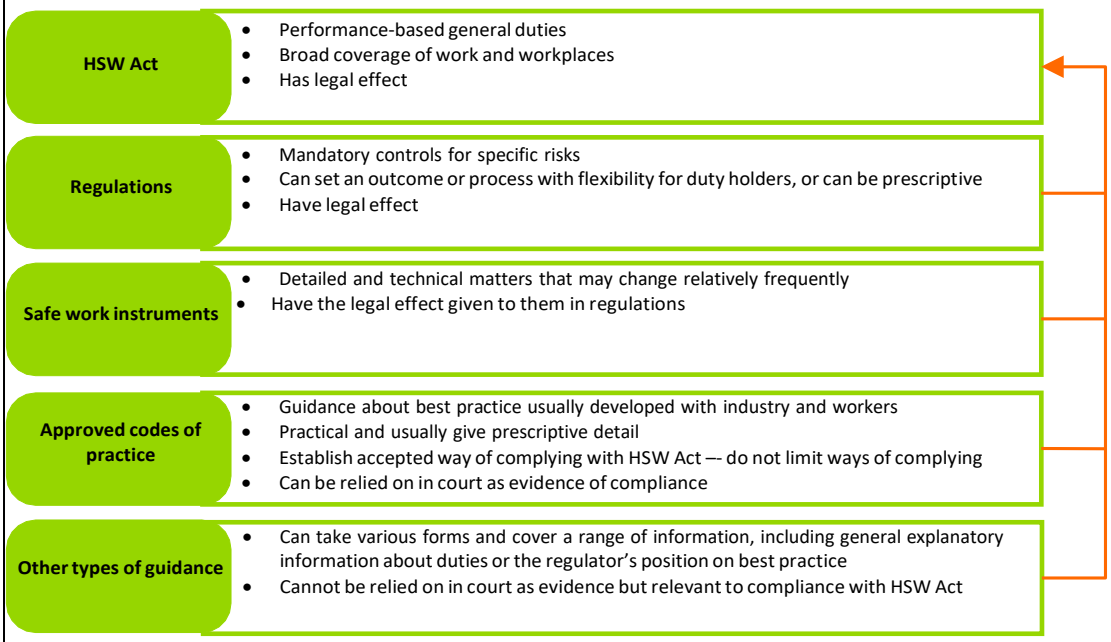
- Modernising, improving and expanding the existing **regulatory requirements** – as recommended by MBIE, on the basis that clearer regulatory requirements will prompt duty holders to comply by increasing understanding of how to manage their specific risks, with clear and proportionate penalties also to apply for non-compliance.
- **Non-regulatory options**, such as approved codes of practice or guidance.

We describe these options more fully below.

Options for intervention available under the HSW Act

The HSW Act has a specific set of regulatory options that can specify controls for managing work-related risks, as Figure 10 shows.

Figure 10: HSW Act legislative framework



In practice these options are not mutually exclusive, but work together to ensure duty holders have the appropriate obligations underpinned and supported by the necessary detail and guidance at the right level, so they can effectively manage the risks arising from work:

- The **Act** has performance-based general duties – these specify the outcome required, that duty holders must protect workers and others from work-related harm, rather than specifying

the specific actions duty holders must take. This provides both flexibly for duty holders and broad coverage of New Zealand work and workplaces.

- Industry- or risk-specific **regulations**, **approved codes of practice** and **guidance** underpin the general duties in the Act when further clarity is required.
- **Regulations** are most appropriately used where they are needed to effectively address risks – the riskier something is the more likely it is to need mandatory controls through regulations.
- **Safe Work Instruments** are most effective where prescribing controls for technical matters that may change frequently. They do not have legal effect on their own, but must be incorporated into a regulation.
- **Approved codes of practice** and **guidance** do not provide mandatory controls. They provide further support to duty holders in meeting their general duties, and are appropriate for example where there might be many effective ways of managing a particular risk.

MBIE is proposing mandatory controls given the continuing high level of risks that less formal measures (eg guidance) have not been able to overcome. The specific regulatory requirements recommended for adoption have been developed based on Australian Model Regulations, where appropriate and adapted for New Zealand's specific circumstances. The proposals are intended to:

- Make the rules clearer, while retaining flexibility to do what's best in each case.
- Improve risk assessment and risk management to prevent harm.
- Make sure people have the right information to manage risks to health and safety.
- Improve transparency and oversight of very high risk plant.

The chapters below provide more **detail on the options considered for each area of risk and the effect of consultation**. The majority of the regulatory proposals replace and modernise existing controls or provide only incremental changes, and only a smaller proportion are wholly new.

Appendix 3 summarises the package of regulatory proposals. The proposals mostly work in combination, rather than being mutually exclusive. They should be thought of as a package, rather than a menu. The proposals for general plant, mobile plant, high risk plant, and the upstream duties for plant in particular all build upon each other. The working at height proposals also work in combination with the proposals for safe scaffolding components, to ensure health and safety at height.

There are **common features** across many of the regulatory proposals:

- Modernisation of long standing regulatory requirements.
- Where regulatory proposals are new, they are largely clarifications of what is already reasonably practicable for duty holders to do to meet their primary duties in the Act.
- Where obligations are already being met, additional costs to businesses will be marginal. In the percentage of cases where current obligations are not being met, the costs could be higher for some parties.

- The proposals are generally performance or process-based, allowing them to apply flexibly to common risks across sectors, rather than being prescriptive, industry-specific controls.

In line with the Australian Model Regulations, the common application of the Prescribed Risk Management Process (PRMP) is proposed for various aspects of working with plant, at height and on excavations.

The obligations in the Australian Model Regulations have been adapted where necessary for New Zealand's circumstances. This is particularly the case for High Risk Plant, recognising the lower volumes, lower capital expenditure and a wider spread of resources in New Zealand, which results in the importation, repurposing or reconditioning of plant to a greater degree than found in Australia. Our regulatory proposals need to allow for this feature.

The **Australian work health and safety regulatory experience** is most relevant as our legislative framework is based on theirs. Australia has had an improvement in work health and safety outcomes since its model laws came into effect. It recently held an independent review that looked at whether the content and operation of the model laws, including the Act, regulations and codes of practice, were working as intended. The review included broad consultation across Australian jurisdictions with businesses, workers, unions, industry associations, academics, and government and non-government agencies.

The review concluded that, for the most part, the model laws are working as intended, while still settling in. Relevant recommendations on regulations include:

- A more comprehensive review of the model regulations and codes of practice – to add clarity and reduce complexity, particularly to help small businesses determine what actions to take to meet their obligations.
- Improved recording of amusement device infringements and operator training – in the wake of the Dreamworld tragedy.
- Reviewing references to Standards in regulations – with a view to removing and replacing them with the relevant obligations.
- Moving the Prescribed Risk Management Process from the regulations to the Act – to make the general risk management obligation and process clearer by providing practical steps for duty holders, particularly small business. This means the PRMP would apply to all risks, not just those specified in regulation.

The Australian Government is considering the recommendations. We have taken the relevant recommendations into account in this analysis.

2.3.2 What criteria, in addition to monetary costs and benefits have been used to assess the likely impacts of the options under consideration?

The **criteria** used assess whether the options are:

- **effective** – will they reduce harm arising from work and prevent regulatory failure
- **proportionate** – are they proportionate to the risk and will they target key risks
- **clear** – are they logical, consistent and easy to understand and provide sufficient certainty to support the duty holders to comply, the regulator to enforce, and provide assurance for workers of protection of their health and safety
- **cost effective** – will they minimise compliance and transitional costs for the duty holders and for the regulator, for the benefits they deliver
- **flexible and durable** – are they responsive to change in risks, technology, and ways of working.

The options should also ensure equity – they should provide equal protection to workers facing the same risks across different sectors. We have not specifically weighted in these criteria, though most priority has been given to ensuring that proposals are effective by reducing harm.

We have developed the regulatory proposals to be consistent with the principles of the primary Act. The most effective control is to eliminate the risk, or minimise it where elimination is not reasonably practicable, with the aim of providing workers with the highest level of protection that is reasonably practicable. Regulations impose mandatory controls where the potential harm justifies them. When examining costs versus benefits of a proposed regulation, the costs to the business of putting the control measures in place is weighed against the potential harm to the worker or others, plus the greater social and economic costs arising from the harm, such as to the health and compensation systems, and the worker's family and community.

An example of where these trade-offs have been considered is the impact of initial proposals for bespoke pressure equipment, which would have led to a requirement to assess all plant, including legacy plant on an item by item basis. Consultation indicated that there were already detailed internal processes that would be duplicated by the proposal, creating a high compliance burden with limited additional benefit to safety.

2.3.3 What other options have been ruled out of scope, or not considered, and why?

We have generally ruled out options that are solely about increasing operational responses – education, engagement, and enforcement by the regulator – to ensure the risks are managed. This would not address the deficiencies in the regulatory regime that were found by previous reviews, and the status quo problems with regulations would continue. Increasing education and enforcement based on deficient regulatory requirements would be ineffective.

Chapter 2: General Plant

Current state within which action is proposed

As a feature of almost every work place, plant is integral to health and safety at work.

Ensuring plant is safe for the protection of those in the workplace requires careful management from the outset, in commissioning plant, and extending to adequate ongoing maintenance and repairs. The frequent practices of modifying plant to allow for different uses (eg in adapting irrigation machinery to suit specific crops or excavation machinery for forestry harvesting) and prevalence of older plant in New Zealand (often on-sold) increases the importance of this type of life-cycle approach to plant management as a means of preventing harm.

The types of harm plant can cause are broad and varied. Cleaning and maintaining machinery, often carried out with parts of the machine still operating, presents a common risk. Other specific examples include:

- crushing injuries,
- machinery entrapment,
- being hit by pressurised fluids, and
- associated diseases and illnesses arising from dust, chemicals, fumes and particles.

The risks from plant in the workplace are not static but are continuing to evolve with the uptake of new technologies (for instance robotic plant and lasers in production). Due to technology developments, modern, alternative means of managing workplace risks are now a reality in many workplaces. Presence-sensing safeguarding systems, for example, can protect workers from dangerous machinery parts without the reduction in accessibility from traditional fixed machine guarding.[19]

[19] Safeguarding systems for machinery that work by sensing the presence of people or body parts within danger zones and shut down the machinery.

The current regulatory system

Currently the health and safety risks of plant are regulated by the general duties in the HSW Act and a few specific regulations, as detailed below:

HSW Act	Specifically: • the s. 36 primary duty requiring businesses to ensure that safe plant and structures are provided, used and maintained, and more broadly to ensure that health and safety is protected • s.38, incorporating corresponding duties on businesses managing or controlling plant to ensure that fixtures, fittings and plant are without risks to the health and safety of any person. Businesses are only required to meet these duties so far as is reasonably practicable; they are not absolute.
Health and Safety in Employment Regulations 1995 Regulations 17, 18, 24, 25 and 52	Require that selected risks are managed for certain plant. For machinery, the regulations require that the risks of cleaning, maintenance and repair work are managed using lockout controls[20], or other alternative method, so far as reasonably practicable. The regulations also require: • the provision of operator protective devices, so far as reasonably practicable, for wood working and abrasive grinding machinery (defined by Schedule 1) • that a certificate of competence is held for operators of powder-actuated tools[21]
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 Regulation 9	Requires: • businesses to ensure that workers have adequate knowledge, supervision, and training for the safe use of plant and personal protective devices, and • risks to health and safety from work done under lifted objects or loads are eliminated, so far as is reasonably practicable, or otherwise managed.

In conjunction with the requirements above, the Safety of Machinery Standards (AS/NZS 4024) and associated guidance from WorkSafe offer trusted sources of technical guidance. While held in good standing, these guides are non-mandatory.

Historically a series of broadly applicable minimum requirements for guarding, maintenance, and safety and locking devices were set by the *Machinery Act 1950.* This Act was repealed in 2016 when the new HSW Act came into effect, with the intention that the specific

[20] Lockout is the use of a lock to render machinery or equipment inoperable or to isolate the energy source.

[21] Powder-actuated tools are most commonly a type of nail gun that uses a controlled explosion created by detonating an explosive cartridge.

provisions covering plant would be replaced with modernised requirements as an outcome of these later reforms.

What is the policy problem or opportunity?

Safer plant is needed to reduce workplace harm

Plant, given its prevalence, and significance of the harm it causes (equating to 61 per cent of work-related deaths[22]), is central to healthy and safe workplaces.

The fundamental practices involved in managing plant safely have many components – from proper design and commissioning practices through to how the plant is maintained, operated and decommissioned. These practices include general components (eg regular maintenance) through to plant-specific elements (such as machine guarding, or reduced velocity power-actuated tools). Maintenance demands in particular will be compounded for older machinery and plant, which are common in New Zealand.

Businesses are in the best position to address the risks posed by plant, due to their knowledge of their specific workplaces and plant. Support from competent persons and good information from upstream sources (designers, manufacturers, and suppliers), in turn, will be required for businesses to do this well.

Harm caused by plant

Plant is a leading cause of workplace harm, as illustrated by WorkSafe data. Summarised below, this data focuses on acute harm only; health-related impacts are more complex to monitor and evaluate, due to the complexities of confirming attribution and at times latency of impact.

[22] As assessed for 2008-2019, with fatalities from the Pike River Coal Mine Tragedy excluded from the assessment. The corresponding proportion for fatalities involving structures is 18 per cent.

Figure 11: Plant-related harm

2008-2019

Fatalities involving plant:
41 work related deaths annually on average

61% of all fatal work injuries

Plant related harm in high risk sectors[1]:

79% of work injury fatalities (**96** deaths) in agriculture

51% of work injury fatalities (**29** deaths) and **19%** of serious injuries[2] in manufacturing

33% of work injury fatalities (**20** deaths) in forestry and logging

72 % of work injury fatalities (**13** deaths) in fishing, hunting and trapping

48% of work injury fatalities (**52** deaths) and **14%** of serious injuries in construction

86% of work injury fatalities (**118** deaths) in transport, postal and warehousing

2008-2019

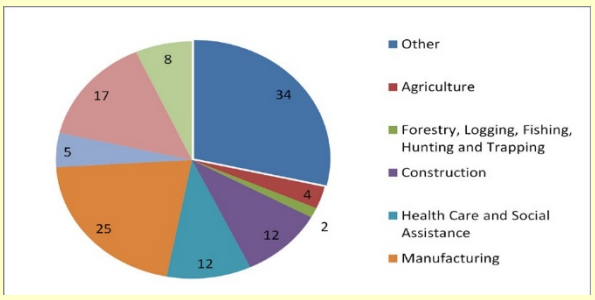
Within the manufacturing sector:

24% of fatalities resulted from being caught or trapped in machinery

26% of serious injuries involved tools and machinery – of which
- **33%** involved hitting moving objects
- **43%** involved hitting a stationary object
- **24%** involved being trapped between machinery and equipment

2014-2018

400 serious injury incidents, on average annually, involving lifting plant (1 5% of incidents overall)



[1] Fatalities data relates to 2008-2019 and exclude fatalities from the Pike River Coal Mine Tragedy. Serious injuries statistics are for the years 2008-2017.
[2] Resulting in more than a week away from work.
Source: WorkSafe SWIFT data

Current regulatory arrangements

Current regulations provide little depth in coverage on the different facets of plant management and are out of step with common forms of plant now in wide use, and long-standing past requirements (as set by the *Machinery Act 1950*). Australia and the UK, as countries with demonstrably lower rates of harm, in contrast have comprehensive mandatory requirements, with more extensive coverage of acute risks.

The need for improved risk management is the central problem to address

Safe plant relies on ongoing best practice risk management and the core policy problem is that this is not always being carried out well. By improving the way risks are managed we can address a widespread and extensive cause of workplace harm.

Further issues, identified in consultation with WorkSafe and wider stakeholders, are listed in the table below.

Issue 1: Guarding and safety features do not meet acceptable standards, are being removed, or are not fitted at all

Guarding manages the risk of physical harm from dangerous machinery parts, or materials thrown from the plant. Guarding can take a variety of forms – from fixed screens or covers to presence-sensing systems. As an engineering control, guarding provides a

means of addressing risks 'at source'. This makes guarding less prone to failure relative to controls reliant on operator actions.

Misusing or neglecting to use guarding appears to be a persistent issue in New Zealand and internationally. There is evidence to indicate that 24 percent of recent workplace fatalities in the manufacturing sector could have been prevented by guarding.[23]

The removal of longstanding guarding requirements – voided by the repeal of the Machinery Act in 2016 – has led to a lack of clarity on what guarding is legally required, according to WorkSafe and stakeholder reports. Research highlights that choosing the appropriate combination of guarding and safety measures takes skill.[24]

Issue 2: Inadequate management of cleaning and maintenance risks

Cleaning and maintenance present distinct risks, with these activities often carried out while components of the machine remain running. Cleaning and maintenance has been confirmed as a key cause of harm here and internationally. These activities were identified as factors in a number of machinery-related fatalities within the manufacturing sector in 2008-2015.

Effective lockout controls provide an important means of protecting operators from injury. The use of lock out controls, or alternative method, is required so far as is reasonably practicable while cleaning and maintenance is being carried out. The UK and Australia have similar requirements.

Research points to the effective training of operators being critical to ensuring lock out systems, or alternate measures, manage risks in the way intended.

Issue 3: Risks throughout the life cycle of plant are not well managed

The risk management demands of plant extend from design through to decommissioning. Ensuring the safe use of plant through its lifecycle requires risks to be managed at all stages. Commissioning, for example, can have an important bearing on the level and types of risks that arise in operating and decommissioning the plant. The way that plant is stored can increase risks when the plant is used again.

Specific characteristics of New Zealand workplaces, in particular the prevalent culture of modifying plant (eg where necessary plant is not readily available) and use of older plant and machinery, further elevates the importance of a thorough life-cycle approach to risk management.

Relevant specific problems reported by stakeholders are that:

- commissioning, storage and decommissioning are not well managed
- plant is often poorly maintained

[23] As assessed for the period 1 January 2008 and 31 December 2014. Vehicle incidents, collisions with moving objects, and falls from height are other major causes of fatalities in the manufacturing sector.

[24] Antonio C Caputo, Pacifico M Pelagge, and Paolo Salini, 'AHP Methodology for selecting safety devices of industrial machinery', Safety Science 53 (2013) pp 202-218; Yuvin Chinniah, Barthelemy Aucort, and Real Bourbonniere, 'Safety of industrial machinery in reduced risk circumstances', Safety Science 93 (2017) pp 152-161.

- plant is often modified and used for purposes it was not designed for, to the detriment of health and safety.

Research findings reinforce these as areas requiring focus. Consistent and proper risk management, carried out by appropriately skilled operators, has been confirmed as an important pre-requisite to good machinery-related health and safety practices.[25] Poor maintenance has also been confirmed through US research as a common factor in machinery-related incidents.

Issue 4: PCBUs are not always adequately managing the range of risks from plant

Plant is ubiquitous and takes a variety of forms – from common forms of industrial processing machinery through to powder-actuated tools. It is difficult to identify the specific types of tools or machinery that are higher risk, due to how our data is collected and the varied nature of work using tools.

From the feedback we have heard from stakeholders and WorkSafe, there is often limited understanding amongst plant operators on good safety practices like:

- understanding of the risks of different types of plant
- understanding the controls typically used to manage these risks
- knowing what purpose specific plant is designed for and whether it can be safely used for other purposes.

Supporting regulations currently are incomplete in how they cater to the risks from different kinds of plant. Generally, mandatory controls are required only in limited circumstances (eg lockout when cleaning and maintaining plant).

What do stakeholders think about the problem?

Approximately half of submitters commented on the general plant section of the consultation. Respondents came from a broad range of industries – including manufacturing, fisheries, construction, agriculture, and the energy and engineering sectors. Most submitters were businesses or business groups. Feedback representing worker perspectives also was received from the NZCTU, E tū, and from seven workers individually.

The core presenting issues were generally confirmed by submitters, with poor quality imported plant, deficient guarding, maintenance, and risk management a particular focus of many submissions. E tū, for instance, fed back that:

> Many PCBUs have equipment and maintenance systems at a high standard. However, there is a large proportion of enterprises that have substandard plant and systems. A lot of New Zealand plant tends to be old, often secondhand plant and is imported with safety features lacking. Alterations are made to fit the purpose and guarding is either non-existent or not satisfactory.

A submitter requesting confidentiality also commented that “Guarding is often poorly thought out/designed and inconsistently applied.” Engineering NZ more generally submitted in favour

[25] Antonio C Caputo, Pacifico M Pelagge, and Paolo Salini, ‘AHP Methodology for selecting safety devices of industrial machinery’, Safety Science 53 (2013) pp 202-218; Yuvin Chinniah, Barthelemy Aucort, and Real Bourbonniere, ‘Safety of industrial machinery in reduced risk circumstances’, Safety Science 93 (2017) pp 152-161; Yuvin Chinniah, ‘Analysis and prevention of serious and fatal accidents related to moving parts of machinery’, Safety Science 95 (2015) pp163-173.

of the proposals as providing the means to “improve best practice, reduce confusion, and improve the health and safety of industry workers.” The risks of plant used for lifting purposes attracted specific focus, particularly from submitters affiliated with the construction sector, with general acceptance across these submissions as to the increased risks involved.

Submitters commented that the need for involvement of a competent person can at times be overlooked, and suggested this can be why risks are not always well managed. Particularly for complex plant, constraints can also apply in accessing necessary expertise.

As a general recurrent theme, the need for adaptation in response to new technologies was recognised by many. Submitters commented that this has led to additional new risks that are not always properly understood or appreciated (in particular from lasers). The concept of new technologies expanding the ways older equipment’s safety can be improved on was also expressly acknowledged. Submitters expressed a keen interest in innovation not being unduly hampered by updated regulatory requirements.

Broader common themes included:

- the need for greater clarity to support consistency in the way similar risks are managed (eg arising from processing machinery), and as a means of avoiding misinterpretation
- the importance of avoiding undue prescription to accommodate the wide variety of relevant plant and machinery and operating methods (including in relation to cleaning and maintenance)
- the requirement for cohesive rules that appropriately accommodate situations where responsibilities overlap (for instance that extend to suppliers and installers, as well as plant owners, before the commissioning of plant)
- the importance of maintaining compatibility with AS/NZS Standards.

Option identification

What are the objectives?

Section 2.2.5 describes the collective objective of the proposed regulatory requirements.

Specifically in relation to plant, this objective will be furthered by generating sustained improvement in a combination of general risk management practices. The areas for improvement, confirmed through consultation, are:

- appropriate use of guarding and other safety measures
- safer cleaning and maintenance practices
- proper and ongoing management of life-cycle risks of plant
- better management of the wide-ranging risks of different types of plant.

What are the options?

The main options for achieving the objectives are:

- non-regulatory interventions, supported by the current regulations
- modernised and expanded regulatory protections with complementary non-regulatory measures (updated guidance, educational tools and industry partnerships, for instance)

These two options are described in the table below.

General plant option 1: Non-regulatory interventions, supported by the current regulations.

This option expands on the current approach of WorkSafe issuing guidance on plant and structures to support the existing regulations.

More intensive WorkSafe-led activities (whether in terms of education or targeted business support) will need to be carried out at scale, given the pervasiveness of plant, at high cost and based on deficient supporting regulations, undermining effectiveness.

General plant option 2: Modernised and expanded regulatory protections, with complementary non-regulatory measures

This option increases mandatory protections, to address current work health and safety risks and to modernise and replace the former, long-standing Machinery Act requirements.

MBIE has used the Australian Model Regulations (AMR) as a blueprint for the increased protections. The AMR are well tested, have been developed with the same types of risks in mind, and are compatible with the HSW Act (setting performance-based duties, developed from the Australian Model Law). Broadly they require PCBUs to ensure:

- dangerous parts of plant are appropriately guarded, and that the hierarchy for selecting the most appropriate guarding controls is implemented
- safety features of plant are appropriate, suitable record-keeping is maintained, and that these features are used in a way that minimises the risk of harm.
- health and safety risks of plant are controlled from its installation/assembly through to its disposal through:
    - applying the Prescribed Risk Management Process
    - inspection whenever plant is changed
    - using a competent (set by a person's knowledge and skills, whether gained through training, qualification or experience) person whenever plant is changed, maintained, inspected or tested
    - preventing unauthorised alterations or unintended use that is not contemplated by the plant's design and which compromises health and safety as a result.
- Specific risks of lifting plant, lasers, and industrial robots are managed using specified operational and design controls.

In consulting on the components of the AMR, we asked submitters how the requirements may need to be adapted to improve their suitability for New Zealand workplaces. We also asked for feedback on a specific modification of the Australian Model Regulations for guarding protections. The proposed option continues New Zealand's previous approach under the Machinery Act and the *Health and Safety in Employment Act 1995* in requiring that all dangerous parts of the plant are adequately guarded, so far as is reasonably practicable. The AMR instead only requires that PCBUs use the Prescribed Risk Management Process to determine whether guarding is a necessary control measure.

A range of non-regulatory measures, such as guidance, will support businesses with meeting the new requirements.

Options analysis

Under current arrangements, work-related harm from plant remains persistently high. WorkSafe has continued to promote awareness of the risks involved and how risks can be effectively managed through long-standing guidance[26]. Mandatory protections currently are limited compared to:

- previous long-standing regulatory protections (under the Machinery Act for guarding, removed in 2016 as a transitional step to modernising these requirements)
- the more comprehensive requirements in the UK and Australia, countries with substantially lower work-related harm.

If kept unchanged, regulations will continue to have gaps and neglect to provide businesses and workers with clear expectations.

MBIE's recommendation is that additional regulatory protections are introduced, based on Australian Model Regulations, given the:

- persistently high levels of harm caused by plant, and poor continuing risk management practices
- weakening of past protections under the Machinery Act
- the pervasive nature of plant, which inhibits the cost effectiveness of alternative interventions (eg customised business support), and weaknesses of existing regulations
- support the regulations will provide for duty holders in clarifying HSW Act duties and for workers in determining what protections they can expect
- level playing field enabled by the regulations
- support the regulations will provide with enforcement of HSW Act duties, as mandatory controls that are legally enforceable
- alignment this will achieve with Australian and UK protections.

[26] Notably 'Identifying, assessing and managing work risks' / 'How to manage work risks – summary guide' July 2017 WorkSafe Guidance, and WorkSafe's May 2014 'Safe Use of Machinery – Best Practice Guide'

Basing these protections on AMR process and performance-based requirements uses minimal prescription, ensuring durability and adaptability for a broad mix of workplaces

Non-regulatory options alone have been discounted on effectiveness and cost grounds. Submitters generally supported strengthened regulatory protections.

Analysis of requirements

The AMR components MBIE recommends received broad support from submitters, subject to certain refinements regarding specific points of detail. The tables below summarise in more depth the feedback received, where applicable describing the modifications to initial proposals and options discounted.

General plant 1: Guarding requirements		
Title and description	**What submitters said**	**MBIE position**
There have been legal requirements for machine guarding for a long time, for example in the *Machinery Act 1950.* Currently mandatory controls are limited to those prescribed by *Health and Safety in Employment Regulations 1995* for lockout controls when cleaning and maintaining plant and guarding on woodworking and abrasive machinery. The changes will re-establish broader guarding protections through a set of requirements based on Australian Model Regulations. Specifically, the provisions will require PCBUs to ensure that: a) appropriate guarding is used for all dangerous machinery parts b) specific guarding controls are determined in accordance with a hierarchy of guarding measures – from permanently fixed barriers to presence-sensing safeguarding systems and interlocked guarding (removing or opening an interlocked guard automatically shuts off power and stops the moving parts of the machine until the guard is back in place) – and is of 'fail safe' design c) guarding is solidly constructed, bypassing is as difficult as is reasonably practicable, does not create a risk in itself, and is properly maintained d) hot and cold parts of the plant are guarded or insulated, so far as is reasonably practicable e) guarding controls risks from broken or ejected parts, work pieces, and fluids f) guarding is of a kind that can be removed to allow maintenance and cleaning at any time that the plant is not in normal operation, and, in the event guarding is removed, the plant cannot be restarted unless the guarding is replaced g) if the need for operation of plant during maintenance or cleaning cannot be eliminated, operational controls permit operation during cleaning or maintenance only by authorised persons, in such a way that any risks can be eliminated or otherwise minimised h) where multiple emergency stops are in place, these are of the "stop and lock type" to prevent the plant from being restarted until the emergency stop is reset i) an emergency stop is clearly marked, essential features are coloured red, and cannot be adversely affected by electrical or electronic malfunction j) any operational controls are identified on the plant, appropriately located, and able to be locked off so as to disconnect from all motive power k) any warning devices are positioned on the plant to ensure they are most effective l) all reasonable steps are taken to ensure that safety features and warning devices are used in accordance with instructions, information, and training provided. Where a presence-sensing safeguarding system (which has specific risks) is used, PCBUs must also ensure records are kept (and made available for inspection purposes) of safety integrity tests,	There was strong support for the provisions from submitters and key stakeholders with the provisions recognised as compatible with widely adopted standards of AS/NZS: 4024 *Safety of machinery Part 1503: Safety-related parts of control systems – General principles for design.* WorkSafe's recommendation is that the hierarchy of guarding controls in Australian Model Regulations be adjusted under this option to: a) not preclude the use of presence-sensing equipment where this is an effective means of protection b) clarify that 'fail-safe' guarding (that does not cause harm in the event of failure) is expected c) set the expectation that guarding should require specialised tools for removal (subject to certain exceptions) and control risks from ejected fluids (in addition to broken or ejected parts and work pieces).	Recommended with minor adjustments, as proposed by WorkSafe. The requirements will address: - **Issue 1:** poor guarding and - **Issue 2:–** inadequate management of cleaning and maintenance risks by clarifying expected safety measures.

General plant 1: Guarding requirements		
Title and description	**What submitters said**	**MBIE position**
remedial action, inspections, maintenance, commissioning, decommissioning, dismantling and alterations of the plant. Provisions aimed at encouraging in-built safety by design features (including engineered guarding controls) are also proposed that will complement these requirements. The "Upstream Duties" chapter of this RIA provides further details. *Sets new, modernised protections, compatible with past requirements of the Machinery Act that complement and reinforce HSW Act duties, recommended upstream provisions, and AS/NZS Standards.*		

General plant 2: Requiring PCBUs to apply the Prescribed Risk Management Process		
Title and description	**What submitters said**	**MBIE position**
The proposed provision would require the PRMP to be applied to all risks associated with plant in general. This would mirror the approach of the Australian Model Regulations. *A change from the status quo that builds on duties in the Act by clarifying requisite procedural details.*	The majority of submitters supported regulations, over guidance, as a more effective means of embedding best practice risk management. The process was generally confirmed as suitably adaptable to fit a variety of circumstances. WorkSafe supports the requirement, as a means of addressing current inconsistencies in practices and observable biases towards lower ranking types of control. WorkSafe also supports the requirement on the basis of the firm grounding it gives to wider guidance and regulatory proposals.	Recommended as a means of instilling best practice methods of risk management. This requirement responds to **issues 1-4** (improper guarding, and inadequate management of cleaning and maintenance risks, of risks throughout the life cycle, and of the wide range of risks from plant).

General plant 3: Requirements for life-cycle risk management		
Title and description	**What submitters said**	**MBIE position**
Other than the specific HSE requirements regarding lock-out controls for cleaning and maintaining plant, there are no specific regulatory controls for plant life-cycle risk management. These additional protections, in line with Australian Model Regulations, would: - Require PCBUs to ensure: • A person who installs, assembles, constructs, commissions, or decommissions or dismantles is a competent person, and is provided with the available information for eliminating or minimising risks to health or safety • Installation, construction, commissioning, decommissioning or dismantling plant includes inspection that ensures risks from the activities are monitored, so far as is reasonably practicable • Plant not being used does not create a risk to health and safety, so far as is reasonably practicable • Maintenance, inspection, and testing of the plant is carried out by a competent person. • Maintenance, inspection and testing of the plant is to be carried out with regard to the manufacturer's recommendations, so far as is reasonably practicable, or otherwise in accordance with the recommendations of a competent person, so far as is reasonably practicable, or otherwise annually inspected - Prohibit PCBUs: • from commissioning the plant unless the person has established, so far as reasonably practicable, that the plant is without risks to the health and safety of any person.[27] • Decommissioning or dismantling plant unless it can be carried out without risks to health and safety of any person, so far as reasonably practicable	Supported by a clear majority of submitters, with the need for improved processes for maintenance and retiring plant specifically acknowledged. Some submitters questioned whether just the application of the PRMP would achieve the same end as the additional requirements proposed, but this view was not widely shared. WorkSafe and other respondents (such as NZCTU, Contact Energy, Oji Fibre Solutions, Hoist and Garage Equipment Limited) submitted refinements were needed to provisions mandating the use of relevant available information, to protect against the possibility of encouraging over-reliance on manufacturer's instructions (if the instructions are incomplete or out-of-date, for example). To aid interpretation, submitters fed back that guidance should also be used to clarify specific matters (eg expectations regarding "competency" and the process for assessing whether risks have been created). WorkSafe will further consider these suggestions in implementation.	Recommended with minor adjustments to proposed requirements mandating the use of relevant available information, to address stakeholder feedback. These adjustments allows PCBUs to defer to a competent person's advice in place of a manufacturer's instructions, where appropriate. This requirement responds to **issue 3:** risks throughout the life cycle of plant are not well managed**.**

[27] Under HSW Act duties, provisions requiring that activities are to be "without risks to health and safety" will apply so far as is reasonably practicable. For brevity, this is not always specified in the text.

General plant 3: Requirements for life-cycle risk management		
Title and description	**What submitters said**	**MBIE position**
- Require PCBUs to : • prevent alterations to or interference with the plant that are not authorised by persons responsible for management or control of plant at a workplace • ensure, so far as is reasonably practicable, that plant is used only for the purposes for which it was designed, unless the person has determined, in consultation with a competent person, the proposed use does not increase risks to health and safety. *A change from the status quo that builds on duties in the Act by setting a specific compliance pathway*		

General plant 4: Requirements for plant that lifts or suspends loads		
Title and description	**What submitters said**	**MBIE position**
The *General Risk and Workplace Management Regulations 2016*[28] require PCBUs to manage risks using the PRMP for work done: a) under any raised or lifted objects b) with objects that are reasonably likely to fall This requirement is process-based, with control measures determined by application to specific circumstances rather than fixed by the regulations. It is directed at the management of risks of objects falling, regardless of whether the plant is in operation or not, and does not cater to broader risks (eg where falls from height may occur). A series of supplementary requirements were consulted on to clarify the engineering (safety-by-design) and operational controls. For plant used for lifting or lowering or suspending plant, these provisions would require PCBUs to ensure: • the use of plant specifically designed for the purposes of lifting or suspending • if using specifically designed plant is not reasonably practicable: ○ the plant used instead does not pose increased risks to health or safety (relative to the risks of specifically designed plant) ○ if workers are being lifted or suspended, the use of an attached workbox featuring a safety harness and exit, with certain exclusions for tree lopping (see below for fuller details).	Plant used for lifting purposes was widely recognised as involving more extensive risks, and to therefore warrant further specific requirements. Overall there was support for the proposals, including from the agriculture sector. The forestry sector indicated some concerns, particularly in the use of older excavators and other equipment not designed for lifting or carrying suspended loads, or where workers are not close to the lifting activity (eg log handling or processing environments). Further consultation led to acceptance of the mandatory controls proposed (eg requiring the adoption of hydraulic burst protection, where appropriate) as reasonably practicable where equipment is new or is operated near people. The proposal for a differential tree lopping approach was predominantly favoured by submitters. Little detailed reasons were provided, although the unique nature of arboriculture work was expressly acknowledged in a selection of submissions supporting the proposals. The proposal to incorporate the AS/NZS 1891 standard by reference in regulations was met with some opposition. A common concern amongst those opposed was that 'locking in' the standard in this way will foreclose other alternatives, including those of equivalent or higher standing.	Recommended in an adapted form – ie with design and operational elements only to be progressed – given broad submitter approval and the significant and distinct risks this type of plant presents. This requirement addresses **issue 4:** the range of risks from plant are not properly managed. MBIE is not proposing to adopt AS/NZS 1891 by reference in regulations, due to the potential for adverse consequences by limiting the means of compliance. MBIE does not support any additional exclusions from the regulations. Our assessment, as an outcome of consultation, is that the controls recommended are proportionate, given the related risks involved. Adopting additional exclusions in MBIE's view will risk undermining the durability and effectiveness of the regulations. Detailed supplementary guidance, customised to forestry operations, will be used to clarify

[28] Refer regulation 24.

○ the plant is used in accordance with its design capabilities, including through the use of suitable lifting attachments and adherence to safe working limits ○ loads are not lifted over a person unless allowed for by its design ○ loads remain under control at all times ○ no load is lifted simultaneously by more than one item of plant unless permitted by the rated capacity of the plant. Following the AMR, exclusions from certain aspects of the requirements are proposed for plant used for the purposes of stunt work, acrobatics, or theatrical performances. For tree lopping, MBIE proposes provisions that will: ○ allow for alternative safety measures to workboxes, provisional on certain conditions being met: ○ a risk assessment showing that lifting or suspending a person in a safety harness with a crane provides a safer alternative ○ the person doing the tree lopping is competent in using a harness ○ the crane has safety mechanisms to prevent inadvertent falling ○ while attached to the crane, the person doing the tree lopping is in visual, audio, or radio communication with the crane operator. ○ require the use of harnesses designed and certified with AS/NZS 1891.1:2007 (industrial fall-arrest systems – harnesses and ancillary equipment) for the purpose of lifting and suspending a person. *A change from the status quo that complements duties of the Act by prescribing specific safety-by-design and operational protections.*		expectations regarding the use of separation distances, work phasing, or other administrative controls, as alternative means of compliance for older equipment distanced from workers.

General plant 5: Requirements for lasers		
Title and description	**What submitters said**	**MBIE position**
Lasers are plant and therefore their use is subject to the *General Risk and Workplace Management Regulations* requiring businesses to ensure workers have adequate knowledge, supervision and training and general HSW Act duties. Currently there are no additional mandatory controls for lasers. MBIE consulted on further protections addressing the unique risks that lasers pose – exposure to radiation and burns that can arise from direct exposure, or indirectly, through reflection or refraction. We consulted on requiring PCBUs to ensure that: - laser equipment a) intended for use on plant is designed, constructed and installed so as to prevent accidental irradiation b) on plant is protected so the operator or any other person is not exposed to direct radiation, radiation from reflection or diffusion or secondary radiation - visual equipment used for observation or adjustment of laser equipment on plant does not create a risk to health or safety from laser rays - operators of laser equipment are trained in the proper operation of the equipment As well as these provisions, we also consulted on replicating Australian Model prohibitions for certain class categories of lasers (Class 3B and Class 4, as defined within AS 2397:1993) in construction work. *A change from the status quo that complements HSW Act duties by prescribing specific safety-by-design and operational protections.*	The concept of specified requirements attracted predominantly positive feedback from submitters, but limited responses were received on specific aspects of the provisions proposed. In recognition of this, MBIE undertook supplementary engagement with laser manufacturing representatives who fed back that guarding is typically fitted on a business's own accord, rather than already supplied pre-fitted by the supplier, allowing for customisation to the specific production set up / business. MBIE is confident from this further engagement that the minimum design and operational protections proposed reinforce best practice. WorkSafe supports new regulations, based on the Australian Model Regulations, given expectation of continued growth in lasers across a variety of different sectors (medical, manufacturing, and construction, for example) and in the importation of "unbranded" lasers. Australian Model Regulation prohibitions on certain classes of lasers attracted divided opinions. Those opposed rejected the need for a ban in circumstances where there are other means available of effectively controlling relevant risks.	Recommended in adapted form – ie with design and operational elements of the changes introduced but specific class prohibitions omitted. Notwithstanding the early stage assimilation of laser technology in workplaces (across industries generally), it is our assessment that the significance and readily identifiable features of the specific risks posed by lasers warrant the minimum protections proposed. Responds to **issue 4:** the range of risks from plant are not properly managed.

Application of the requirements

The requirements we recommend will apply broadly and with limited exceptions, as supported by the majority of submitters. MBIE's recommendation is that the requirements apply to all forms of plant aside from:

- plant which relies exclusively on manual power for its operation and is designed to be primarily supported by hand. This adopts a proportionate approach, which recognises intrinsic risks as materially different to those of plant powered from external sources (eg electricity).
- non-military aircraft and its componentry, which are subject to the requirements set in the Civil Aviation Rules prescribing safety rules before use and for regular maintenance and checks.
- military aircraft and naval ships, which will instead have an alternative compliance pathway apply, as specified under a Defence Force Order, issued under s. 27(2) of the *Defence Act 1990*
- military plant (eg artillery weapons), where a Defence Force Order provides sufficient protection
- selected ancillary equipment on vessels (ie processing equipment and materials handling equipment like winches and augers).

Stunt work, acrobatics, and theatrical performances will be exempted from certain aspects of the requirements for lifting equipment, as discussed above.

MBIE's recommendation to exclude non-military aircraft

Matters of coverage regarding aircraft attracted limited feedback, and we received no submissions from those directly affiliated with the aviation industry. We received two submissions from those for whom aircraft use is ancillary to their main operations within their industry – Civil Contractors New Zealand for use in construction and maintenance work, and Federated Farmers for use in agriculture. Civil Contractors NZ expressed no firm views, citing a preference for further discussion. Federated Farmers submitted that applying the regulations proposed for aircraft would add unnecessary costs for no or marginal benefit.

The Civil Aviation Authority (CAA) (also the work health and safety regulator for aircraft while in operation) considers, in principle, that the Civil Aviation Rules are comprehensive and supports the recommendation to continue to exclude aircraft and the plant on board aircraft from the regulations.

MBIE recommends the continuation of exclusions for aircraft and plant on board aircraft, as supported by the CAA. Safety in the aviation sector is managed through Civil Aviation Rules, and is guided by Standards and Recommended Practices (SARPs) set by the International Civil Aviation Organization (ICAO) for aviation safety, security, efficiency and environmental protection. In relation to plant, rules include requirements for:

- the certification or approval of aircraft, products and parts, including design changes

- maintenance of aircraft, components required to be fitted to an aircraft, and instruments and equipment required to be fitted to aircraft.

These stringent safety standards, the general application of the HSW Act, and the nature of plant on board aircraft mean that excluding aircraft is proportionate to the risks involved.

Given the comprehensive nature of the Civil Aviation Rules, applying these additional work health and safety requirements to aircraft would essentially create a dual regime, risking contradictory or overlapping rules (either initially or over time) and may result in confusion about how to comply.

MBIE's recommendations for military aircraft, warships, and other military plant

With warships and military aircraft excluded from CAA and Maritime Rules, MBIE's recommendation is that an alternative compliance pathway applies for the requirements proposed for introduction. Specifically we are proposing that military aircraft and naval ships are exempted from the regulations where a formal Defence Force Order (as issued under s. 27 of the *Defence Act 1990*) that complies with the regulations, to the extent practicable, is in place. Further exclusions will apply for broader types of military plant subject to sufficient protections provided by defence order.

MBIE's recommendation of partial exclusions for vessels

MBIE's recommendation is that partial exclusions are adopted for vessels, so that:

- these proposed requirements only apply to ancillary plant on board vessels (such as winches, augers, and on-board processing machinery) other than propulsion engines
- otherwise the status quo is retained and that vessels continue to be regulated through a combination of Maritime Rules and HSW Act general duties.

Relevant Maritime Rules that already apply are based on international ship safety conventions and include:

- the *Maritime Operator Safety Standards (MOSS)* for commercial vessels (conditional on certain size thresholds), featuring mandatory audited safety systems (*Maritime Operator Transport Plans*) and ship survey certification requirements
- wider Maritime Rules – among other things, these rules specify requirements for ship design, construction, and equipment, and are currently the subject of a review (the *Series 40 review*).

MBIE's recommended approach is not supported by commercial fishing industry participants, who have objected to the inclusion of vessels and any on-board plant in these proposals. Matters of coverage regarding vessels and ancillary on-board plant attracted a number of submissions from fisheries businesses and the New Zealand Fishing Health and Safety Forum – the sector's main health and safety advocacy body for large commercial operators. A central concern among these submitters was that dual regulatory rules – under maritime law and under health and safety regulations for plant and structures – would reduce clarity for fisheries operators and produce regulatory standards that are ill-suited to the specifics of the marine operating environment.

Submissions against the proposal were broadly matched by submissions in support (11 in favour versus 14 opposed). A recurrent view amongst those in favour was that equal risks warrant equal treatment (ie there is equity for workers where the risks of harm are comparable).

MBIE also sought input from Maritime NZ as the work health and safety regulator for vessels as workplaces, and as the organisation responsible for the Maritime Rules. If appropriately bounded, Maritime NZ's assessment is that the provisions do not introduce any specific conflicts or irregularities with Maritime Rules or undue compliance burden, and their partial application (ie in supplement to Maritime Rules, in selected circumstances) is supported in-principle by Maritime NZ. Maritime NZ will closely engage with MBIE through the drafting process to ensure that qualifying plant is appropriately specified to avoid any risk of perverse outcomes (eg from impeded access to machinery that must be able to be quickly accessed for the safety of the vessel and its crew).

Unlike most other types of plant, machinery on board ships was excluded from the Machinery Act.[29] Types of plant excluded from these past protections ranges from machinery that is integral to the operation of vessels themselves (such as engines) to more modern forms of ancillary machinery (eg processing plant). Although these types of machinery were excluded from the Machinery Act, the general duties under the former Part 2 of the *Maritime Transport Act* and, subsequently, the HSE Act and HSW Act have applied to such machinery. There have been (and continue to be) numerous breaches of these Acts involving processing or materials handling equipment on board vessels and harm.

MBIE accepts there is a degree of overlap between the regulatory provisions proposed and Maritime Rules. There are also certain points of difference, most notably the proposed mandatory guarding requirements, which will prescribe a hierarchy of guarding measures for determining suitable controls. This sets a compliance pathway for which there is no comparable alternative within Maritime Rules.

For the years 2015-2019, there were 6 work-related fatalities involving plant in fishing, hunting and trapping. In that time, there were a further 558 work-related injuries resulting in more than a week away from work in these sectors, a number of which involving machinery as a key cause.[30] Rates of injury are high relative to other sectors, with these sectors ranked sixth highest for 2019-2020, with a rate of 21.34 (assessed per 1,000 FTEs), ahead of forestry and logging (7^{h} ranked, at 21.20).

In the absence of any areas of discrepancy with Maritime Rules, and given the continuing health and safety compliance breaches and harm, MBIE proposes that the same mandatory controls for onshore processing facilities apply to processing facilities on board vessels. This will serve to reinforce best practice while also supporting consistency across industries in the treatment of comparable risks. MBIE's recommendation also has been guided by the significance of the harm on-board plant (eg processing plant) can cause.

[29] cl. 3(f) of the Machinery Act 1950 refers.

[30] Indicatively 15 per cent or more, adopting the SWIFT data classifications of injuries involving "hitting stationary or moving objects", "being hit by moving objects", "being trapped between moving and stationary objects", and "being trapped in moving machinery or equipment".

MBIE recommends that current PECPR exclusions for vessels are retained, ie excluding vessels from the types of plant proposed to be regulated as "high risk plant". This approach is supported by submitter feedback. The "high-risk plant" chapter of this RIA discusses this in more detail.

MBIE's recommendations for powder-actuated tools

MBIE is recommending that general plant requirements are made to apply to powder-actuated tools such as nail guns. Submitters generally supported introducing the same plant requirements for powder-actuated tools, for reasons of coherency and due to the magnitude of the risks involved in the operation of powder-actuated tools, particularly those of high velocity power.

Long standing certificate of competence requirements also apply to powder-actuated tools. Submitters suggested that the more modern tools warranted more proportionate treatment in licensing, in recognition of their in-built safety features. This will be further considered under the upcoming "Hazardous Work" review, which will cover certificates of competence.

Additional proposals not being progressed

MBIE also consulted on specific proposals for robotics, based on the Australian Model Regulations, requiring PCBUs to:

- have suitable control measures in place before directing or allowing a worker to work in the immediate vicinity of robotic plant if it could be started without warning and cause a hazard
- ensure that access to the area in the immediate vicinity of robotic plant is controlled at times by isolating the area or using a hierarchy of control measures.

Of those that submitted on the consultation proposals (representing ~ 23% of submissions received), a weak majority were in favour of the changes. Those who were opposed were concerned about the general risk of impeding innovation. Supporters provided limited detail as to their reasons.

As an outcome of consultation, MBIE does not support progressing the proposed requirements at this time, given the continued innovation underway with robotics (generally, but also relating to the means of controlling risks). The protections of the HSW Act and wider changes proposed for plant generally are considered by MBIE to be sufficient to address the harm associated with robotic plant. Relevant wider changes recommended include:

- mandatory application of the PRMP to the general risks of plant and more specifically the risks from mobile plant
- requiring appropriate warning devices to manage the risks of collision
- guarding requirements
- a requirement for 'upstream' designers, manufacturers, importers and suppliers to ensure plant is without health and safety risks, so far as is reasonably practicable, and feedback information on the safety of plant across the supply chain.

On balance, WorkSafe supports MBIE's recommendation not to progress the proposals at this time. WorkSafe notes the rapid pace at which robotics technology is continuing to

advance, and the need for innovative safety features to keep pace with developments. For example, increasing use of collaborative robots (cobots) with more frequent interaction between robots and humans means traditional controls like isolating the robot are not appropriate. Designing a safe cobotic installation is challenging and will rely more on highly sensitive and failsafe safety sensors and detections to ensure safety. International standards can play an important role as a mechanism for benchmarking good practice, as they can respond more quickly than regulations.

WorkSafe will be able to produce workplace guidance as a means of clarifying expected risk management practices for robotics.

Impact analysis

Method of assessing impacts

In assessing the impacts of relevant options we have based our assessments on consultation responses and supplementary analysis, which has been informed by specialist input from WorkSafe and wider sources (eg manufacturers of laser equipment).

Business responses to the changes under consideration will not be uniform but rather will depend on the precise nature of the business and the way health and safety risks are managed currently. Due to this, we are unable to prepare overall quantified cost estimates for all of the changes under consideration. Corresponding benefits – in so far as attributable reductions in harm – similarly are difficult to quantify.

In recognition of the complex and varied nature of associated impacts, we have instead adopted a qualitative approach to assessing impacts which:

- for costs considers:
    - stakeholder feedback on associated costs, and our own assessments (where possible) of illustrative costs of control measures
    - the scale of adjustment required, benchmarked against common business practices, as reported by stakeholders, and broader requirements (including those previously set by the *Machinery Act 1950*)
    - inter-relationships with wider proposed provisions, in particular addressing the design of safety critical features (see Chapter 4: Upstream Duties for further discussion)
- for benefits focuses on how the changes will influence underlying causes of harm (as identified through consultation, and described under 2.2.3), and alignment with Australian arrangements (as a country that compares favourably in rates of workplace harm).

Expected costs

Submitters were divided in their views as to whether the requirements proposed would involve costs for their businesses. Feedback received primarily from larger business respondents was that proposed requirements were already being met, therefore involving no additional costs. Others took a different view, submitting that the changes would involve some level of costs – whether as a result of training, general compliance, or machinery / equipment upgrades. Where costs were anticipated, submitters generally considered these would be “one-off” and did not provide specific estimates as to likely scale.

A number of submitters impressed the importance of adequate guidance as a means of alleviating the costs for businesses in interpreting the regulations. WorkSafe guidance will be made available to accompany the changes.

MBIE’s assessment is that costs overall will be modest. Capital upgrades will only be required in certain specific cases, for instance to ensure that machinery is safely guarded, so far as is reasonably practicable, and where warranted by the presenting risks. The additional

specificity set by the requirements reinforces and is compatible with best business practices (including AS/NZS Standards), moderating the costs of the changes. In-built safety by design features (like guarding) will also be encouraged to be addressed at an earlier, more cost effective stage in the lifecycle of the plant, with supplementary requirements proposed for "upstream" designers and providers of plant.

Wider costs incurred (eg for the purposes of training staff) are expected to be minor.

Expected benefits

In general, submitters considered costs would be matched by commensurate benefits. Specific benefits identified were wide-ranging – with the NZCTU, for instance, submitting:

> Increasing clarity in the regulations through implementing these proposals has clear benefits for workers when working with plant. The most easily identifiable benefit is better protections in the workplace, a second but equally important benefit is the improvement the regulations will have on worker engagement. Where workers are more easily able to find the standards against which their jobs operate, they are in a better position to identify hazards, engage with their employers on these hazards and to address them. We have noticed gaps in the workforce where risk identification and controls are not understood as well as they could throughout the workplace, this is a clear gap in the health and safety system – these regulations should be able to assist in filling these gaps. Another element of engagement is better equipping the workers to help their workmates with health and safety in the workplace. Improved regulations with plant and mobile plant help Union representatives, health and safety reps, and staff create environments where new staff are able to understand risks of the workplace – and appreciate them

MBIE, like the majority of submitters, has assessed the impact of the changes as net positive. As an outcome of consultation, MBIE is confident the changes:

- will be effective in improving the way key risks are managed across businesses, without imposing undue costs
- implement proportionate requirements, which prescribe controls that are appropriate for the level of risk and that are consistent with existing guidance and AS/NZS Standards
- appropriately balance the need to provide clarity for duty holders with the need to avoid undue prescription
- achieve flexibility and durability by implementing modernised regulations that are suitably adaptable for diverse workplaces.

We are unable to specifically estimate the reduction in harm that may result, though associated levels of plant related harm (equating to 61 percent of work deaths) indicates the impact is likely to be significant.

More detailed analysis across each of the specific changes recommended is provided in tables below.

Impact analysis

The tables below provide our assessment of incremental impacts relative to the status quo for recommended options. The assessment indicates MBIE anticipates significant net positive impacts overall from the package of proposals, arising from better management of a variety of risks. The changes produce a balanced set of requirements that provide a proportionate response to the levels of harm. In featuring little prescriptive detail, the changes cater to a wide range of businesses and types of plant, delivering significantly improved flexibility and durability. Impacts on clarity are assessed as of a lower scale but as materially improved overall.

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
No action	0 The high associated rates of harm caused by plant (61 per cent of all workplace fatalities, and 46 deaths, annually, on average) illustrate that health and safety risks are not being effectively managed.	0 Current regulations – such as the HSE Regulations 1995 – provide only partial coverage of common risks and are outdated. Current protections have fallen behind protections of the past, as provided by the Machinery Act 1950, and those of the UK and Australia, as countries with more favourable levels of workplace harm.	0 Current regulations are incomplete and provide insufficient clarity for duty holders on the expected means of compliance with HSW Act duties. The interim removal of the Machinery Act in 2016 has caused added confusion.	0 Cost effectiveness is not being achieved due to the high cost burden (social and monetary) of the workplace harm caused and insufficient take up of more cost effective and reliable engineered controls.	0 Regulations are selective in their coverage, undermining durability. The prescriptive specificity of HSE regulations does not fit the modern, comprehensive approach introduced by the HSW Act.	0 By inhibiting clarity for workers and duty holders, the gaps of current regulations are resulting in poor health and safety outcomes.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
General plant 1	**Guarding requirements**	+ As per earlier *Machinery Act 1950* requirements, encourages increased adoption of more reliable engineering controls (safety-by-design) and formalises expectations of AS/NZS Standards.	++ These provisions apply only so far as is reasonably practicable; they are not absolute. The provisions allow for a range of control systems. The regulations will not specify the means of maintaining record keeping required for presence-sensing safe guarding systems, allowing for businesses to customise their approach.	++ Addresses the gaps in HSE requirements and the reduced clarity resulting from the Machinery Act's removal. Reinforces accepted best practices from AS/NZS Standards.	+ Requires measures that are practicable and commensurate to the risks of particular circumstances, in this way incorporating an expectation of cost effectiveness. Business costs – anticipated to be modest overall – will vary from minimal, to more substantive (in instances involving initial upfront upgrade costs). For new plant, more extensive availability of pre-fitted guarding – arising from supplementary proposed "upstream" duties – will diminish the need for costly retrofitting. Compensating benefits will arise from greater uptake of effective safety-by-design controls. The partial overlap with protections of the past moderates expected costs and benefits.	++ In contrast to existing HSE regulations[31] does not specifically limit applicable types of machinery, ensuring consistency of coverage across plant in all forms (traditional and modern). Introduces a ranking of different guarding controls, in accordance with the level of protection and reliability they offer. The rankings align with those in the AS/NZS standards.	++ Ensures clear and consistent expectations that are anticipated to effectively encourage reliable means of harm prevention.

[31] Guarding provisions under the *Health and Safety in Employment Regulations 1995* apply only to the specific types of woodworking and abrasive machinery listed in Schedule 1, column 1

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
General plant 2	**Requiring PCBUs to follow the PRMP**	+ Provides a common structured process to set consistent expectations for PCBUs and workers. Provides additional specificity to support the central concepts of risk management embodied by the HSW Act. Confirmed as existing standard practice by some submitters.	++ Directs a PCBU's attention to those areas which warrant the highest level of protection, given the risk of harm. Makes each descending step of the hierarchy contingent on what is reasonably practicable – in this way ensuring proportionality.	+ Sets a process to be followed that provides additional clarity for duty holders on how they can comply with their HSW Act s. 30 risk management obligations, but leaves the specific means of compliance as a matter for PCBUs to determine. Replicates what is already in place for selected categories of work currently. Conforms with AS/NZS Standards.	+ Requires what is "reasonably practicable" and commensurate to the level of risk – which will differ from business to business. Methods of documenting assessments are not set by the requirements, allowing for businesses to customise their approach. Further encourages cost effective safety- by-design measures. Material benefits anticipated at modest cost overall.	++ Embeds flexibility by specifying the end not the means.	++ Reinforces HSW Act duties by providing more specificity in risk management for common critical risks, in a way that is proportionate, durable and flexible.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
General plant 3	Requirements for lifecycle risk management	++ Addresses the variable practices of businesses currently in managing life cycle plant risks.	++ In a number of instances these provisions will be contingent on what is reasonably practicable in the circumstances, as means of safeguarding against requirements that are unduly onerous. Broader requirements have been confirmed through consultation as reinforcing general best practice.	+ Sets more specific expectations for undertaking key elements of general plant risk management, to assist with the interpretation of general HSW Act duties. As requested by submitters, associated specific competency criteria will clarify how the involvement of 'competent persons' required by the provisions can be complied with.	++ Expected to significantly improve risk management at low to modest cost overall. Sets requirements that are suitably adjustable for existing business practices.	++ Avoids undue prescription, allowing businesses a level of flexibility in their methods of compliance (ie sets requirements that are readily adaptable to suit established maintenance and plant management processes).	++ Sets balanced requirements for management plant that are compatible with existing business practices. Anticipated to improve general plant management without imposing undue compliance costs.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
General plant 4	**Design and operational requirements for lifting plant**	++ Provides a means of improving risk assessment by re-orienting expectations towards stronger engineering controls, where practicable, with increased reliability.	++ Responds to the significant and distinct risks this type of plant can present by clarifying expectations regarding the integrity of the machinery and its in-built safety features, along with broader operational processes. Allows for varied responses, dictated by what is practicable in the circumstances, rather than prescribing 'one-sized fits all' rules. Accompanying WorkSafe guidance will allow for lower cost means of compliance for forestry work that is distanced from workers.	+ Incrementally improves clarity by supplementing requirements already specified general risk regulations. WorkSafe guidance will be needed to clarify aspects of the requirements, most notably for how they apply to forestry operations.	++ Costs will be determined by what is effective and reasonably practicable in the circumstances. Resulting business costs will vary from marginal through to more substantive, in particular where capital upgrades are required. Costs are expected to be modest overall and met by commensurate health and safety benefits.	++ Avoids undue prescription to deliver durability and flexibility. Easily applies to machinery in new forms.	++ Expected to provide an effective means of improving uptake of safety by design, where warranted by the risks involved, as an outcome, improving general risk management in a proportionate manner.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
General plant 5	**Customised requirements for lasers**	+ Expected to improve risk management through increased in-built safety design features and safer operational practices. Effectiveness is anticipated to be raised by broader "upstream" related requirements, targeting improved safety of imported plant and plant design more generally. Sets a baseline for safety ahead of expected future growth in uptake.	+ Responds to the growing risk of harm lasers pose for workers and others. Addresses a set of clearly identifiable risks.	+ Sets general requirements for proper design and operation, leaving the specific means of compliance as a matter for PCBUs to determine.	+ Encourages sound design over retro-fitted controls of lessened effectiveness and / or increased cost. Specifies the end not the means in setting out the protections to be provided.	++ Responds to emergent risks. Has minimal prescription to ensure that business practices and technology innovation are not unduly hampered.	+ Provides an appropriate platform for better management of the distinct risks that lasers present.

Key:

++	much better than doing nothing/the status quo
+	better than doing nothing/the status quo
0	about the same as doing nothing/the status quo
-	worse than doing nothing/the status quo
- -	much worse than doing nothing/the status quo

Summary of conclusions: General plant

Key conclusions from this chapter are summarised below.

Plant causes extensive harm, with most (61 per cent) work fatalities involving plant of some form. Plant is pervasive across workplaces and its safety is integral to good health and safety at work.

The types of risks that plant poses for workers and others are as broad and varied as the different forms plant can take (including machinery, tools, and other types of equipment). Some of these risks are long-standing (such as machinery entrapment, crushing of body parts, and exposure to noxious fumes or chemicals) whereas others have come about more recently through technology changes (such as lasers in production), with further risks expected to emerge as technology continues to develop.

For plant to be safe, its risks need to be systemically well managed, across its full life cycle – from commissioning through to disposal. From the feedback we have heard from stakeholders and WorkSafe, it is apparent that this is not being achieved:

- Guarding and safety measures do not meet acceptable standards, are being removed, or are not fitted at all
- There is inadequate management of cleaning and maintenance risks
- Risks throughout the life cycle of plant are not well managed
- The range of risks from plant are not being properly managed.

The requirements under existing regulations for managing plant safety provide insufficient clarity for workers or businesses on how risks should be managed and:

- are incoherent
- have fallen behind earlier, long-standing protections of the *Machinery Act 1950,* revoked as a transitional step to the more modernised requirements of these proposals.
- are out of step with the wide types of plant operated in modern work places (such as presence-sensing safeguarding systems) and the more comprehensive requirements of the UK and Australia, as countries with significantly lower work-related harm.

MBIE recommends regulatory changes are made in response to the issues identified. The changes recommended for adoption are closely based on Australian Model Regulations and will require PCBUs to:

- apply a specified process to determine the appropriate guarding for their particular plant
- ensure safe maintenance and cleaning of plant, and safe operational controls, emergency stops and warning devices
- maintain the integrity of presence-sensing safeguarding systems, through keeping records of testing, inspection, maintenance and alteration
- apply the Prescribed Risk Management Process to the risks arising from plant
- arrange inspection whenever plant is altered, to ensure the risks are monitored
- use a competent person whenever plant is altered, maintained, inspected or tested
- prevent unauthorised alternations or unintended use
- adopt specific design and operational protections for lasers and plant used for lifting or suspending loads.

Alternative means of compliance will be allowed in certain circumstances (such as tree work). Transitional arrangements are yet to be determined, pending further consultation with stakeholders.

MBIE's assessment is that the changes:

- Will effectively improve risk management, by increasing clarity for duty holders, and improving the use of reliably engineered 'safety-by-design' measures and overall quality of plant
- Are durable, proportionate, and equitable – setting equal protections for workers across sectors with minimal prescription
- Involve modest costs overall, through conformity with AS/NZS standards and prior Machinery Act requirements, that are expected to be met by significantly higher compensating benefits.

We do not recommend further required protections proposed for robotic plant at this time.

Stakeholders were generally supportive of the changes recommended, with objections from forestry and fisheries groups on selected aspects outweighed by broad support overall.

Chapter 3: Mobile plant protections

Section 1: Problem definition and objectives

What is the current state within which action is proposed?

Mobile plant encompasses plant that is powered or self-propelled. Forklifts, quad bikes, bulldozers, elevating work platforms, mobile cranes, cars, and trucks all fit within this category of plant, which is ubiquitous across virtually all industry sectors. The uses for mobile plant are similarly varied – for example the transport of goods / people, and also the towing and suspending of loads such as hay baling or retrieving large items of stock within a warehouse.

Much of New Zealand's mobile plant is designed and produced at scale by large overseas manufacturers. Altering original designs and modification through the addition of new fittings (eg fixtures to increase the carrying capacity on quad bikes) when the equipment enters into use in New Zealand is common. The scale of the cost to purchase new (at times in excess of $1 million) means that the re-circulation of older equipment frequently happens through re-sale. As a small country, mobile plant is often sourced secondhand from overseas. Plant can be on-sold irrespective of its state of repair – as provided for by the 'as is' provisions of the HSW Act (s. 42(6) refers) – leading to a very prolonged life in some cases.

Mobile plant technology continues to evolve. Remotely controlled plant is increasingly being used within workplaces – for instance to control horticultural crop spraying equipment. The costs of safety features – such as cameras to address operator blind spots on construction vehicles – have in many instances declined considerably. Predominantly dating from the 1990s and earlier, current regulatory requirements have not kept up with these developments.

What regulatory system(s) are already in place?

As illustrated by the table below, mobile plant usage is governed by piecemeal collection of measures currently. Regulations have for some time contained a series of exclusions eg, an exemption for plant under 700 kg (intended to exclude lighter plant from the cost of complying), in the case of roll over protection requirements.[32] Over time, the amount of plant covered by these exclusions has grown, particularly as the use of sub 700 kg vehicles (quad bikes, but also side-by-sides, for example) has become more prevalent.

HSW Act *Sections 36 & 38*	• Businesses must ensure that the health and safety of workers and others is not put at risk from the operation of vehicles / mobile plant in workplaces.

[32] The 700kg *de minimus* exemption had its origins in *Tractor Safety Frame* Regulations from 1967

Health and Safety in Employment Regulations 1995 *Sections 19 & 20*	• Supplementary requirements for roll over protective devices and seat belts, in selected circumstances only. • Excludes: - mobile plant that weighs 700 kg or less - tractors used in agricultural work - forklifts with telescopic booms - power operated work platforms (or mobile elevated work platforms) - mobile plant designed to be used on level ground (if the PCBU has taken steps to ensure workers use it only in this way). - cars, trucks, vans and buses - cranes - agricultural harvesters - log haulers - paving machinery - drag lines • On application to WorkSafe, exemptions can be granted for additional types of plant (none issued to date).
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 Regulation 9	Requires: • businesses to ensure that workers have adequate knowledge, supervision, and training for the safe use of plant and personal protective devices, and • risks to health and safety from work done under lifted objects or loads are eliminated, so far as is reasonably practicable, or otherwise managed.
Health and Safety in Employment (*Pressure Equipment, Cranes and Passenger Ropeways*) Regulations 1999	• Features regulatory requirements specific to mobile cranes (and cranes generally).
Non legislative measures	Relevant examples include: - The *Safety and Health in Forest Operations: Approved Code of Practice* – released December 2012 - The *Training Operators and Instructors of Powered Industrial Lift Trucks (Forklifts): Approved Code of Practice* – released August 1995 - *Operator Protective Structures – for use on self-propelled mobile mechanical plant: Approved Code of Practice* – released February 1999 • Supplied as interpretative aids, these documents cannot (and do not) purport to describe any strict legal requirements, but are able to be relied on as sufficient evidence of compliance.

In certain circumstances, the safety of mobile plant is also regulated by other interacting legislation and regulations. Vehicles are subject to safety and other requirements under the transport regulatory system, including driver licensing and vehicle registration. For requirements to apply, vehicles must be operating on public roads. Vehicles on private roads –

for instance to transport workers to a farm or to a forestry site – fall outside of transport rules. By virtue of their classification as "plant" under the HSW Act[33], aircraft and vessels are subject to health and safety general duties. Sector-specific safety regulations – as administered by the Civil Aviation Authority (CAA) and Maritime New Zealand – also apply. The "general plant" section of this RIA provides additional information on this.

WorkSafe's Policy Clarification on Crush Protection Devices for Quad Bikes

In May 2019 WorkSafe released a 'policy clarification' firmly endorsing the use of crush protection for quad bikes, receiving support from prominent agricultural affiliation group Federated Farmers.[34] Launched in parallel, an ACC-administered subsidy scheme provides businesses with access to up to $360 in subsidies to offset the purchase cost of these protection devices. A significant increase in sales of operator protective devices has occurred since the clarification's release. In overall terms, however, sales remain at modest levels.

What is the policy problem or opportunity?

As a central cause of work-related harm (corresponding to 92 percent of all plant related fatalities, 53 percent of work fatalities overall), mobile plant has a major influence on New Zealand's workplace health and safety. Although mobile plant work-related injuries can occur in any sector, more than half of them in New Zealand occur in the following industries:

- Agriculture, Forestry and Fishing
- Construction
- Manufacturing
- Transport, Postal and Warehousing.

Mobile plant poses its own distinct risks – additional to those presented by general types of plant (refer Chapter 2 for further details) – that need to be properly managed. The movement of mobile plant, often in dynamic working environments such as construction sites, warehouses, or on variable terrain, can cause harm from:

- overturning or colliding with people, things or other mobile plant
- falling objects or being thrown from mobile plant
- exposure to dangerous substances eg diesel particulates.

The risks presented are often exacerbated by the weight of the machinery involved (upwards of 1500 kg for forklifts and 300-500 kg for general use quad bikes). Instances of harm can involve operators, passengers, and also bystanders on occasion.

Current requirements lack specificity in expected practices for managing relevant risks, and contain anomalies with broader HSW Act duties, through the multiple exemptions they incorporate. Their incompleteness means they are ill-suited to the heightened risks that mobile

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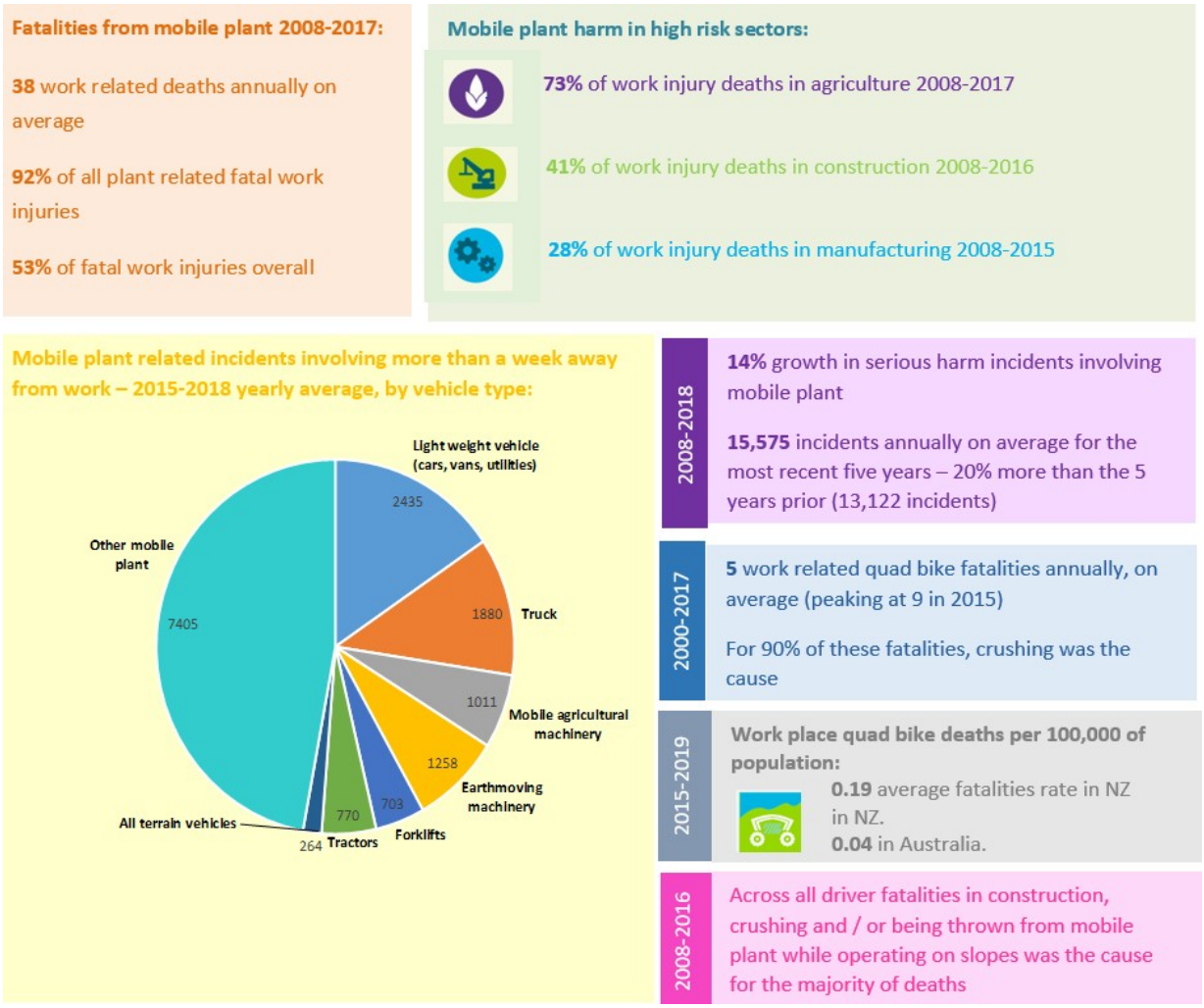
[33] With the term "plant" defined under s. 16 of the HSW Act to include: any machinery, vehicle, vessel, aircraft, equipment … appliance, container, implement, or tool

[34] As per ALHSAG submissions on the Review, and https://www.fedfarm.org.nz/FFPublic/Media-Releases/2019/Crush_protection_for_quad_bikes_very_worthwhile_option.aspx;

plant can present – eg being thrown off or struck by the plant itself or any items it may be carrying.

Mobile plant remains a significant and persistent source of harm across a variety of different sectors. Relevant available data illustrating this is summarised below. There has been very little fluctuation in the scale of attributable deaths year-on-year over the 2008-2017 decade. Incidents of serious work-related injuries (resulting in more than a week's absence from work) generally have continued to rise for different forms of mobile plant. In the five years since 2014 for instance, annual incidents of serious harm involving earthmoving machinery, on average, increased 202 per cent from the previous five years. For mobile agricultural machinery, incidents grew by 145 per cent.[35]

Figure 12: Harm caused by mobile plant



Source: SWIFT data, unless otherwise specified

[35] Derived from SWIFT data.

The need for improved risk management

The significance of the harm associated with mobile plant demonstrates that improvements are needed in the way that risks are managed. Specific associated issues related to mobile plant are as follows:

Issue 1: Roll-overs are a prevalent cause of work-related harm

The risk of rolling is a well-known and common risk associated with mobile plant, which can overturn when its centre of gravity becomes unbalanced. When mobile plant rolls over, it can crush or trap operators or passengers, resulting in serious injuries and fatalities. The risks of over-turning may be increased by a range of factors, for example difficult terrain or weather conditions, heavy loads, and / or inadequate training or experience of operators. Certain devices – such as crush protection on quad bikes and tractor safety frames – can provide a means of protecting the operator if the plant rolls over.

Tractors, forklifts, quad bikes, compact dumpers, dump trucks, telehandlers, and ground spreader fertiliser trucks are particularly prone to overturning, because they have a higher centre of gravity. Overturning has been reported as associated with 17 percent of vehicle-related deaths at work in the UK 1998/99-2004/05. Indicative data from WorkSafe indicates there were 2,795 incidents in New Zealand of serious injury involving forklifts, tractors, ATVs (including quad bikes), and earthmoving machinery for the year 2018.

In recognition of the level of risks involved, New Zealand, Australia and the United Kingdom all require persons managing or controlling plant to ensure protection for people on mobile plant in case the plant rolls over (though subject to a series of exceptions in New Zealand, as noted above). In Australia, the Federal Government has moved to introduce product safety regulations requiring rollover protection devices for all newly imported ‘general use’ quad bikes, subject to an 18 month phase in period.

Rollover protection for tractors is widely recognised as not necessarily suitable in all circumstances, given the way that other items (eg long-hanging vegetation) can interfere when in the path of the rollover protection measures. This is addressed in WorkSafe’s guidance on Safe Use of Tractors on Farms, and in Australian and UK regulations, which allow alternative control measures to be used in selected circumstances (tractors used for hop or orchard work, in and around buildings, and in places that are too low).

Issue 2: Collisions cause significant harm

When mobile plant hits things, the operators can be thrown out of the plant, get whiplash, or be thrown around inside the plant (if they are not suitably restrained). Operators (both in and temporarily outside of the plant), passengers, and people in the vicinity of operating mobile plant can be hit by the plant, or crushed between the plant and stationary objects. The risks of collisions can be exacerbated by a variety of factors (such as poor light or adverse weather conditions, dynamic and busy work sites, and operator blind spots or inadequate training).

WorkSafe analysis indicates between 2008 and 2016, 38 percent (10) of vehicle-related fatalities on construction sites involved victims outside of the mobile plant.[36]

Aside from the general duties in the HSW Act, there are no specific requirements for PCBUs to manage the risks of mobile plant hitting people or things. By contrast, Australia has clear duties on PCBUs to manage the risk of collision, and where there is a risk of collision mobile plant must have warning devices. The United Kingdom requires mobile plant to have visibility aids, where safety is at risk due to visual impairment, and lighting during night operation.

Issue 3: People can be thrown from mobile plant

Being thrown out of or off mobile plant can occur when plant rolls over (eg caused by destabilisation of a vehicle when towing a load), is operated on uneven or sloped ground, when the operator takes unexpected sharp turns or manoeuvres, if something falls onto the plant or operator, or if mobile plant collides with another plant or thing and the driver is not secured with a seatbelt.

If operators or passengers are thrown from mobile plant, the risks of serious injury or death are high because the plant will often continue to move and can run over the person who is thrown out. This remains the case irrespective of whether the plant is travelling at low or high speed. For mobile plant that operates at higher speeds (eg quad bikes and other vehicles) there is an additional risk of harm if operators or passengers are thrown out and hit the ground or another thing with a lot of force. Being thrown out of or off mobile plant at low speeds can still result in crushing or other injuries.

WorkSafe analysis shows that between 2008 and 2016 most driver fatalities in the construction sector were caused by drivers being crushed and/or thrown from their mobile plant when operating on slopes. Failure to wear seatbelts was a significant contributory factor to the driver's death in 80 percent (8) of the cases where the driver was in the vehicle at the time control was lost.

Issue 4: Falling objects pose significant risks

Falling objects pose particular risks for operators and passengers of mobile plant since it is often:

- used to lift objects and loads that could fall onto operators, passengers, or other people nearby (eg mobile cranes, forklifts, hay bales on tractor forks)
- used to carry objects that need to be loaded and unloaded from the mobile plant (eg trucks, forklifts)
- operated in dynamic work environments where other machinery is operating, and objects are being lifted by other plant in the vicinity, or in workplaces where objects and people can fall from height (eg construction sites and warehouses).

Lifting, moving, unloading and loading objects are key causes of harm from mobile plant. Objects falling on people was the third biggest cause of fatalities (19 percent, 15 deaths) in construction between 2008 and 2016. Forty percent of these occurred when people

[36] Source: WorkSafe Construction Sector Scan (17 July 2016).

were hit while unloading objects from trucks, shipping containers, crates etc. From 2008-2015, 28 percent of deaths (7) in manufacturing involved people being hit by falling objects. Unloading goods contributed to half of these deaths.

The General Risk and Workplace Management Regulations require that the risks to health and safety associated with objects reasonably likely to fall on and injure a person are managed in accordance with a hierarchy of control measures. This hierarchy allows for a variety of different responses – from elimination of the risks through to a range of other measures (eg fall arrest systems, or exclusion zones).

Issue 5: The risks of specific types of mobile plant are not well managed

Quad bikes and forklifts[37] present increased risks due to a number of factors:

- Prevalent use in situations for which they are not designed (eg to carry passengers, or to transport loads which are too large or heavy), and poor understanding of those design limitations.
- Challenging environmental factors such as difficult terrain, or operating a forklift within a busy warehouse.
- Operational factors – such as where drivers are in an impaired state due to fatigue or reduced vision, not using the active riding technique that quad bikes require (eg because of insufficient upper body strength in younger or older drivers), or not understanding the design limitations for forklifts and quad bikes.
- Instability from the way that loads are carried and machinery parts (eg elevated masts).

The incidence of fatalities and serious injuries involving quad bikes and forklifts reflects their greater risks and prevalence. From 2008-2019, 65 people died using quad bikes at work. Across fatalities in agriculture since 2000, 28 percent are associated with quad bikes. WorkSafe indicatively estimates that there have been in the region of 7,000 incidents of serious injury involving forklifts since 2008.

Australians use quad bikes for farming and the same kinds of work we do in New Zealand. They have similar problems managing the risks, and also have a high level of fatalities and injuries from quad bikes. In the six years from January 2011 to December 2016, there were 114 quad bike fatalities in Australia – about half of these occurred while work was being done.

There were no provisions for mobile plant in the Machinery Act 1950 – so it is an area that has always been sparsely regulated. Risks currently are addressed:

- for quad bikes by the general duties in the HSW Act and General Risk and Workplace Management Regulations (eg requirements about providing personal protective equipment such as helmets, and training and supervision), guidance from WorkSafe, and safety messages from manufacturers in the bikes' operating manuals.
- for forklifts by the general duties in the HSW Act, Health and Safety in Employment Regulations (requirements for roll-over protection and seat-belts

[37] As defined by WorkSafe's Approved Code of Practice to include (among other examples) forklifts, order pickers, reach trucks, platform trucks and lateral stacking trucks.

only), WorkSafe's Approved Code of Practice for Training Operators and Instructors of Powered Industrial Lift Trucks (1995), and a voluntary operator certificate of competence scheme.

Various targeted education and campaign programmes have been delivered by WorkSafe directed at improving awareness and the way that risks of quad bikes and forklifts are managed. This includes WorkSafe's Safer Vehicles – Safer Farms programme of work, for example, primarily focussed on encouraging farmers to consider safer alternatives to quad bikes.

Current regulatory arrangements

Mandatory protections currently only apply in limited circumstances, given the exclusions of HSE regulations. This raises anomalies with requirements for businesses to ensure mobile plant does not put workers and others at risk prescribed by the HSW Act[38]. In particular, seat belts and/or roll-over protection will often constitute what is reasonably practicable in the circumstances for duty holders to prevent harm under the primary duty of care, yet are subject to numerous exclusions in current supporting regulations.

Where they do apply, current regulations address only selected risks, and more generally, have fallen out of step with current ways of working (eg quad bikes are now in wide-spread use) and the re-engineered, performance-based HSW legislation.

What do stakeholders think about the problem?

Through the process of public consultation, feedback on mobile plant aspects was provided by a broad range of stakeholder groups – in written submissions and as part of MBIE-convened meetings. Of the total 172 submissions received, well over half commented on mobile plant. This included submissions from a range of submitters affiliated with the forestry, construction, energy, agriculture, and transport and freight sectors. Worker feedback was obtained from union bodies NZCTU and E tū, and through several submissions received from individual workers directly. Other submissions provided included that of a private individual who had lost a child in an incident involving a quad bike. Feedback was also received from WorkSafe.

The significance of the harm from mobile plant is accepted by stakeholders. Upper Hutt Hire Limited, in their submission, for example, referred to the significant incidence of pedestrian collisions involving forklifts (about 60% of notifiable incidents). There is also wide acceptance, as evidenced by submissions, of the importance of driving sustained improvements in practices. Echoing this sentiment, Federated Farmers, for instance responded that:

> ….[work-related agricultural deaths] occur at a frequency and rate that is cumulatively concerning, emphasising the need for change. We consider those working on-farm have a right to earn a living in a safe working environment, and poor health and safety outcomes impact individuals, families and communities. Improvement is required.

Stakeholders did not have a common view as to the underlying causes of harm, with respondents instead (in accordance with MBIE's views) considering these to be diverse and varied. The Construction Health and Safety Association of NZ (CHASNZ) responded that operator competency warranted specific focus. Respondents from other industries, such as

[38] ss. 36 and 38 of the HSW Act refer

Ports of Auckland, identified broader factors regarding the increased adoption of safety by design as particularly important (among other factors, including the adoption of mobile plant that is suited to the terrain). Confidentiality, Free and frank opinions commented that an inability to completely engineer out risks with equipment, means ongoing risks will remain for PCBUs to manage (eg through warning devices).

The validity of current regulatory exemptions of mobile plant 700 kg and under from requirements for rollover protection and seatbelts was a point of contention within the feedback received. Many submitters impressed that the risks of mobile plant need to be managed, irrespective of weight. Respondents put forward a selection of examples, including certain types of forklifts for example, in or around the 600 kg weight range, with significant risks. Federated Farmers and others took a different view; that exemptions remained appropriate to safeguard against requirements that are unduly onerous.

Submitters generally agreed that greater clarity would assist in improving risk management, with Methanex for example submitting:

> To see a reduction in injuries and fatality rates there needs to be guidance on what is acceptable. Yes, PCBU should determine what is a suitable combination to control the risks. But in order to see an improvement in this area there needs to be clear guidance on what is acceptable.

Regulatory provisions that are suitably adaptable for different workplaces were reinforced as important in a number of submissions. Though not proposed, some (but not all) indicated that they supported certain minimum mandatory requirements (such as helmets on quad bikes, and 3 or 4 point seatbelts in vehicles).

Submitters also emphasised:

- the importance of recognising the emergence of cost effective technologies, for example in visual aid technology, by ensuring that requirements are not unduly prescriptive to future proof the requirements.
- a need for further supporting WorkSafe guidance, to clarify points of detail regarding proposed provisions (to assist with considering ‘suitable operator protective’ devices, for example).

A range of specific drafting suggestions were put forward by submitters which will be further considered in later stages of preparing the regulations.

What are the objectives?

2.2.5 lists our central aim for the full set of changes we are recommending.

For mobile plant specifically we want to lift effectiveness in the way particular risks (as identified above) are managed in support of this aim.

Option identification

What are the options?

The options for addressing relevant objectives are:

- Non-regulatory interventions, with no amendments to current regulations.
- Reform of regulatory requirements, with complementary non-regulatory measures (updated guidance and ongoing WorkSafe-led industry engagement and educational initiatives).

The table below sets out further details on these options.

Mobile plant option 1: Non-regulatory interventions

A continuation of targeted interventions led by WorkSafe, previous examples of which include:

- Guidance tools such as WorkSafe's 'Keeping Safe around Moving Plant' 2014 Summary Guidance and Forestry Mobile Plant 2018 Assessment Tool
- WorkSafe's 'Safer farms' campaign, and collaborative work with New Zealand Young Farmers
- WorkSafe-convened knowledge sharing events eg on mobile plant safety in the construction sector
- ACC's and WorkSafe's jointly developed subsidy scheme for quad bike crush protection, initiated in June 2019.

More intensive WorkSafe-led activities (whether in terms of education or targeted business support) will need to be carried out at scale, given the pervasiveness and variability of mobile plant, at high cost.

Mobile plant option 2: Regulatory reform with complementary non-regulatory measures

An alternative option for addressing work-related harm from mobile plant is to introduce regulatory reforms that:

- Extend specific mandatory protections for workers
- Remove anomalies and inconsistences of existing regulations that are in conflict with HSW Act duties.

In considering regulatory amendments that could be adopted, MBIE has focussed on the Australian Model Regulations (AMR) as a starting point, on the basis that these:

- are well tested
- are developed to operate under similar Health and Safety legislation, and address similar workplace risks in similar circumstances
- enable better alignment with practices of a country with comparatively much lower work-related harm.

The AMR places specific duties that are additional to those for all plant (discussed in section 3). Broadly, the AMR sets requirements on PCBUs managing or controlling powered mobile plant to:

- manage the specific risks to health and safety associated with:
  - the plant overturning
  - things falling on the operator

- the operator being ejected
- collisions with persons or things
- release of pressurised fluid in the event of mechanical failure

- ensure, so far as is reasonably practicable, that a suitable combination of operator protective devices is provided, maintained, and used
- ensure, so far as is reasonably practicable, that passengers have the same level of protection as provided to the operator
- ensure that the plant does not collide with pedestrians or other powered mobile plant.

Further operational and design requirements specific to forklifts also apply.

MBIE consulted on various components of the AMR to see which parts stakeholders thought we should adopt, and what modifications should be made. We also canvassed views on whether exemptions should apply, and on the following additional options:

- Requiring PCBUs to ensure there are adequate devices to improve the operator's vision where the operator's direct field of vision is adequate to ensure safety – as per UK arrangements.
- Prohibiting passengers on mobile plant unless it is designed to carry passengers in that way

A range of non-regulatory measures, such as guidance and awareness campaigns, will support businesses with meeting the new requirements.

Options analysis

The harm caused by mobile plant (38 deaths per year on average, and 92 percent of plant-related fatalities at work) continues to be significant. The high rates of harm have persisted despite a variety of targeted interventions.

MBIE's view is that regulatory reforms, based on Australian Model Regulations, are needed, because:

- Risks are not being effectively managed through a combination of HSW Act requirements, and the current limited and outdated regulatory protections
- The wide-spread nature of mobile plant means that for different interventions (eg customised, business support) to be more effective they will need to be carried out at scale, high cost, and with ill-suited regulations, inhibiting cost-effectiveness
- Regulations will set a level playing field, provide additional clarity for HSW Act duty holders, and address current anomalies with HSW Act duties.
- Regulations will help support enforcement of HSW Act duties through mandatory controls that are legally enforceable.
- This will improve alignment with the more comprehensive regulations adopted in Australia and the UK, as countries with demonstrably lower work related harm.

MBIE has discounted a non-regulatory approach, which will continue to require highly targeted interventions and perpetuate the lack of depth and anomalies of existing regulations.

Generally there was support from submitters for stronger regulatory protections.

Analysis of requirements

The tables below provide further detailed supporting analysis for each of the AMR components MBIE recommends. Stakeholders predominantly supported these proposals, with opposition to the potential discontinuation of exclusions from current requirements for operator protection devices matched by support from others for removing the exclusions. The tables below summarise in more depth the feedback received, where applicable describing the modifications to initial proposals and options discounted.

Mobile plant 1: Requiring PCBUs to apply the Prescribed Risk Management Process to specific risks from mobile plant		
Title and description	**What submitters said**	**MBIE position**
The proposed requirement applies the PRMP to the key risks arising from mobile plant, ie: • overturning • falling objects • being thrown from the plant • mechanical failure of pressurised elements, and • collisions. This requirement complements wider provisions proposed by encouraging broad consideration of risks (whether health or safety related) through applying a flexible process. *A change from the status quo that builds on duties in the Act by clarifying requisite procedural details.*	Generally supported by submitters with the elevated risks of mobile plant accepted by many. Reliance on the introduction of the PRMP for general plant instead as an alternative was not favoured by submitters. Submitters welcomed the increased clarity the provisions would provide for duty holders. WorkSafe supports the requirement on the basis of the focus it ensures on major causes of harm.	Recommended as a means of providing additional clarity for duty holders on how to comply with HSW Act duties and instilling best practice methods of risk management. This requirement responds to **issues 1-5** (regarding rollovers, collisions, people being thrown from mobile plant falling objects and the risks of specific types of mobile plant as causes of harm).

Mobile plant 2: Requiring PCBUs to ensure a suitable combination of "operator protective devices" on all mobile plant		
Title and description	**What submitters said**	**MBIE position**
HSE regulations currently require certain operator protection measures (seat belts and rollover protection) in selected circumstances only. MBIE consulted on new provisions, based on Australian Model requirements, requiring PCBUs to ensure, so far as is reasonably practicable, suitable operator protective devices are provided, maintained and used. This requirement is purposefully flexible to accommodate for a variety of different circumstances and situations, with: • "suitable" devices to be determined by the PCBU as those warranted through risk assessment (assisted by WorkSafe guidance) • "operator protective devices" defined broadly to include (but not necessarily limited to) roll-over protective devices, falling object protective structures, restraints, and seat belts. *A change from the status quo that builds on, and corrects discrepancies with, duties in the Act.*	As a concept, the requirement attracted support from a clear majority of submitters. Divisions among submitters, particularly those within the agricultural community, were focused on whether the requirements should apply generally or be subject to specified exclusions (as for rollover protection requirements currently). A central concern of those against having the requirements apply generally was that this may mean they prove too inflexible at times. The Motor Industry Association (MIA) opposed the requirement, concerned that it meant the selection of protections fit for given uses would be made the responsibility of vehicle manufacturers (this is contrary to what is proposed). WorkSafe: • supports the introduction of the requirements, to address the significant harm involved • is opposed to exemptions, given the inherent flexibility of the provisions and incidence of harm involving quad bikes and other forms of plant currently excluded.	Recommended. Responds to submitter preferences as a proportionate requirement that accommodates a variety of different circumstances. The requirement addresses: • **Issue 1**: Rollovers as a prevalent cause of harm • **Issue 3:** People can be thrown from mobile plant • **Issue 5:** The risks of specific types of mobile plant (such as quad bikes) are not being well managed. MBIE recommends the provisions are applied generally, without replicating current exemptions from rollover protection. MBIE's view is that the adaptability of the requirements voids the need for exclusions. MBIE further considers that the exclusions, if continued, would reduce equity (for PCBUs and workers) and counteract effectiveness in targeting prevalent areas of risk.

Mobile plant 3: Requiring PCBUs to ensure risks of collisions are effectively managed		
Title and description	**What submitters said**	**MBIE position**
Currently there are no specific mandatory controls for collision risks. Should any residual risks of collision remain after applying the PRMP, the additional protections proposed will require PCBUs to ensure, so far as is reasonably practicable, remaining risks are managed through: • An adequate field of vision and the provision of visual aid devices as needed, and • The use of suitable proximity warning devices, such as detectors, failsafe sensors, warning lights and / or alarms. The specific controls required by the provisions will be required to be determined from a risk assessment, carried out by the PCBU, and customised to where the plant is to be used. For example, in high-risk environments devices can be used to detect hazards and even automatically slow plant down to minimise risks, if this is necessary and feasible, as determined by a robust risk assessment. This will enable a proportionate response that enables varied risk factors – such as proximity of passers-by and workers and potential risks of 'over-alarming' to be accounted for. We also consulted on: • Introducing an absolute ban on collisions. • A supplementary requirement for mobile plant to be switched off when operators are not in the cab. *A change from the status quo that builds on duties in the Act by setting a specific compliance pathway.*	Submitters predominantly supported proposed requirements for collision risk management and the use of appropriate proximity warning devices, as required. This was confirmed by many as accepted standard practice, given continuing advancements in technology (eg camera assist technologies in construction). WorkSafe supports the requirements recommended for introduction.	Recommended in adapted form – ie to require only appropriate visual and warning devices. MBIE's view is that these will deliver greater clarity and reinforce standards of best practice, as confirmed through submitter feedback, while avoiding the unintended consequences of other requirements consulted on. Responds to: • **Issue 2:** collisions cause significant harm • **Issue 5:** the risks of specific types of plant (such as forklifts) are not well managed. On the basis of submitter feedback we have discounted: • requiring mobile plant to be switched off when operators are not in the cab – which may not be appropriate in certain circumstances • Implementing an absolute ban on collisions – which may prove unduly onerous in certain circumstances (reckless driving by another vehicle causing collision, for instance).

Mobile plant 4: Requiring PCBUs to ensure passenger protections		
Title and description	**What submitters said**	**MBIE position**
The rollover protection and seatbelts required in some circumstances by HSE regulations for operator safety may also indirectly provide a level of safety for passengers. Passenger protections are not currently specifically required. MBIE proposes that specific requirements are introduced, based on Australian Model Regulations. The provisions proposed will require PCBUs to ensure passengers, at a minimum, are provided with protections equivalent to those of operators, so far as is reasonably practicable. Specific protections will not be prescribed, but rather dependent on what is in place for the operator in the specific circumstances (eg including seatbelts and helmets, or requiring that the passenger be carried within the zone of protection or roll over protection measures – not on the back of the vehicle). WorkSafe guidance will support interpretation of the requirement. The provisions will operate in conjunction with wider requirements recommended under the 'general plant' section of this RIA prohibiting plant from being used outside of the purpose it has been designed for (carrying passengers, for instance) where health and safety is put at risk. MBIE also consulted on prohibiting passengers on mobile plant unless designed for that purpose. *A change from the status quo that builds on duties in the Act by setting a specific compliance pathway.*	A clear majority of submitters supported this option. WorkSafe supports the requirement recommended for introduction, subject to clarifying that the intent of the provisions do not preclude higher levels of protections for passengers. The concept of an absolute ban on passengers on plant not intended to be used for this purpose was met with some opposition. A common concern amongst those opposed was that the requirement may provide unduly onerous (for instance in controlled training circumstances.	Recommended in adapted form, ie excluding a prohibition on passengers. MBIE recommends these requirements because they provide proportionate measures supporting broader HSW Act duties. Responds to **issues 1-3** (harm from roll-overs, collisions and people being thrown from plant) and **issue 5**: the risks of specific types of plant are not well managed. MBIE has discounted adopting an absolute ban on passengers on plant not specifically designed for this purpose. It is apparent from WorkSafe data that fatal injuries from forklifts and quad bikes – as vehicles commonly without requisite design features, but also frequently implicated in harm – involve mainly operators rather than passengers. As a result, MBIE's view is that the relevant risks instead are able to be addressed by broader requirements proposed.

Mobile plant 5: Forklift-specific protections		
Title and description	**What submitters said**	**MBIE position**
Forklift protections have been encouraged for some time through long standing guidance focused on operator competency (*The Approved Code of Practice for Training Operators and Instructors of Powered Industrial Lift Trucks, 1995*). MBIE's proposed new mandatory protections based on Australian Model Regulations, involves two broad components: • **Forklift safety design features**. These provisions will require PCBUs to ensure forklifts have lifting attachments suitable for the load. • **Systems of work**. Further protections, requiring: - The operation of a forklift in a manner that ensures the risks that arise from systems of work and the environment for use are eliminated, so far as is reasonably practicable, or otherwise minimised. Broader proposed requirements – applicable to wider forms of plant – will complement these provisions by also requiring PCBUs to ensure: • plant is used in accordance with intended design purposes and not, for example, to carry passengers on forklifts not intended to be used in this way – so putting health and safety at risk. • passengers, at a minimum, are afforded equivalent protections to those of the operator, so far as is reasonably practicable. MBIE also consulted on provisions from the AMR, that: - The forklift is not used to carry passengers unless it is designed to do so and the passenger seat is fitted with suitable seat restraints and located within the zone of protection provided by any operator protective device. - PCBUs do what is reasonably practicable to ensure that a passenger is seated in a seat that complies with the requirements. *A change from the status quo that builds on duties in the Act by setting a specific compliance pathway.*	In principle, submitters were largely in favour of safety design and systems of work requirements, given the degree of associated risks involved. Opinions were divided on whether the requirements should be introduced as regulations or an ACOP. The specifics of the requirements proposed generated few detailed comments. The concept of formalised operator competency requirements was met with near universal support. A clear majority of submitters considered voluntary status quo arrangements to be deficient in addressing the risks forklifts present. Variability in current training standards and the need for greater re-focussing of competency (rather than generalised training per se) were cited as central to these concerns. WorkSafe supports the regulatory provisions recommended for introduction.	Recommended in adapted form – excluding the last two requirements relating to passenger seating, to avoid unnecessary duplication with other requirements. The mandatory protections intended will introduce requirements that are fitting of the complexities and significance of the risks involved, and provide greater clarity for PCBUs in interpreting their duties. These protections respond to: • **Issue 2**: Collisions cause significant harm • **Issue 4:** Falling objects pose significant risks. • **Issue 5**: The specific risks of specific types of mobile plant are not well managed. As an outcome of consultation MBIE has discounted: • relying on guidance only – due to the significance of the risks involved • relying on operator competency alone for effective risk management – widely opposed by submitters on the basis of general dissatisfaction with current training arrangements. As a means of targeting improved operator competency, MBIE intends to consult further on the adoption of high-risk work licensing for forklifts, as part of a separate tranche of work pending on hazardous work.

Application of the requirements

The provisions will apply to all plant that is powered or self-propelled, including vehicles operated on public roads under Land Transport Rules. This is a different approach to the one adopted in Australia, which doesn't apply to vehicles operated on public roads. We propose this approach to alleviate risks of inadvertent loopholes and deliver consistency in levels of worker protection, irrespective of whether the vehicle is operating on public or private roads. For vehicles operated on-road, we will work with the Ministry of Transport and Waka Kotahi/New Zealand Transport Agency to ensure that the required protections will not surpass requirements under Land Transport Rules. We will consult on any necessary modifications to achieve this through the exposure draft phase of progressing Plant and Structures regulations.

Plant that is not self-propelled (eg trailers) will be required to meet the protections required for general plant. Mobile plant protections will not apply to non-military vessels or non-military aircraft, because of the protections that transport Rules already require. Military aircraft, naval ships, and other military-operated mobile plant will be subject to an alternative compliance pathway, set by a Defence Force Order.

Impact analysis

Method of assessing impacts

Our impact assessment of relevant options has been informed by consultation input and additional supplementary analysis.

Business responses to the changes will vary depending on the precise nature of the business and the way health and safety risks are managed currently. Due to this, we are unable to provide overall costings for all of the changes under consideration. Specific benefits, attributable to the changes proposed, also cannot be quantified.

Our assessment as a result is largely qualitative, though does incorporate illustrative costs of control measures where these are able to be estimated. In assessing benefits, we focus on how the changes will influence underlying causes of harm (as identified through consultation, and described in s 3.2.2), and alignment with Australian arrangements (as a country that compares favourably in rates of work-related harm).

Expected costs and benefits

Mixed feedback was provided on the cost impacts of the proposed changes. The majority of submitters anticipated some associated costs – whether relating to general upfront costs eg training or advisory support, or equipment/plant upgrades. Detailed estimates were not specified. Agricultural industry affiliation groups fed back that "significant" costs were likely, given the prevalence of older equipment in operation. This was offered as a general assessment; not specifically attributed to any proposal in particular. Phasing in the changes was generally supported, as a means of managing these costs. There was wide acceptance across the industry groups we heard from that impacts regarding improved health and safety (economy-wide) would be sufficient in scale to offset implementation costs.

In line with general submitter views, MBIE's view is that business costs will be modest, relative to the benefits expected. With mobile plant responsible for almost all plant related fatalities (38 deaths a year on average, and just over half of work fatalities overall), the likely scale of benefits has been assessed as high. Capital expenditure costs are projected to increase, though only in selected circumstances, for example due to the costs of:

- Retrofitting seat belts (at an indicative estimated cost of $200-$500 per passenger vehicle), for the purposes of improving, so far as is reasonably practicable, passenger protections
- Rollover protection (at an estimated cost of $1,000, in the case of quad bikes), where practicable and confirmed as necessary through risk assessment by the PCBU.

Other costs, as identified by submitters, have been assessed as marginal.

As an outcome of consultation, MBIE is confident the changes:

- Implement proportionate requirements, which prescribe controls that are appropriate for the level of risk
- Appropriately balance the need to provide clarity for duty holders with the need to avoid undue prescription, assisted by supplementary WorkSafe guidance
- Achieve flexibility and durability by implementing modernised regulations that address regulatory anomalies, and are suitably adaptable for a broad mix of workplaces.

More detailed analysis across each of the specific changes recommended is provided in tables below.

Impact analysis

The tables below provide our assessment of incremental impacts relative to the status quo for recommended options. As a point of difference from other topic areas of focus, certain additional options that are not supported (retaining exemptions for rollover protection) are also assessed, in recognition of the materiality of the changes recommended. MBIE's analysis regarding the introduction of high risk work licensing for forklifts, as an option for further consultation and investigation at a later stage, is presented as a preliminary assessment. The assessment indicates significant net positive benefits overall are anticipated from the changes recommended.

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
No action	**0** The significant harm caused by mobile plant (92 per cent of all fatal plant injuries and 38 deaths annually on average) indicates that effectiveness is not being achieved.	**0** Existing regulations are outdated, provide only partial coverage of common risks, and include a high degree of prescription. Current protections have fallen behind those of the UK and Australia, as countries with more favourable levels of workplace harm.	**0** Current regulations are incomplete, and incorporate extensive exemptions, reducing clarity over expectations set by HSW Act duties.	**0** Cost effectiveness is not being met due to the high cost burden (social and monetary) of the workplace harm caused and insufficient take up of more cost effective and reliable engineered controls.	**0** Regulations are selective in their coverage and have multiple exemptions, undermining durability. The prescriptive specificity and selected coverage of HSE regulations does not fit the modern, comprehensive approach introduced by the HSW Act.	**0** Current regulations do not support HSW Act objectives and duties, resulting in poor health and safety outcomes.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Mobile plant 1	Requiring PCBUs to follow the PRMP for specified risks from mobile plant	+ Relies on a common structured process to set consistent expectations for PCBUs and workers. Provides additional specificity to support the risk management requirements in the HSW Act.	++ Directs a PCBU's attention to those areas which warrant the highest level of protections, given the risk of harm. Makes each of the descending hierarchy steps contingent on what is reasonably practicable – in this way ensuring proportionality.	+ Implements a recognised process which gives additional prominence to common risks.	+ Requires what is "reasonably practicable" and commensurate to the level of risk. Methods of documenting assessments are not set by the requirements, allowing for businesses to customise their approach. As such, material benefits anticipated at modest cost overall.	++ Will operate as an enabling provision, which specifies the end not the means.	++ Reinforces HSW Act duties by providing more specificity in risk management for common critical risks, in a way that is proportionate, durable and flexible.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Mobile plant 2	**Requiring suitable operator protection as generally applicable requirements**	++ Overcomes limitations and anomalies of existing regulations by setting an equitable requirement targeting a prevalent cause of harm.[39] Improves alignment with HSW Act duties, current WorkSafe regulatory guidance and requirements of countries with demonstrably lower rates of harm (the UK and Australia).	++ Broadly applicable requirement, premised on what is "suitable" (as confirmed through risk assessment), allowing for tailored responses.	+ Required actions are not specified but are determined through risk assessment. This replicates the way broader HSW Act obligations operate and responds to the preferences of submitters for requirements that can be adapted to varied circumstances. Supplementary guidance will follow from WorkSafe to deliver further clarity.	+ As determined from submitter feedback, costs for industry will vary from minimal to more substantive – in particular where upgrade costs are required. "Suitable operator protective devices" for some businesses will require only low cost measures (such as helmets and/or seatbelts). For others there will be investments of $1,000 or more, anticipated to mostly be incurred for the purchase of crush protection devices for quad bikes. The high number of quad bikes without crush protection currently (in the agriculture sector, an estimated 55,000-90,000 vehicles) indicates this will involve significant implementation costs for the sector in aggregate, though business level impacts will be far more modest.[40] Following adjustments for alternative approaches (eg the use of alternative vehicles on undulating terrain), overall a net positive impact is anticipated.[41] Transitional arrangements will be determined that best support cost effectiveness.	++ By avoiding specificity and targeting what is appropriate in the circumstances, this achieves flexibility and durability.	++ Significant improvement on the status quo that achieves consistency with HSW Act duties and better encourages commensurate responses to acute areas of risk.

[39] Including crushing and vehicle overturning risks – as identified above as a cause of 90 percent of quad bike fatalities, and the majority of construction driver fatalities, on recent data.

[40] Rollover protective structures, in contrast, are typically already fitted to tractors. Any substantive costs arising in this area has been discounted on this basis.

[41] Depending on the extent of crush protection uptake that may eventuate, indicatively we estimate a positive benefit: cost ratio of between 1.05-1.8 – on estimates of 60-80 per cent device uptake, and a 37.5-50 per cent reduction in annual fatalities and related ACC claim costs, on current levels. Further details on our estimation approach are provided in the table below.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Requiring suitable operator protections with specified exclusions (not recommended)		**0 / +** Exemptions will counteract the effectiveness of the support provided for HSW Act duties, with the scale of impact dependent on their scope. Offers some improvement on the status quo, to the extent that existing exemptions are reduced.	**0 / +** Where exemptions are in place, HSW Act standards of care will continue to apply – without any form of supporting specificity in regulations. Should exemptions go against the standards of care implied by the Act, perverse outcomes are likely to result ie responses that are not commensurate to the risk of harm. Offers some improvement on the status quo, to the extent that existing exemptions are reduced.	**0 / +** Specified exemptions will deliver clarity in specific instances but continue at times to perpetuate anomalies with broader HSW Act duties. Offers some improvement on the status quo, to the extent that existing exemptions are reduced.	**0** Industry capital costs could be considerably lessened – depending on the extent of the exemptions. However only limited reductions in harm can be expected as a result.	**0** Durability will be limited by the inclusion of exemptions.	**0 / +** May offer a marginal improvement to the status quo but does not meet intended objectives.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Mobile plant 3	**Requiring that collision risks are managed by PCBUs by ensuring an adequate field of vision and suitable warning devices, so far as is reasonably practicable**	++ Establishes a common process by which a specific and pervasive risk is managed. Gives additional prominence to expanding "safety-by-design" technology choices available for managing risks – eg in relation to proximity sensing equipment.	++ Does not attempt to dictate "one-size fits all" solutions, but rather allows for businesses to base their responses on what is workable and effective in the specific circumstances. Where specific measures such as lights and alarms are not suitable (eg because of resource consent conditions) alternative controls will be permitted.	+ Involves a degree of interpretation, as requirements apply so far as is reasonably practicable. This carries across a concept which is already embedded by the HSW Act.	+ Costs will be set by what is effective and suitable for the specific business precluding generalised cost assessments. MBIE's assessment is that costs overall will be modest. For some businesses there will be no additional costs. For others, there will be equipment / vehicle upgrade costs, where warranted by the risks involved and viable control measures available (pedestrian exclusion zones, for instance). Given the high levels of uptake of lower cost technologies (beepers and lights) substantive costs largely will be confined to the subset of businesses with higher priced-technology needs (in the $4,000-$10,000 purchase price range). Generally options will be available to moderate these costs eg through leasing arrangements.	++ In recognition of the innovation happening in this area, avoids specifying particular measures or technologies to future-proof requirements.	++ Furthers intended objectives while ensuring that balance is achieved between certainty of expectations and proportionality.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Mobile plant 4	Requiring PCBUs to ensure equivalent passenger protections	+	++	+	++	++	++
		Caters to a broad range of risks by avoiding detailed prescription in the control measures required. Supports broader proposed requirements preventing plant from being used outside its intended purpose (see "general plant" proposal 3). Work-related passenger harm is not discernible from reported data (a conglomeration of passenger, operator, and bystander harm). Predicted impacts are difficult to detail in more specific quantified terms given this.	Is intended to align protections where risks are equivalent. The requirement applies so far as is reasonably practicable.	Sets a benchmark that is clearly relatable to a specific work environment, setting controls that are based on those in place for operators for a given item of plant. Supplementary WorkSafe guidance can be used to deliver clarity on particular matters of interpretation – "operators" versus "passengers", for instance.	Individual business costs will vary depending on operations and safety features of vehicle fleets. Seatbelt retrofitting is anticipated to be the main area of cost – estimated to fall indicatively within the range of $200-$500 per dual use (by passengers and operators) vehicle. Costs are therefore anticipated to be modest overall. Expected to achieve commensurate safety benefits.	Avoids requiring specific measures, allowing for future technology developments. Accommodates other approaches due to the 'so far as is reasonably practicable' proviso.	Expected to provide an effective means of clarifying core HSW Act duties and reinforcing wider recommended requirements (such as those promoting the use of plant in line with its intended purposes).

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Mobile plant 5	Operational and design requirements for forklifts	++ Provides a balanced set of requirements, encompassing operational and safety-by-design elements, that responds to the high levels of observable harm.	++ Based on what is practicable in the circumstances, the requirements provide for proportionality.	+ The requirements require risk assessment through clear processes while not necessarily limiting the specific controls. Supplementary guidance from WorkSafe will follow to deliver additional clarity.	+ Codifies best industry practice confirmed through consultation – particularly across larger organisations. For businesses already compliant, implementation costs will be minimal. Capital outlays, where they are required, will be commensurate with the level of risk involved ie confined predominantly to circumstances where the forklift is being used to lift loads outside of its rated capacity.	++ By avoiding specificity, and targeting what is appropriate in the circumstances, this achieves flexibility and durability..	++ Significant improvement on the status quo that achieves consistency with HSW Act duties and proportionate, broadened protections that are readily adaptable for different workplaces.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Mobile plant 5	**Introducing high-risk licensing for the operation of forklifts**	++ By providing a means of assuring greater uniformity of standards of training, offers a response to the widespread concerns of submitters about the current voluntary ticketing arrangements.	++ Offers requirements that are commensurate to the scale of the risks involved.	++ In contrast to current voluntary arrangements, a high-risk licensing requirement would apply generally.	+ Anticipated to involve modest additional costs, as benchmarked against the training costs businesses already incur through the voluntary regime ($150-200 per individual ticket typically). Obtaining a high risk forklift licence in Australia requires a supplementary authorising fee, ranging in cost from A$28 (in NSW) up to $71.28 (in Tasmania, for up to 3 categories of licence). More refined estimates of cost will be prepared and further consulted on through the separate review of hazardous work.	++ Accreditation of providers will ensure consistency of quality standards while enabling providers to continue to meet specific business needs. Achieves durability as a formalised scheme.	++ Complements broader recommended requirements by providing an effective means of supporting greater consistency of training standards in workplaces.

Key:

++ much better than doing nothing/the status quo

+ better than doing nothing/the status quo

0 about the same as doing nothing/the status quo

- worse than doing nothing/the status quo

- - much worse than doing nothing/the status quo

Indicative estimated costs and benefits of suitable operator protective device requirements (mobile plant 2) – as applicable for quad bikes

MBIE's indicative estimates have been prepared using a standard discounted valuation method. The estimates provide a representation of impacts at an intermediate stage of implementation – ie where crush protection devices (CPDs) may have been phased in for the majority (60-80 percent) of all quad bikes. MBIE's estimates have been calculated:

- Over a five year timeframe, to align with the guidance of major manufacturers on anticipated minimum product life spans. Resulting estimates are therefore conservative, adopting the assumption that full replacement costs (rather than, say, lower cost repairs) are incurred in all cases every five years.
- Assuming an average CPD purchase cost of $1,000 and full replacement of CPDs following incidents of serious harm.
- Based on estimates of 55,000 (low estimate) and 90,000 (high estimate) for the current total number of quad bikes without crush protection devices.
- In accordance with Treasury guidance[42], adopts a 5% discount rate, a 2% assumed rate of inflation, and $4.56 million for the value of a statistical life.
- From ACC reported costs of $12 million per year for work-related quad bike injury claims.

The relevant requirement proposed is not absolute, but rather requires what is suitable in the circumstances, as determined from risk assessment. In some cases this will dictate the use of CPDs. In other cases, there may be alternative means of complying (such as different vehicle choices). Translating what the requirement will mean in terms of rates of CPD uptake can as a result only be done through indicative estimation. MBIE's calculations use 60-80% as an indicative range for CPD uptake.

In assessing benefits MBIE has considered only potential impacts on fatalities and serious harm incidents. For the (high) estimate of 80% CPD uptake, our calculations are based on projected reductions of a 50% reduction in fatalities (averaging 5 deaths per year) and the costs of ACC related claims from quad bikes. For the (low) 60% CPD uptake estimate, fatalities and claim costs are estimated to decrease by 37.5% (ie adjusted values, derived from proportionate scaling of "high scenario" estimated decreases). Indirect impacts (eg resulting increases in productivity) are not accounted for.

The ratio of benefits to costs is anticipated to indicatively fall within a range of 1.05-1.8, on the basis of MBIE's assessment.

Quad bike numbers	Avoided injury costs from changes proposed (nominal, p.a.)	Benefits: Costs
55,000 (low estimate)	$14m	1.8
90,000 (high estimate)	$18m	1.05

42 Treasury's CBAx Budget 2020 Guidance and September 2019 'Guide to Social Cost Benefit Analysis' refers, available: https://www.treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/plan-investment-choices/cost-benefit-analysis-including-public-sector-discount-rates/treasurys-cbax-tool

Summary of conclusions: mobile plant

Key conclusions from this chapter are summarised below.

Mobile plant is a leading cause of harm, causing 92 percent of all plant-related fatalities, which is 38 deaths annually on average, and an estimated 60 percent of serious injuries.[43]

The high rates of harm from mobile plant are occurring because there are particular risks that are not being managed well, these being:

- Collisions
- Rollovers
- People being thrown from mobile plant
- Falling objects, and
- Risks specific to specified types of mobile plant (eg quad bikes, tractors, and forklifts).

Mandatory health and safety protections addressing these risks have been sparse traditionally and remain so. There are a range of exclusions – some originating from 1967 in the case of vehicles weighing less than 700 kg – whose impact has grown significantly over time (eg as the use of quad bikes and side-by-sides has proliferated). These exclusions create anomalies with primary HSW Act duties to ensure that mobile plant does not put workers and others at risk.

MBIE's recommendation is that additional protections are introduced, based on more comprehensive Australian Model Regulations, which reinforce existing HSW Act duties. The changes will require PCBUs to:

- Apply the Prescribed Risk Management Process to specified risks of mobile plant (overturning, falling objects, being thrown from the plant, mechanical failure of pressurised elements, and collisions).
- Ensure, so far as is reasonably practicable, that a suitable combination of operator protective devices is provided, maintained, and used.
- Ensure that collision risks are managed, so far as is reasonably practicable through:
  a) an adequate field of vision and the provision of appropriate visual aid devices
  b) the use of suitable warning devices, such as warning lights and/or alarms.
- Ensure that no passengers ride on mobile plant unless the passenger is provided with protections as least as high as those of the operator.
- Ensure:
  a) Forklifts have lifting attachments suitable for the load
  b) The operation of a forklift in a manner that ensures the risks of work and the environment for use are eliminated, so far as is reasonably practicable, or otherwise minimised.

Transitional arrangements are yet to be confirmed, pending further consultation with stakeholders.

While non-regulatory measures will have an important supporting role, MBIE has discounted these as an alternative course of action. The harm caused by mobile plant has persisted despite a number of targeted WorkSafe interventions (from guidance through to industry collaborations). The lack of depth and anomalies of existing regulations will continue to be perpetuated under a non-regulatory approach. MBIE's assessment is that:

- The changes proposed offer the best means of effectively reducing harm, without imposing undue costs.
- The changes proposed are durable, and set balanced requirements, with limited prescription, that are based on what is appropriate in the circumstances (as determined from risk assessment).
- Costs will differ for businesses depending on what is reasonably practicable and protections already adopted. Costs will in some cases add up to be significant (in particular from roll over protection being required for quad bikes, in certain instances), though net benefits are expected overall.

[43] Based on data from 2008-2017 for fatalities, and 2011-2019 for serious injuries.

Generally submitters supported the changes recommended. Though some respondents (eg Federated Farmers) submitted against the removal of current exclusions from requirements for operator protective devices, MBIE, like a number of other submitters, does not support their reinstatement. Based on consultation responses, MBIE is not recommending proposals to:

- Ban collisions and passengers on plant not specifically designed for that purpose
- Require mobile plant to be switched off when operators are outside of the cab.

Chapter 4: Upstream duties

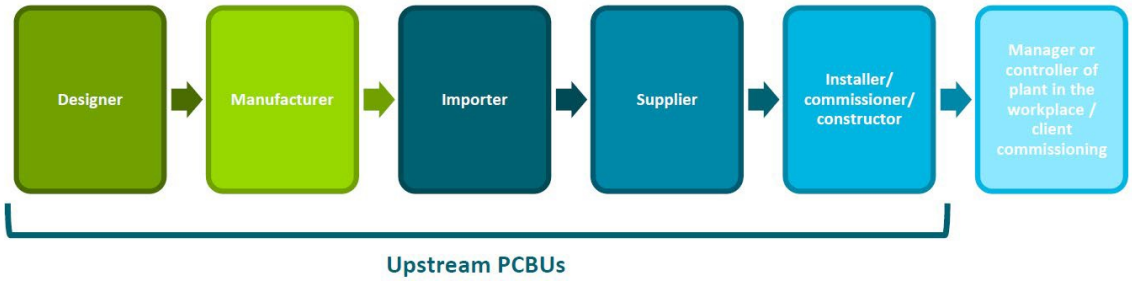
What is the current state? What regulatory systems are already in place?

This section concerns duties on PCBUs that:

- Design plant or structures
- Manufacture plant or structures
- Import plant or structures
- Supply plant or structures
- Install, construct or commission plant or structures.

We collectively refer to these as ‘upstream duties’ or ‘upstream PBCUs’, because they usually come earlier in the supply chain for plant or structures. The duties require that plant and structures should be designed, manufactured, imported, supplied, and installed to be without risks to health and safety; and reflect that these duty holders are in a strong position to eliminate or minimise risks to health and safety from plant and structures.

Figure 13: The supply chain for upstream PCBUs



Information about each of these duties and its application is in the table below:

Duty	Application
Design (s39)	This duty applies to a PCBU who designs all or part of a plant or structure that is to be used, or could reasonably be expected to be used, as or at a workplace. The HSW Act definition of design includes redesign or modification of a design as design. We consider this includes a PCBU who assembles individual pieces of plant together to create a system of plant. A person who assembles following the manufacturer's instructions (including assembles a system of plant) is a constructor (see below).
Manufacture (s40)	Manufacture is not defined in the HSW Act – we consider that for the purposes of s40 it means: • the making of goods and articles by hand or by machinery, often on a large scale and with division of labour [Note this is more expanded than the definition we proposed in the discussion document – we realised we had unintentionally narrowed down the focus of manufacture, and excluded those who manufacture one-off or small numbers of goods, or bespoke items of plant from plans.] We also consider that assembly according to the manufacturer's instructions is not manufacturing (though this might fall under the install, construct, commission duty), but other assembly might be considered manufacturing.
Import (s41)	The HSW Act definition of import is as per the *Customs and Excise Act 2018* definition – bringing goods from a point outside New Zealand to arrive in New Zealand in any manner. As well as those traditionally considered importers, this duty falls on PCBUs who order items online directly for use in their business (though many do not realise the importer duty applies to them).
Supply (s42)	Supply is defined in the HSW Act (s21) and includes supply or resupply of a thing by sale, exchange, lease, hire, hire purchase, whether as principal or an agent. It excludes returning the thing at the end of a lease or other agreement, supply by a person without authority or control, or a supply excluded by regulation.[44]

[44]Regulations may identify types of supply that are excluded from the meaning of supply under section 21. Section 219 requires that the Minister be satisfied that any exclusion is not broader than reasonably necessary to address the matters that give arise to the proposed regulations.

Duty	Application
Install, construct, commission (s43)	**Install** is not defined in the HSW Act – we consider that for the purposes of s43 it means placing or fixing plant or structure in position ready for use. **Construct** is defined in the HSW Act – includes assemble, erect, reconstruct, reassemble, and re-erect. **Commission** is not defined in the HSW Act – we consider that for the purpose of s43 it means operationalising a plant or structure to bring it into working condition (rather than to request a piece of plant or a structure to be made/built).

The HSW Act requires upstream duty holders to:

- ensure so far as is reasonably practicable, the plant or structure (depending on the duty holder):
    - is designed to be
    - is manufactured to be
    - is (for the case of importers and suppliers)
    - is installed/constructed/commissioned to be

  without risks[45] to the health and safety of persons who could reasonably be expected to use, encounter or carry out any reasonably foreseeable activity in relation to the plant or structure
- carry out (or arrange the carrying out of) calculations, testing, analysis or other examination necessary to ensure the plant or structure is without risks
- give information to persons provided with the design or the plant or structure, including on the purpose of the plant or structure; the results of any calculations, testing, analysis or other examination; and the conditions necessary to ensure that the plant or structure is without risks to health and safety.

In addition to these specific requirements on upstream PCBUs, more generally a duty imposed on a person under the HSW Act requires that person (s30):

- to eliminate risks to health and safety so far as is reasonably practicable, and
- if it is not reasonably practicable to eliminate the risks, to minimise those risks so far as reasonably practicable.

This is further defined in the hierarchy of control measures required in the Prescribed Risk Management Process (PRMP), which, when required by regulation, sets out what a PCBU must do to manage health and safety risks of prescribed plant. Elimination is identified as the most effective control measure, followed by (in order):

[45] A requirement to ensure something is without risks is qualified by so far as is reasonably practicable. For brevity this is not always specified in the text.

- minimisation through one or more of substitution, isolation, or engineering controls
- administrative controls
- personal protective equipment (PPE).

Section 32 of the HSW Act provides that a person may have more than one duty. This means a PCBU may hold more than one upstream duty, or hold an upstream duty along with another duty (eg a PCBU that purchases plant online for use in their business will have a duty as an importer as well as the duty of a PCBU who manages or controls a workplace (s37) and/or the duty of a PCBU who manages or controls plant at a workplace (s38)).

Other than for some specific types of high-risk plant (pressure equipment, cranes and passenger ropeways in Part 3 of the *Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999* [PECPR]), there are no regulations supporting upstream duties. For these specific types of high-risk plant the PECPR regulations place a duty on designers, manufacturers and suppliers (which covers supply of products both produced in New Zealand and imported to New Zealand) to ensure so far as is reasonably practicable that this plant is safe, and outlines minimum standards to do so. These duties require the designer of the specified types of equipment to design this equipment in such a way that it is safe when operated for its intended purpose, and for the manufacturer to manufacture the equipment as specified by the designer.

This section of the RIA is concerned with all plant, so will apply to the types of plant outlined in the general plant, mobile, and high-risk plant sections. Where more specific duties are needed on high-risk plant (including plant covered by PECPR), that is addressed in the high-risk plant section.

What is the policy problem or opportunity?

Plant and structures should be designed, manufactured, imported, supplied and installed to be, so far as is reasonably practicable, without risks to health and safety.

Upstream duties are not a new concept as they previously existed in the *Health and Safety in Employment Act 1992* and associated regulations, and in the now repealed *Machinery Act 1950*. The Machinery Act included a requirement for machinery to be safe when manufactured, sold or hired, focusing on guarding and power controls.

Despite this, upstream duties are still not being managed well. Generally, while there is some awareness of their existence, detailed knowledge of the duties and how to comply varies among different types of PCBUs and between sectors.

It is difficult to determine from the data available what specific portion of fatalities and injuries involving plant and structures resulted from poor design, manufacture, import, supply or installation. In Australian research, upstream issues were identified as relevant in a sizeable proportion (43 percent) of workplace visits, though they were often not pursued by inspectors, or were treated as lower order issues. Inspectors most commonly identified suppliers as contributing to issues. While design was a common source of inspectors' concerns, they tended to identify suppliers as the responsible duty holder, reflecting that fact

that suppliers are the most proximate duty holder, and thus the easiest for the inspector to contact and deal with.[46]

Failure to fulfil upstream duties can lead to inherently unsafe plant and structures ending up in workplaces. This means the responsibility – including time, costs and risk of harm – of making plant and structures safe falls to the PCBUs managing and controlling plant and structures in the workplace. Research shows this is less effective than managing at the design or manufacturing stage.[47]

This provides a policy opportunity: the most effective risk control measure – eliminating hazards – is often cheaper, more effective and more practical to achieve at the design or planning stage than managing risks later in the lifecycle (ie by retrofitting health and safety solutions). International research shows that good design can result in significant reductions in work-related ill-health and injuries.[48] By improving the compliance with upstream duties we can increase the quality of plant and structures in New Zealand and reduce the harm caused by plant and structures.

Specific problems relating to upstream duties are listed in the table below:

Issue 1: Poor quality of imported plant A lot of plant in New Zealand is imported from overseas, and it is expected that this will continue. Imported plant not meeting New Zealand health and safety expectations was a strong and consistent message throughout the stakeholder engagement process. Examples include a lack of suitable guarding, not meeting relevant New Zealand expectations, and that plant imported as secondhand can have risks arising from poor maintenance. For plant purchased in this way, the importer is the crucial link in the supply chain that can influence the safety of plant. Increasingly PCBUs can purchase plant online and import it themselves, though many do not realise that the importer duty applies to them.
Issue 2: Poor quality of secondhand plant Second hand plant is everywhere in New Zealand. Secondhand plant often does not meet health and safety requirements, and risks can arise from poor maintenance or repair of plant by previous owners. Where a piece of secondhand plant is sold ‘as is’, the supplier is not subject to the duties under section 42 to, so far as is reasonably practicable, ensure that the plant, substance, or structure is without risks to the health and safety of persons. Poor quality secondhand plant can mean that purchasers are inheriting plant that is risky without knowing about the history of the plant and its presenting risks.

[46] E Bluff, R Johnstone, M McNamara, and M Quinlan Enforcing Upstream: Australian Health and Safety Inspectors and Upstream Duty Holders (2012) Australian Journal of Labour Law at pp 29 – 30.

[47] Health and Safety by Design: an introduction, WorkSafe New Zealand, August 2018

[48] Health and Safety by Design: an introduction, WorkSafe New Zealand, August 2018

Issue 3: Alterations can create risks to health and safety

Plant is often altered in ways that create new risks to health and safety or fail to take into account the health and safety risks or the effect the modification might have on health and safety.

The section 39 duty of a PCBU who designs plant and structures applies to those who alter or modify plant or structures, but this is not widely understood. Stakeholders emphasised that this duty needs to be balanced with the need to support innovation.

WorkSafe considers that it is important that those who modify plant and structures realise that they are designers and fulfil their duties as designers.

An example of an alteration is retrofitting a seat belt attachment point to a piece of mobile plant. This could undermine the structural integrity of the roll-over protective structure, meaning it does not perform as designed should the plant roll over.

Issue 4: Safety features need appropriate design

Where risks cannot be eliminated, designers and manufacturers may need to include safety features (such as guarding, emergency stops, operational controls and warning devices) to protect people from harm.

Safety features of plant are especially risky if not designed or manufactured properly. They are fundamental to minimising risks that cannot be eliminated and to ensuring plant can fail safely.

Safety features are also discussed in the general plant section.

Issue 5: Adequate information is not always shared between PCBUs, or the persons being provided with and using the plant

Stakeholders have identified that often inadequate or no information is provided to downstream duty holders, including information not being passed on, or being of poor quality (for example not containing adequate information about the conditions necessary to ensure the plant or structure is without risks to health and safety when used for a reasonably foreseeable activity). This is the case with plant designed and manufactured in New Zealand as well as imported or secondhand plant.

Issue 6: Upstream PCBUs are uncertain how to fulfil their duties in relation to structures

Stakeholders identified that there is uncertainty in how to fulfil duties in relation to structures, more so than for plant. Relative to plant, the supply chain for structures is often more dynamic, less linear and involves more participants. In particular, there are uncertainties about:

- what documents designers must prepare and provide, and how they should be provided
- expectations about collaboration and coordination with PCBUs and workers involved in constructing structures.

The focus of this issue is about the safety of the structure itself as an end product, rather than the safety of the construction work of the structure – this will be addressed in the hazardous work part of the regulatory reform programme.

There is overlap between the requirements in the Building Act 2004 and Building Code, and the general duty on designers in relation to structures under the HSW Act. Some structures (eg scaffolding) are not covered by the Building Code.

Issue 7: Limited understanding of upstream PCBU duties

There is some awareness, but limited or confused understanding about upstream duties and how to comply. This is despite upstream duties existing in previous health and safety legislation (including the now-repealed Machinery Act).

The confusion particularly exists for:

- Those who make alterations to plant or structures, who often do not understand that the designer duty applies to them (issue 3)
- Those who import plant directly for use in their business, who may not realise the importer duties apply to them (issue 1)
- Upstream PCBUs about how to fulfil their duties in relation to structures (more so than for plant) (issue 6).

Issue 8: Enforcement challenges

WorkSafe has indicated that it is often difficult to enforce the upstream PCBU duties. Since 1992 there have been 41 prosecutions for upstream duties under the HSW Act and the previous *Health and Safety in Employment Act 1992*, the majority of these on sellers and suppliers. Enforcement action includes issuing notices (improvement, prohibition, non-disturbance and infringement), as well as undertaking investigations and prosecutions.

Upstream duties can be difficult to enforce because the duty holders are further away from the harm occurring; and it can be difficult to gather sufficient evidence of fault. It is particularly challenging when the designer, manufacturer, importer or supplier is located overseas.

Research into upstream duties in Australia found that enforcement action tended to focus on suppliers because they are the most proximate duty holder, and so the easiest to identify and deal with.

What do stakeholders think about the problem?

MBIE sought stakeholder input through discussions during the development of the discussion document, and through submissions received during the consultation process.

Meetings held during the development phase included those with stakeholders in the manufacturing, construction, agriculture and forestry sectors.

Of the stakeholders who submitted in response to the consultation document, approximately one quarter provided feedback on the upstream duties section, and these submitters represented the range of sectors consulted. This includes feedback received from a number

of engineers involved in the design and manufacture of plant and structure, as well as two submitters involved in working in the conformity sector (ie inspection of plant for conformance with standards).

We had strong agreement that upstream duties are not working well from the majority of submitters and through our other stakeholder engagement. Stakeholders were consistent in the message that low quality imported plant is a problem, and this came up in all stages of the consultation process.

A majority of submitters agreed with the problems identified in the discussion document (issues 1-8 above), and that there were problems with implementation of the upstream duties in the HSW Act. WorkSafe agreed with the description of issues in the discussion document.

Key themes in the submissions included the challenges associated with imposing and enforcing New Zealand health and safety expectations and upstream duties, especially where a duty holder was overseas.

Some submitters did raise specific issues through submissions. These were consistent with the issues identified, and largely subsets or examples of issues 1-8.

These specific issues include examples of design or re-design:

- problems can arise from mixing of different types of plant (the example given was mixing scaffolding systems that were not necessarily designed to go together)
- one submitter referenced ‘copy-cat design’, where one manufacturer might use the design of another manufacturer, but may use different materials or make design changes that mean the product might not meet the same standard as the original piece of equipment
- submitters noted that there are complexities where the individual components of a system of plant are supplied from multiple sources (the example given was scaffolding, but this could also apply to an assembly line or similar).

Other submitters, including WorkSafe, provided feedback about the life-cycle of plant and structures, including the health and safety of the workers constructing, and questioning whether enough thought was put into the decommissioning and demolition. Decommissioning and demolition are specific examples of reasonably foreseeable activity included in the HSW Act, and this is an example of upstream duty holders not understanding the extent of their duty.

Five submitters commented about the risks from aged or modified equipment, including a lack of quality or up-to-date information about the equipment being available. This is an example of why information needs to be provided between duty holders and when plant is transferred between PCBUs.

Six submitters commented about the liability on upstream duty holders, and thought duty holders will be incentivised to avoid or minimise their liability if a duty were imposed. These duties already exist under the HSW Act, and the Act does not allow a duty to be transferred to another person or a duty holder to contract out of their duty.

What are the objectives?

The objective of the proposed package of regulatory changes is: **to reduce New Zealand's high rates of work-related fatality and injury from working with plant, structures, at height and on excavations, and to reduce the harm to workers and the associated social and economic burden to New Zealand**, as described in section 2.2.5. This policy objective has not changed and is the purpose of, but is not being met by, the status quo.

Specific to upstream duties, we think this can be achieved by:

- clarifying existing HSW Act obligations, including defining the roles and duties of upstream PCBUs
- improving information exchanges across the supply chain
- promoting safety in design and early risk management interventions.

These build on the requirements in the HSW Act, and respond to the particular issues identified above.

What are the options?

As per the other topics of this RIA, our broad options are to introduce regulations, or to continue to try to manage through other interventions, including the bespoke tools available in the HSW Act. We asked submitters what tool or combination of tools they thought would be most effective to ensure compliance with upstream duties.

In the discussion document we proposed following the Australian Model Regulations (AMR). Submitters were asked about whether they agreed with the approach in the AMR, and whether any modifications were needed. There were some proposed modifications to the AMR identified in the discussion document, and submitters were asked for feedback on these too.

Broadly, there are two options:

- Relying solely on non-regulatory options
- Regulations based on the AMR (with some modifications).

These two options are described in the table below:

Upstream duties option 1: Relying solely on non-regulatory options Non-regulatory options identified include education of duty holders by the regulator, best practice guidance, and/or approved codes of practice. There is some work already by WorkSafe in this space, including good practice guidance for PCBUs with a role in designing structures, plant or substances. WorkSafe published *Health and Safety by Design*, a best practice guidance for designers in August 2018. This option could include increasing WorkSafe's work in this space.
Upstream duties option 2: Regulations based on the AMR (with some modifications)

The AMR are designed to work under the Australian Model Work Health and Safety Law, on which New Zealand's HSW Act is based. We consulted on proposals adapted from the AMR because they provide a well-developed basis for managing risks.

The AMR places specific requirements on upstream duty holders that provide clarity on how to fulfil their general duties under the Model Act. Some of the requirements are in the form of complementary duties – for example, the duty on a designer to provide certain information to the manufacturer is complemented by a duty on the manufacturer to take all reasonable steps to obtain that same information.

We consulted on the various components of the AMR to see which parts stakeholders thought we should adopt, and what modifications (if any) should be made.

A summary of the main AMR requirements is provided below:

- prescribes the information that needs to be provided between various **duty holders** in the supply chain
- requires **duty holders** to take all reasonable steps to obtain information from the person upstream of them, including from an overseas manufacturer and/or designer equivalent to what would be provided if they were based domestically
- specifies that action must be taken if hazards are identified during the **manufacturing** process or during **importation**
- requires the **designer** to include safety critical features (guarding, operational controls, emergency stops and warning devices), and sets out the requirements for these, with complementary requirements on **manufacturers** to install guarding and other safety features designed by the designer
- requires installers, constructors or commissioners of **structures** to have regard to information provided by upstream PCBUs.

We also identified some potential modifications to the AMR, and asked submitters for feedback on these. The proposed modifications include:

- requiring PCBUs ordering plant or structures to supply a designer with information about relevant hazards and risk, so far as reasonably practicable. In our analysis we also considered whether to expand this to the manufacturer or constructor.
- requiring the creation of a health and safety 'file' for structures by the designer and specifying the information that must be provided by certain duty holders and shared with others (either in addition to or instead of following the Australian Model Regulations, based on the requirements that apply to buildings in the UK).

Additional proposal

We also consulted on an additional topic for possible inclusion in regulations. This proposal is of a different nature to the other proposals, and changed as a result of consultation, so it has been analysed separately.

Upstream duties 3: recognition of overseas jurisdictions for imported plant

To respond to the concern consistently raised by stakeholders about the quality of imported plant, we asked whether to create a list of overseas jurisdictions that importers can rely on to ensure plant meets New Zealand's health and safety requirements.

Options analysis

How this options analysis has been undertaken – requirements and regulatory mechanism

The discussion document suggested introducing regulations based on the AMR, which place specific requirements on upstream PCBUs, in addition to the general duties within the Act.

In the table below we have analysed the various proposed requirements put forward in the discussion document, including summarising stakeholder feedback on the proposal.

Separately we have also considered whether to proceed with these regulations as a set, or to use non-regulatory options to address the issues identified, including some based on the proposals (eg guidance by WorkSafe). This is outlined below.

Due to the constraints on analysis set by the inclusion of these duties in the primary legislation, previous Cabinet decisions and the consultation undertaken, it is inappropriate to take a first principles approach in this RIA. We have not considered options not consulted on as part of the discussion document, or making changes to the primary Act.

Regulatory mechanism

An overarching question is what regulatory tool is best to achieve the change. Broadly, there are four main options:

- Regulator education campaigns, and other intervention tools such as dedicated work programmes and areas of focus
- Approved codes of practice
- Other types of guidance provided by regulators (eg best practice guides)
- Regulations.

These options are not mutually exclusive, and a combination of options may achieve the best outcomes.

We consider, and stakeholders agreed, that the upstream duties in the HSW Act alone are unlikely to increase understanding of upstream duties, and therefore lead to better health and safety outcomes.

The options clarify and provide more detail about what upstream duty holders need to do to fulfil their duties under the HSW Act.

Although introducing the requirements analysed below will mean PCBUs have more express obligations, the requirements clarify what they should be doing already, because requirements about designing, manufacturing and supplying plant are longstanding in legislation.

There is a long history of upstream duties with supporting guidance, and feedback from stakeholders is that it is not working effectively on its own. Stakeholders largely supported more detailed requirements in the form of regulations, either on their own or in combination with other tools.

The strong message through consultation was that non-regulatory options would not be enough. There was also general agreement that a combination of tools (including additional WorkSafe guidance) will be required. Submitters noted they would welcome the additional clarity that regulations would bring.

WorkSafe supports a combination of tools, including regulations on upstream duties. WorkSafe will promote and reinforce any new regulations with guidance, education and enforcement. WorkSafe thinks it is important that designers embrace principles for health and safety by design by building them into their processes, and is developing a strategy to promote the use of health and safety by design.

There is some guidance about upstream duties on WorkSafe's website and in its *Safe Use of Machinery Best Practice Guidelines*. Health and safety by design is a strategic priority for WorkSafe and it has released an introduction to best practice on health and safety by design to support compliance with the general duties in the HSW Act.

We consider there is a case for creating regulations for upstream duties because:

- risks are not being effectively managed through the duties in the HSW Act, tools such as guidance, or regulator campaigns
- upstream duties and the risks they are intended to address are not new. They have been in previous regulations and guidance since the Machinery Act 1950 and they are still not always being done well
- the risks alone do not encourage people to fulfil their duties – the risks from failing to fulfil upstream duties are not immediately apparent because there is distance between upstream duty holders and harm occurring in the workplace from the plant or structure, especially where the designer works in isolation from end users of the plant or structure
- regulations will help prevent duty holders from externalising the risk of harm and pushing the responsibility to make plant and structures safe downstream, by requiring them to follow processes and think about the risk upstream
- regulations will provide clarity about roles and processes and set minimum expectations about what is reasonably practicable in the circumstances – this sets a level playing field for all duty holders and reduces compliance costs, especially for small and medium sized businesses that do not have the same access to health and safety specialist advice
- regulations will help support enforcement of the general upstream duties in the HSW Act through mandatory controls that are legally enforceable
- comparable jurisdictions have regulations for upstream duties, which indicates a consistent international view that the risks and nature of upstream duties warrants regulation.

Some of these objectives could also be achieved through an approved code of practice and/or other guidance – eg supporting enforcement and providing clarity about roles and processes. However, given the long history of legislation and guidance about upstream duties, we think there is a case that these things are still not being done well, lesser controls have not been effective, and mandatory controls through regulations that can be legally enforced should be explored. An approved code of practice does not have the same legal status or perceived weight as a mandatory control that can be legally enforced.

Analysis of requirements

Each of the components of the AMR has been analysed in the table below, including identifying and analysing any changes identified in the discussion document or through the consultation process.

We received support from the majority of submitters on this topic for progressing with regulations, and for basing the regulations on the AMR. We also received support for our proposed modifications to the AMR. Specific comment provided by stakeholders on individual proposals is detailed further in the table below.

Upstream duties 1		
Title and description	**What submitters said**	**MBIE position**
Information provision and action Require upstream duty holders to provide information about a plant to the specified person downstream, and duty holders who receive information to use that information, specifically: a) Require a designer to provide a manufacturer with information to enable the plant to be manufactured in accordance with design specifications, and if applicable, information about installation, use (including maintenance and cleaning), integration, handling, storage, dismantling, commissioning, decommissioning, hazards and risks identified by the designer, testing or inspections to be carried out, safe systems of work, competency of operators required, and emergency procedures if there is malfunction of the plant b) Require manufacturers, importers and suppliers to take all reasonable steps to obtain the information specified in a) from the PCBU upstream and pass it on to the PCBU downstream	A majority of submitters supported following the approach taken in the Australian model regulations for providing information and identifying hazards and risks in plant. WorkSafe thinks that the most important things to include in regulations are more clarity about the information that should be provided down the supply chain, and provisions that encourage designers, clients/requestors of designs and end users to effectively consult each other. Regarding **e)** (our proposed addition to the AMR) 23 out of 172 submitters responded. 11 supported it, with two main themes: • it should be limited to the intended use of the plant at the workplace • a question about how the duty might be met when a piece of plant is mass produced and where NZ is a small market for the supplier (and therefore PCBUs have limited ability to influence the design). We believe the first is not an issue as the regulations will sit within the scope of the Act – ie plant to be used at work and prescribed high-risk plant (plant identified in regulations that is not used in carrying out work, but is still covered by the HSW Act – this is covered in the high-risk	**Recommended – it will address the following issues:** • **Issue 5 – adequate information is not being shared or acted on** - by specifying the type of information and who must provide it. • **Issue 7 – limited understanding of upstream duties** - by providing clarity on what PCBUs must do to fulfil their duty. • **Issue 3 – alterations can create risks to health and safety** - by ensuring PCBUs who alter plant do so in a safe way. The issue of lack of understanding that a person altering plant is a designer cannot be addressed through regulation – WorkSafe has indicated it will use other tools (ie guidance and communication) to address. • **Issue 1 – poor quality of imported plant** – by requiring importers of plant to ensure information about the plant is obtained and passed on. These provisions build on and clarify the requirements on upstream duty holders in the HSW Act. Our proposed approach follows the Australian model regulations **(a-d)**, with a supplementary addition **(e)**. Duty holders need to have the right information so they can ensure plant is used and managed without risks to health and safety. The provisions set the minimum information exchanges between duty holders and require the information provided to be acted on. Information provision requirements are a common way to protect people in other regimes (such as financial products and services or consumer laws). These requirements will mean:

c) Require manufacturers and importers to ensure the plant is manufactured, inspected and tested in accordance with the information provided by the designer d) Require installers/commissioners/ constructors to ensure that the plant is installed, constructed or commissioned having regard to the information provided by the designer, manufacturer, importer or supplier under the Act or the regulations OR the instructions provided by a competent person, to the extent they relate to health and safety e) Require PCBUs requesting or ordering new designs of plant to provide designers with information about reasonably foreseeable risks and hazards at the workplace where the plant will be used, or that could arise from the intended use of the plant *[an addition to the AMR].* *A change from the status quo that builds on the duties in the Act by introducing process requirements that help duty holders fulfil their duties.*	plant section, and includes amusement devices where the key concern is public safety). The second concern we consider will be addressed by the design of the regulation. When a PCBU purchases a piece of plant 'off the shelf', they will need to ensure the planned use fits within the intended use, and can do this by accessing information about the plant (this is addressed by the duties in the general plant section). When a PCBU orders a bespoke design of plant, they will need to communicate with the designer. We will ensure the drafting of this section and any guidance reflect this. There was also comment on the ability of the commissioning PCBU, and whether they would have the expertise required to fulfil the duty. If the PCBU does not have sufficient expertise then they will need to engage someone who does – this could be the designer they are commissioning the work from or a third party. WorkSafe supports the inclusion of this duty, so far as is reasonably practicable. It notes that that best practice will be to consult with more than the PCBU requesting or ordering plant – eg workers and maintenance staff.	• designers are clear about what information they need to provide downstream (including about hazards and risks) • PCBUs downstream from designers are clear about what information they should be provided with, and that they must try and obtain this information • PCBUs downstream must have regard to this information when carrying out their role – ie when manufacturing, importing, supplying, installing, or managing or controlling plant There are some existing requirements on these duty holders in the HSW Act. Section 39(4) provides that the designer must give to each person provided with the design adequate information concerning the purpose the plant was designed for, the results of any calculations etc carried out, and any conditions necessary to ensure that the plant is without risks to health and safety when used for a purpose for which it was designed. Similar provisions apply for other upstream duty holders. The proposed regulations will clarify these requirements in the HSW Act by introducing a requirement for upstream PCBUs to provide specific information to other PCBUs. Regarding **e)** (requirement on PCBUs requesting or ordering designs); this is an additional requirement to what is specified in the AMR. We consulted on this as an additional option as a way to help designers by enabling them to have the right information to ensure their design is without risks to health and safety. The PCBU requesting or ordering designs of plant is likely to have relevant information about how the plant will be used that the designer may not have. This duty will complement the duties on the upstream PCBUs to obtain and use information.

Upstream duties 2		
Title and description	**What submitters said**	**MBIE position**
Hazard identification and action Require upstream duty holders to identify and respond to hazards, specifically: a) Require manufacturers to take action if hazards are identified during the manufacturing process. The actions are: consult with the designer if a hazard is identified with no control measure; eliminate, or, where elimination is not possible, minimise risks arising from identified hazards b) Require designers to respond to hazards identified by the manufacturer by: revising the information provided to eliminate the risk (so far as is reasonably practicable) or, if it is not possible to eliminate the risk, to minimise the risk. If the designer does not believe it is necessary to revise the information, to notify the manufacturer of this fact. c) Require importers to take action if hazards are identified during importation. The actions are: ensure plant is not supplied until risks are eliminated; where elimination is not possible, inform the person supplied about the risks; consult designers and manufacturers about any alteration made to control identified risks. *A change from the status quo that builds on the duties in the Act by introducing process requirements that help duty holders fulfil their duties.*	Submitters supported the AMR approach of requiring upstream duty holders to identify hazards and take action based on those hazards, including the proposal to extend to PCBUs who construct, install or commission plant.	**Recommended – it will address the following issues:** • **Issue 1 – poor quality of imported plant** - by requiring importers of plant to ensure the safety of plant. • **Issue 5 – adequate information is not being shared or acted on** - by specifying what actions must be taken in response to receiving information. • **Issue 7 – limited understanding of upstream duties** - by providing clarity on what PCBUs must do to fulfil their duty. These provisions build on and clarify the requirements on upstream duty holders in the HSW Act. Our proposed approach follows the Australian Model Regulations. Identifying hazards is the first step in addressing risks and designing and manufacturing plant safely. Without identifying hazards, risks cannot be eliminated or minimised by designers, manufacturers and others before plant is used in the workplace. These requirements will mean PCBUs must take the specified actions when hazards are identified. These requirements will build on the HSW Act section 30 requirement to manage risks by eliminating the risk, or (where it is not practicable) minimise the risks. There are some existing requirements on these duty holders in the HSW Act. Section 39(2) provides that the designer (so far as is reasonably practicable) ensure the plant is designed to be without risks to the health and safety of persons who are likely to use the plant or carry out any reasonably foreseeable action in relation to the plant. Similar provisions apply to the other upstream duty holders. These regulations will clarify these requirements in the HSW Act by introducing a requirement for upstream PCBUs to respond to hazards identified.

Upstream duties 3		
Title and description	**What submitters said**	**MBIE position**
Secondhand plant Require suppliers of secondhand plant to identify, so far as is reasonably practicable, faults in the plant and to give that information in writing to the person they are supplying it to. Note that this does not apply to suppliers of secondhand plant selling plant 'as is' because this is excluded from the duty in the HSW Act. However the section 36 primary duty of care still applies to those selling secondhand plant 'as is'. *A change from the status quo.*	A majority of submitters thought that suppliers of secondhand plant should be required to identify faults in the plant and give information to the person they supplied it to. Some submitters were of the view that the proposal may push more suppliers to sell secondhand plant 'as is', which could be counterproductive and lessen the safety of secondhand plant. On balance, and for the reasons discussed in the following column, we do not believe this is a good enough reason in and of itself to avoid introducing this requirement. We think guidance by WorkSafe will support PCBUs to understand this requirement. WorkSafe supports this proposal, and notes that other proposed regulations on PCBUs commissioning plant	**Recommended – it will address issue 2 – poor quality of secondhand plant** This will go some way to addressing the issue of poor quality secondhand plant by requiring information about faults in the plant be passed on, so the person receiving the plant has information to inform their decision. The duties on suppliers in section 42 do not apply to suppliers of secondhand plant sold 'as is', meaning this plant will not be addressed directly by this provision. There will still be requirements on the PCBU who purchases the plant to address any risks in the plant (covered in general plant chapter). Secondhand plant is everywhere in New Zealand, and PCBUs often re-purpose plant. Secondhand plant can be risky to the person using it, especially if it has not been maintained, and it often does not meet health and safety expectations. This proposal requires suppliers to identify faults and provide that information in writing to the person they are supplying it to. This will give the purchaser information about the condition of the secondhand plant so they can make informed decisions and manage risks appropriately. We are somewhat constrained in how we deal with secondhand plant because of the inclusion of a provision in the HSW Act which provides that the supplier duty does not apply to the sale of secondhand plant 'as is' – section 42(6). This means we cannot apply this proposal to these suppliers. The HSW Act is different to the Australian Model Law in this regard, meaning the way the AMR provision will work is slightly different. Due to this limitation, this provision will ensure that a PCBU purchasing secondhand plant for use in a workplace either: • knows what the faults in the plant are because they have received that information from the supplier, or

	and on PCBUs in control of a workplace will help ensure 'as is' plant is properly checked before use in a workplace.	• knows that they must determine any faults before using the plant at a workplace, because they have not received any information and therefore the plant has been sold 'as is'. As some stakeholders commented, placing an information requirement in the regulations on PCBUs supplying secondhand plant may incentivise suppliers to sell more secondhand plant 'as is'. This is especially the case if the requirement has a financial penalty for breaching it (which is expected and will be consulted on as part of the next steps). When secondhand plant is sold 'as is', the requirement and the cost of identifying faults in the plant is transferred from the supplier to the purchaser, who, in order to meet their HSW Act duties, will be required to find out necessary information before using the plant in their workplace. This may in turn incentivise the purchaser to consider purchasing higher quality plant. On balance we consider that this provision allows New Zealand's culture of purchasing secondhand plant to continue to occur, but more safely than currently.

Upstream duties 4		
Title and description	**What submitters said**	**MBIE position**
Safety-critical features Require designers and manufacturers to meet minimum standards for safety features and guarding where these are used as a control mechanism, specifically: a) Require designers of plant to ensure, so far as is reasonably practicable, guarding designed for that purpose will prevent access to the dangerous part of the plant while the plant is in use or is being cleaned or maintained (and to follow a hierarchy of the type of guarding) b) Require manufacturers of plant to ensure guarding used as a control measure is of solid construction and securely mounted; and that it can be removed to allow for maintenance and cleaning, but that the plant cannot be restarted until the guarding is reattached c) Require designers of plant to ensure that the design of operational controls provides for the controls to be identified, accessible to operators, located or guarded to prevent accidental starting, and able to be locked off d) Require designers of plant to ensure that the emergency stops are prominent, clearly and durably marked, immediately accessible to each operator of the plant, coloured red, and unable to be adversely affected by electrical or electronic circuit malfunction. If plant is designed to be operated by more than one person and more than one emergency stop control is fitted, the designer must ensure the design provides for the emergency stop controls to be so that the plant cannot be	The majority of submitters supported the inclusion of these requirements, including WorkSafe. A small number were concerned about the level of prescription in the AMR, and the potential for stifling innovation. Others noted that the specific requirements would not be appropriate in some cases. We consider that the AMR provisions are performance based, and therefore flexible enough to allow for different circumstances. We do not propose to make any changes as a result of this feedback.	**Recommended – it will address issue 4 – safety features need appropriate design** These requirements will set minimum standards for the design and manufacture of safety-critical features. They will complement the requirements in the general plant section. Good health and safety by design process (as well as the requirement under the HSW Act s30) suggests that hazards and risks should be eliminated, and if that is not possible, then minimised. These requirements will apply when guarding or other safety features are used as a control measure. Placing the specified requirements on designers and manufacturers will be in addition to the requirement that plant must have appropriate guarding and other safety-critical features (the analysis of which is covered in the general plant section). This duty will reflect and enhance the general plant duty by assigning the duty to specific PCBUs that can influence the inclusion of these features – ie the designer and the manufacturer. One of the issues identified is poor-quality guarding and other safety features. These requirements will set minimum standards and provide more consistency in their design. International research shows it is more efficient and effective to manage risk in the design phase than to

restarted after an emergency stop control has been used unless that emergency stop control is reset e) Require designers of plant to ensure that any warning devices on the plant are positioned in a manner that makes them the most effective f) Require manufacturers of plant to ensure that the plant is manufactured and inspected having regard to the information provided by the designer of the plant under the HSW Act and these regulations [there are no specific provisions in the AMR relating to manufacturers and operational controls, emergency stops or warning devices, however this provision requires their construction if specified by the designer and we believe this is sufficient]. *These provisions are a change from the status quo, and will complement requirements for plant to have guarding and other safety-critical features, which are analysed in the general plant section.*		retrofit health and safety solutions. If risks cannot be eliminated, then guarding and other safety critical features are necessary to minimise the risk. The requirements will apply to designers for this reason, with a complementary duty on manufacturers to ensure the design is properly manufactured.

Upstream duties 5		
Title and description	**What submitters said**	**MBIE position**
Clarifying requirements for structures not regulated under the Building Act a) Require installers/constructors/commissioners of structures to have regard to information provided by upstream PCBUs or the instructions provided by a competent person to the extent that those instructions relate to health and safety *AMR 202* b) Require PCBUs requesting or ordering new designs of structures to provide designers with information about reasonably foreseeable risks and hazards at the workplace where the structure will be used, or that could arise from the intended end use of the structure *[an addition to the AMR].* *A change from the status quo that builds on the duties in the Act by introducing process requirements that help duty holders fulfil their duties.*	Proposal a) (to follow the AMR) received support from 22 of the 36 submitters who answered this question. Many of these submitters supported it in combination with the proposal for a health and safety file (discarded option discussed below). Submitters noted that the definition of a 'competent person' will have to be clear. We propose to use the definition in the AMR. When asked about what would make someone a competent person, submitters suggested that experience and training, a member of an appropriate body, and that it would depend based on the type of structure. We proposed to use the AMR definition, which captures these points, and can be expanded on in WorkSafe guidance for specific points. A majority of submitters supported including proposal b, including WorkSafe.	**Recommended – it will address issue 6 – PCBUs are uncertain how to fulfil their duties in relation to structures** These requirements will make it clearer how upstream duty holders can fulfil their duties in relation to structures by setting out a process by which to share and use information. How upstream duties apply to structures was identified as particularly confusing for PCBUs. Risks arising from completed structures when they are being used in, or as, a workplace are primarily governed by the requirements in the *Building Act 2004* and Building Code. While there is some cross-over between Building Act requirements and the general duty on designers in relation to structures under the HSW Act, not all structures covered by the HSW Act are regulated by the Building Act. Some of these structures, such as scaffolding and tunnels, have specific controls already in regulations (amendments to scaffolding requirements are addressed elsewhere in this RIA), while others do not. New Zealand's Building Act requirements are different than requirements in Australia, meaning we are making a modification to the AMR – excluding structures that are covered by the Building Act. We consider that specifying what information must be shared between duty holders and identifying processes for sharing that information will support duty holders to fulfil their HSW Act duties. Proposal **a)** will do this by requiring installers/ constructors/ commissioners of structures to have regard to information provided by upstream PCBUs or the instructions of a competent person. Regarding **b)** (requirement on PCBUs requesting or ordering designs); this is an additional requirement to what is specified in the AMR, and mirrors the requirement we are including for plant. We consulted on this as an additional option as a way to help designers by ensuring they have the right information to ensure their design is without risks to health and safety. The PCBU requesting or ordering designs of plant is likely to have relevant information about how the structure will be used that the designer may not have.

Limited exclusions for aircraft and some vessels

Aircraft and vessels are included in the definition of plant, and the upstream duties in the HSW Act apply to aircraft and vessels. This is a difference from the Australian Model Law, and therefore the model regulations, which do not include them. Aircraft and vessels are subject to industry-specific rules via Civil Aviation Rules or Maritime Rules respectively. This section considers whether there should be any exclusions from the proposed regulations on upstream duty holders for these types of plant.

In the general plant chapter above, we recommend that the general plant provisions

- partially apply to vessels, but exclude vessels and plant on board vessels that are regulated by Maritime Rules, aside from certain ancillary equipment (eg processing machinery and material handling equipment) that will be covered by the proposals
- exclude aircraft covered by Civil Aviation Rules
- exclude military aircraft and Naval ships where a formal defence order (as issued under s. 27 of the *Defence Act 1990*) that complies with the regulations, to the extent practicable, is in place.

For consistency, we have considered this outcome and the rationale used to reach it when assessing below the appropriate application of the upstream duties to vessels and aircraft.

Each proposal has been considered individually, rather than as a whole. A blanket exclusion would not be consistent with the inclusion of aircraft and vessels within the definition of plant in the HSW Act.

We propose there should be no exemptions for two of the proposals – information provision and action (proposal 1), and secondhand plant (proposal 3). These proposed regulations requiring information to be shared between PCBUs should apply across all aircraft and vessels and the plant on board vessels. The rationale outlined in the analysis above applies here – the sharing of information will allow PCBUs to make informed decisions and manage risks appropriately.

For the other two proposed regulations – hazard identification and action (proposal 2), and safety critical features (proposal 4) – we propose partial exclusions. These requirements will require upstream duty holders to make physical changes to plant, for example installing guarding. This could potentially contradict the requirements in the Civil Aviation Rules or the Maritime Rules, and we do not want to cause confusion for PCBUs about which regime to follow. We propose to exclude all aircraft, and vessels and plant on board vessels that is already regulated by Maritime Rules from these requirements, as these are covered by the Rules, as well as the general duties in the HSW Act. We propose to apply the proposed regulations to vessels and plant on board vessels that are not covered by Maritime Rules and selected ancillary equipment. This is consistent with the approach proposed for the general plant requirements, and provides equal protection for workers across sectors.

For military aircraft and Naval ships, we propose that, as per the requirements in the general plant section, these are exempted from the regulations where a formal defence order (as issued under s. 27 of the Defence Act 1990) that complies with the regulations, to the extent practicable, is in place.

Proposal not being progressed

We consulted on a proposal that we do not intend to progress: a health and safety file for structures not covered under the Building Act.

This proposal was based on a UK requirement for buildings – the designer on projects with more than one contractor must prepare a health and safety file, containing information likely to be needed to ensure health and safety during any subsequent work (such as maintenance, cleaning, refurbishment, or demolition of the structure). In the UK this forms part of their requirements for the safety of buildings. As outlined above, we only consulted on applying this to structures not regulated by the Building Act.

We have since looked in more detail at structures that are not covered by the Building Act and how this provision might apply. For structures where there are already requirements – scaffolding, cranes, passenger ropeways, quarries, excavations, roads – we consider that this provision will not add any additional benefit to the existing requirements.

We considered narrowing down to delegate to WorkSafe the power to identify types of structures (via a safe work instrument) that would be required to create a health and safety file, and looked into two common examples – network utility operator (NUO) systems, and grain silos. We concluded that a health and safety file was not the best way to manage risks associated with these structures. Both have other regulations directly covering aspects of the structure (electricity safety regulations, and the 'loose but enclosed materials' regulation respectively), and the working at height regulations.

From this, we have concluded the proposal should not progress.

Effectiveness

The effectiveness of these proposals will be hard to measure, given the nature of the duty holders, and the fact they work in combination with other proposals. That said, there are several factors that will contribute to the effectiveness of the proposed regulations.

One of the key benefits is that we are creating a compliance pathway, which provides clarity for duty holders on how to fulfil the existing duties under the Act. A consistent theme in the feedback from stakeholders was that they are unclear how to comply with the duties imposed by the Act. By creating a process for duty holders to follow, they will have more certainty about what is required of them.

International research shows that addressing health and safety risks early on in the life of plant – at the design stage – means it is easier and more effective (both cost and outcome) to eliminate risk, or minimise risk if it cannot be eliminated. Without these regulations the burden of managing the risk from plant falls primarily on the PCBU managing or controlling plant in the workplace, who is least well positioned to effectively manage the costs. The proposals will put the burden of this earlier in the process.

By putting specific process requirements on upstream duty holders, it will be easier to enforce against these duty holders. Bluff et al[49] found that in Australia, inspectors exercised

[49] E Bluff, R Johnstone, M McNamara, and M Quinlan Enforcing Upstream: Australian Health and Safety Inspectors and Upstream Duty Holders (2012) Australian Journal of Labour Law at pp 29 – 30

their inspection and enforcement powers with upstream duty holders in only a limited way, and generally did not secure more far-reaching improvements in health and safety performance by these duty holders. Where inspectors did address them they often determined non-compliance in a specific context and required retrofitting of control measures, remedial measures or provision of health and safety information, rather than seeking to ensure the inherent safety of the plant. This research was conducted prior to the introduction of the AMR, and we are not aware of any subsequent research.

Some specific measures have been considered. These are discussed in the monitoring and evaluation section (chapter 10).

Costs of option 2

Limited quantitative information was provided by submitters as to the costs and benefits across the whole range of proposals in the discussion document, including relating to upstream duties.

A number of submitters were not concerned about the potential costs of the proposals, commenting that they were consistent with their current approach, or that the up-front costs will be outweighed by the safety benefits.

Of the submitters that were concerned about cost, none provided any quantification of what those costs might be. A key theme was about the cost associated with applying new requirements to old or aging plant. Another theme was costs that would be associated with the need for specialist advice as part of the design of plant or a structure.

The changes we are proposing will clarify existing requirements under the HSW Act or support changes proposed in the general plant chapter. Where changes are clarifications of existing the HSW Act requirements we consider the additional cost of these changes to be modest.

In theory, the cost should already be being met if a duty holder is meeting their HSW Act requirements. However that does not mean that the cost will be zero. We have discussed that upstream duties are not currently being managed well as part of our rationale to introduce regulations as an additional control. The proposals introduce a clear process that duty holders can follow to meet their obligations, and this may mean a cost on those duty holders who are not already meeting the requirements.

Where the additional cost falls on an upstream duty holder, the duty holder may pass the additional costs to the next person in the supply chain by including it in the purchase price of the plant or providing their services. We should note research shows that the design/ manufacturing stages are the most cost effective stages to address safety issues – meaning it is cheaper and more effective to build safety features in early rather than retrofitting once the plant has been built. In the case of safety-critical features, if this is not done at the design stage it will be required of the PCBU who purchase the plant for use in their business (through proposals in the general plant section).

While we consider the proposed regulations to be extensions of the requirements under the HSW Act, they provide a greater level of specificity than what is included in the Act. We have identified the potential costs associated with each proposed requirement in the table below:

Proposed requirement	Potential costs
Information provision (proposal 1)	• designers may have to take additional time to compile information in a format that can be passed on • manufacturers, importers and suppliers may have to spend time seeking, verifying or interpreting (including translation) of information provided • additional time spent liaising between duty holders
Hazard identification and action (proposal 2)	• there may need to be additional time spent designing and testing to ensure plant meets requirements • additional time liaising between duty holders • where manufacturer, importer or supplier cannot contact the designer or other duty holder and is therefore required to eliminate or minimise the hazard, there will be a cost of designing this change (including all necessary checks)
Secondhand plant (proposal 3)	• there will be additional costs of identifying faults in plant and providing this to the person the plant is supplied to • this will not apply to those selling plant 'as is'
Safety-critical features (proposal 4)	• this duty is designed to complement and support the requirements in the general plant section, which will require PCBU who purchase the plant to ensure that plant has the specified safety-critical features. Research shows that the design/ manufacturing stages are the most cost effective stages to address safety issues • some of this cost will fall on the designer and manufacturer of the plant, however we expect this cost to be passed on downstream and mostly be borne by the PCBU purchasing and using the plant. This cost is expected to be cheaper than the cost of the PCBU who purchases the plant retrofitting the plant to meet the requirements outlined in the general plant section • there may be some costs associated with retrofitting existing plant to meet requirements. For example, if a piece of plant now requires changes to comply with the general plant duties this is a modification to the plant, and will trigger the designer duties and associated costs
Clarifying requirements for structures (proposal 5)	• some costs associated with duty holders liaising with each other, however, as with the design of plant, early coordination is intended to save money in the long run
Transition to new requirements	• some PCBUs may need to develop internal processes and systems to set out how the duty holder will meet the requirements

Analysis of proposal 3 (not recommended)

To respond to the concern consistently raised by stakeholders about the quality of imported plant, we asked whether to create a list of overseas jurisdictions that importers can rely on to ensure plant meets New Zealand's health and safety requirements.

Supporters thought it would add clarity, reduce doubling up of checks, and some noted that New Zealand was a small market for most suppliers. Other submitters noted that quality of equipment from different jurisdictions can vary. A small number of submitters who are involved in verification processes did not support this proposal. These submitters were of the view that they would still do the full verification anyway, to check the plant or structure against New Zealand-specific conditions (particularly seismic), and because there was often no way to verify that an international verification was legitimate.

WorkSafe did not support the proposal to have a list of jurisdictions for imported plant. It noted that the fact plant comes from a particular jurisdiction is no guarantee that it is up to standard – it is not a given that everyone complies; some products are manufactured in one jurisdiction but for sale in multiple markets (and therefore meet different standards).

Given this, we do not think this proposal will address the issue of low quality imported plant, and we do not recommend progressing with this proposal.

Impact analysis – Upstream duties

The status quo – duties in the Act – provides a strong base for building on. One of the issues consistently raised by stakeholders is that they do not understand how to comply with the duties in the Act. This flows onto the other issues, including those in other section of this RIA and contributes to the low quality of plant in New Zealand.

While the proposed regulations will provide only marginal benefit over the status quo if it was being implemented correctly by PCBUs, importantly they will provide a clear compliance pathway for PCBUs by specifying a process to follow and an outcome that must be reached.

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Status quo	**0** The upstream duties in the Act spread the liability across the participants in the supply chain, meaning all parties have a responsibility to eliminate or minimise risk. In practice the risk and costs may be pushed down the chain to the PCBU end user.	**0** Duties under the HSW Act (including the upstream duties) require the holder to eliminate or minimise risk so far as is reasonably practicable. The duty is not absolute.	**0** Consistent feedback provided by stakeholders was that they are unsure how to meet their responsibilities in relation to upstream duties	**0** The duties in the Act reflect that all participants in the supply chain have a role in eliminating or minimising risk. Research shows that the design/ manufacturing stages are the most cost effective stages to address safety issues	**0** The Act and the duties within it are designed to be flexible and durable – it applies to all workplaces, and as such is at a general level. The regulatory design means that the specificity is left to regulations and other lesser instruments that can be more easily updated to reflect changing technology	**0** The status quo provides a strong base, however there is some confusion among duty holders regarding how to comply with upstream duties

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Upstream duties 1: Require duty holders to • **provide specified information to the person downstream** • **seek that same information from the person upstream**	+ Provides a clear pathway to comply with existing duties under the Act (a consistent request from stakeholders) Will ensure PCBUs and those using plant have the information necessary to manage risks	+ This requirement reflects the duties already imposed by the Act, and is proportionate relative to the level of harm observed Where an upstream duty holder (a designer or manufacturer) is overseas, the duty on the New Zealand-based duty holder (a manufacturer, importer or supplier) is to take reasonable steps to obtain the information, so is not absolute	+ Provides clarity to existing duties by providing a pathway to compliance	++ Research shows that the design/ manufacturing stages are the most cost effective stages to address safety issues	+ Rather than being prescriptive about the information that must be provided by duty holders, this will create a process for duty holders to follow, and an outcome they must achieve. Where detail is required, this will be provided in supporting information, which can be updated more easily	++ Expected to provide a clear pathway for PCBUs to meet existing HSW Act duties

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Upstream duties 2: require duty holders to • **identify hazards** • **respond to hazards identified by other duty holders**	+ Provides a clear pathway to comply with existing duties under the Act (a consistent request from stakeholders) Will ensure hazards are addressed at the design or manufacturing stage, which research shows is the most effective stage to do so	+ This requirement reflects the duties already imposed by the Act, and is proportionate relative to the level of harm observed Where an upstream duty holder (a designer or manufacturer) is overseas, the duty on the New Zealand-based duty holder (a manufacturer, importer or supplier) is to take reasonable steps to obtain the information, so is not absolute	+ Provides clarity to existing duties by providing a pathway to compliance	++ Research shows that the design/ manufacturing stages are the most cost effective stages to address safety issues	+ Rather than being prescriptive about what a PCBU must check, this will create a process for duty holders to follow, and an outcome they must achieve Applies across all plant Where detail is required to support PCBUs, this will be provided in supporting information which can be updated more easily	++ Expected to provide a clear pathway for PCBUs to meet existing HSW Act duties

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Upstream 3: require suppliers of secondhand plant to identify faults in the plant to the person being supplied the plant	++ Ensures that a PCBU purchasing secondhand plant for use in a workplace either: • knows the faults in the plant or • (for plant sold 'as is') knows that they must seek this information before using in a workplace	++ Secondhand plant is common in New Zealand, and PCBUs often re-purpose plant. This proposal will allow this to continue to occur, but safely, and ensures that the end-user of the plant doesn't bear all the risk The duty applies so far as is reasonably practicable	++ Provides clarity to existing duties by providing a pathway to compliance	- May result in some increased costs for PCBUs. PCBUs may avoid the cost by selling plant 'as is', which transfers the cost to the person purchasing the plant	+ Applies to all plant. Specifies a process and type of information, rather than anything specific to certain types of plant	+ This will help improve the quality of secondhand plant when it is on-sold Will ensure that more information is passed on between owners of plant, or that purchasers know they must seek out information on the plant

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Upstream 4: require designers and manufacturers to include safety critical features in plant	+ Research shows that including these features at the design stage is the most effective way to manage risks Consistent with requirements on downstream PCBUs, meaning the package of proposals works together Majority of plant in NZ is designed and manufactured overseas	++ Designed to be proportionate to risk. Reflects the requirement for plant to have safety critical features (outlined in the general plant section), and assigns responsibility for ensuring these are included	++ Provides clarity to existing duties by providing a pathway to compliance	++ Research shows that the design stage is the most cost effective stage to add these features	+ Will operate as an enabling provision based on the requirements in the general plant section, rather than setting prescriptive requirements Supporting information (not in regulation) can be updated to take into account changes in technology	++ These duties will complement and support the requirements in general plant section

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Upstream 5: clarifying the requirements for structures	+ Will add process requirements for PCBUs to share and use information provided by other PCBUs in the supply chain	+ These requirements will only apply to structures not covered by the Building Act (which contains process requirements for structures it governs)	+ Provides clarity to existing duties by providing a pathway for compliance (something requested by submitters)	**0** We received limited feedback from stakeholders as to the cost of this proposal, but we consider the additional costs will be marginal	+ Rather than being prescriptive on what PCBUs must do for structures, this introduces process requirements for sharing and using information between PCBUs	+ Addresses the key feedback from stakeholders by introducing process requirements for sharing and information

Key:

++ much better than doing nothing/the status quo

+ better than doing nothing/the status quo

0 about the same as doing nothing/the status quo

- worse than doing nothing/the status quo

- - much worse than doing nothing/the status quo

Summary of conclusions: upstream duties

Key conclusions from this chapter are summarised below.

The HSW Act duties on upstream PCBUs (designers, manufacturers, importers, suppliers, and installers, constructors and commissioners) to ensure safe plant and structures reflect that these duty holders play an important role in ensuring plant is safe before it enters a workplace. The most effective risk control measure – eliminating hazards – is both cheaper and more practical to achieve at the design or planning stage than managing risks later in the lifecycle. It also means that the responsibility for ensuring plant is safe does not just fall to the PCBU purchases the plant for use in their business, but instead falls equally across the whole supply chain.

In stakeholder consultation, upstream businesses consistently identified that they wanted more clarity on how they could fulfil their HSW Act duties. Other issues identified and agreed by stakeholders include:

- Poor quality of imported plant
- Poor quality of secondhand plant
- Alterations can create risks to health and safety, such as the removal of guarding without considering the health and safety implications
- Safety features (such as guarding) need appropriate design
- Adequate information is not always being shared between PCBUs, or the persons being provided with and using the plant (including information on safety features, and on the condition of secondhand plant)
- Upstream PCBUs are uncertain how to fulfil their duties in relation to structures
- Enforcement challenges for the regulator.

MBIE's recommendations address these concerns by providing more detailed requirements in regulation that give upstream duty holders clarity on how to meet their HSW Act duties to ensure safe plant and structures. The proposals outline processes these duty holders must follow to share information and address hazards, and requirements they must consider when including safety features. Specifically these duty holders will be required to:

- share critical safety information across the supply chain – to provide this information to the person downstream and to seek that same information from the person upstream, while the person receiving this information must use it
- take action to manage risks and hazards identified as part of their role (as designers, manufacturers and importers), including consulting with the designer where possible
- share information about the faults in secondhand plant to the person being supplied the plant – note this requirement will not apply when supplying secondhand plant 'as is', as this is excluded from the supplier duty in the HSW Act
- meet the equivalent requirements for guarding and safety features placed on businesses that use the plant, complementing the requirements for general plant by ensuring this requirement sits across all in the supply chain
- provide information to designers about the risks and hazards at the workplace where the plant or structure will be used – required of businesses ordering or requesting a new design of plant or a structure not covered by the *Building Act 2004*
- have regard to information provided by upstream businesses, or the instruction of a competent person – required of installers, constructors and commissioners of structures not covered by the *Building Act 2004*.

These proposals support and complement the proposals in the general plant section by placing equivalent requirements across all participants in the supply chain. They will build on the existing requirements in the HSW Act by ensuring that PCBUs design, manufacture, import, and supply plant and structures that are safe for use in New Zealand workplaces.

Stakeholders were generally supportive of the proposals, welcoming the clarity that they would bring. Transitional arrangements are to be determined.

Chapter 5: High risk plant

Current state within which action is proposed

"High-risk" plant is that which is deemed to involve a distinct level of increased risk, due to the plant's innate features. Specific examples include industrial boilers, pressure piping, cranes, passenger ropeways, eg gondolas and chair lifts, and certain types of amusement devices eg rollercoasters and selected types of bungy equipment.

Although the types of equipment involved have varied over time, the use of high-risk equipment in workplaces remains pervasive. Increasing quantities of 'serially produced'[50] forms of high-risk plant are being imported. This can pose specific challenges for businesses in terms of tracking and recording how particular items of plant have been produced and maintained, and to what standard.

While major harm caused by high-risk plant occurs infrequently, these events, where they arise, tend to have severe consequences. The most significant recent incident involving pressure equipment in New Zealand was the Tamahere, Waikato, coolstore explosion in April 2008, which involved a major explosion and fire that killed one fireman and seriously injured six others. In 2011 a telehandler being used as an elevating work platform, with two workers in the bucket toppled at a Wellington windfarm. One worker died and the other received serious injuries. There have been regular serious accidents involving similar access equipment over recent years.

Overview of the current regulatory system

Pressure equipment, cranes and passenger ropeways

The Pressure Equipment, Cranes, and Passenger Ropeways Regulations (PECPR) apply to the three categories of plant named in their title. While "cranes" and "passenger ropeways" are fairly narrowly defined, "pressure equipment" includes a wide range of boilers, refining, heating and cooling equipment found across numerous industries. They are the most recent version of legislative controls on these types of machinery that date back to the nineteenth century.

The regulations create duties for operators, manufacturers, importers and suppliers of plant, including a duty for equipment to be inspected by authorised inspection personnel who are engaged by recognised inspection bodies. Inspection bodies are accredited by International Accreditation New Zealand (IANZ), and inspection personnel are certified by a national Certification Board for Inspection Personnel (CBIP).

The controller/owner of an item of plant (usually a PCBU) is required to hold a current certificate of inspection for that item. A prerequisite of a certificate of inspection is that the item of plant has been certified as "design verified". This is effectively a process of independent peer review of each design of an item of plant.

The sector involves a range of engineering specialties – principally mechanical, but also structural, petrochemical, geothermal, chemical and other disciplines. There are currently 42

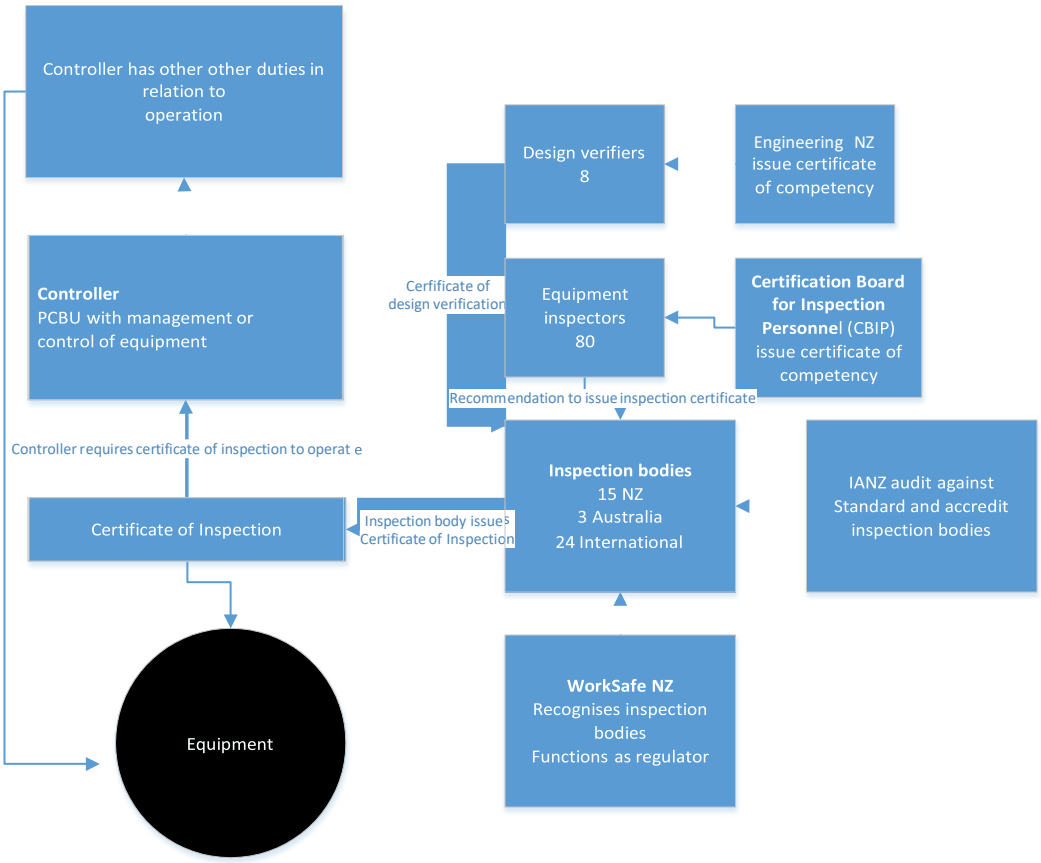
[50] The manufacture of goods in large quantities, often using standardised designs and assembly-line techniques.

inspection bodies recognised to inspect the different types of plant (15 New Zealand based, 3 Australian, and 24 international). There are approximately 80 inspection personnel approved by CBIP, and 8 design verifiers endorsed by Engineering NZ.

The regulations contain the key duties in relation to the plant they cover, as well as accreditation processes and other procedural requirements. They are supported by detailed Approved Codes of Practice for each of the three main types of plant they address. The codes in turn refer to a wide range of AS/NZS and other Standards. There currently is no central register of plant, although inspection bodies maintain records of the individual items of plant they inspect and the controller (usually the owner) is required to maintain records. WorkSafe do not hold data on the numbers of different plant involved and, in practice, records relating to individual items of plant can be difficult for inspectors and others to obtain. There are similar questions concerning the availability of professional capability to ensure design verification and inspection of all types of plant covered by the regulations.

The PECPR Regulations have not been revised since promulgation in 1999, although there have been amendments to and revisions of codes of practice and other supporting documents, some of which are now out of date.

Figure 14: Schematic of current PECPR regulations



Amusement devices

Public safety is maintained for a wide range of fairground rides, most bungy operations (ie those that use a winch) and a wide range of other mechanical amusements by the *Amusement Devices Regulations 1978*.

These regulations were made under the now repealed *Machinery Act 1950* and require the two yearly registration (or less) of individual items of plant with WorkSafe, and a territorial authority to permit each installation of an amusement device.

Before a device can be registered by WorkSafe it must be inspected and certified by a Chartered Professional Engineer (CPEng). The certifying engineer must be satisfied that the design and construction of the device is safe, is compliant with the technical requirements, and maintained and operated safely. To issue a permit, a territorial authority must be satisfied that the device is properly assembled and sited, and is used in accordance with any specified permit to operate criteria.

The regulations are framed primarily to ensure the safe operation of the machinery itself. They require the existence of a "prime mover" (ie driving motor) for coverage. However, increasingly this requirement has been interpreted liberally and beyond the intention of the original regulations because technology and innovation have overtaken the definition. Examples here are "zip lines" which use gravity to propel people at speed and height, or tree canopy adventure activities, and a range of bungy and wire-based activities.

Registration can be subject to conditions, and there has been an increasing emphasis on imposing conditions on training, operational procedures, and other "human factors" relating to operators of devices.

There have been few deaths or serious injuries on amusement devices since the regulations were passed, although serious injuries and incidents occur from time to time. The most recent fatality on an amusement device involved an employee completing pre-start up checks at Auckland's Rainbow's End amusement park in 2008.

The Amusement Devices Regulations are complemented by the *Health and Safety at Work (Adventure Activities) Regulations 2016*. They relate to "activities", rather than equipment or "plant", which is the focus of the proposed regulations.

Some other high-risk plant is not regulated

There is an increasing use of high-risk plant and equipment in workplaces that is not subject to mandatory controls, notably design verification and regular inspection, under the PECPR Regulations or other existing regulations. Stakeholders have referred in particular to a range of new types of hoists, lifting equipment, and elevating booms that are sold increasingly and at varying levels of safety.

What are the problems?

The low incidence of incidents and injuries suggest that current design verification, inspection and registration duties are generally working for the types of plant that present the greatest potential risks (ie usually large scale industrial plant and passenger carrying equipment, such as gondolas or ski-lifts).

There are, however, gaps in coverage provided by the current regulations and in conformity by duty holders, particularly with respect to a range of lower risk but very prevalent types of access and lifting equipment. These types of plant feature in many more incidents. Improved levels of maintenance, inspection, and operation standards will significantly contribute to

lowering the currently high rates of incidents and injury associated with them – particularly in the manufacturing and construction sectors.

There is particular scope for improving consistency of application of the regulations and reducing costs in relation to serially produced plant, which is being imported in increasing quantities.

We identified the following broad drivers for a review of each set of regulations. Some of these drivers relate to compliance and conformity issues that could be considered implementation, as distinct from regulatory matters. However, we consider regulatory change is an option for consideration in each case, usually to provide the required level of clarity in the law, or a mandatory control or process that will most effectively address what has surfaced as an implementation issue.

A) Under the PECPR Regulations:

A (1) Gaps and inconsistencies in the coverage of new types of machinery

We asked representatives of the manufacturing, construction, agriculture and forestry sectors whether the PECPR Regulations covered the right types of high-risk machinery and plant and whether there were gaps or inconsistencies in coverage.

We concluded that no types of plant currently covered should be excluded from the regulations, although there is scope for clarifying coverage. Some types of high-risk plant have increased in use and significance since the regulations were passed in 1999 and present risks that may warrant design verification and/or registration of individual items of plant, such as:

- forestry equipment, particularly steep-slope mechanical harvesting equipment and haulers used for cable logging (logging using cables on steep slopes)
- elevating work platforms (eg scissor lifts) and other mechanical access equipment
- certain categories of cranes, straddle trucks, swing lifters, and other large scale lifting equipment
- concrete pumping/placing booms and some other hydraulic arms
- hydraulic hoists and some other lifting mechanisms currently excluded
- prefabricated scaffolding and proprietary construction support systems (eg “Acrow props”).

Most of this equipment is imported and, as discussed below, it can be difficult for businesses and regulators to determine its adequacy and safety.

We consulted on the new types of plant that should be subject to regulation and the resulting recommendations have led to most of the additional compliance costs for businesses. We outline the types and numbers of plant and the costs involved to businesses in the options analysis section below.

A (2) It is not always clear to PCBUs or the regulator whether imported serially produced plant is properly constructed and/or maintained and fit for purpose

We consider this to be a significant issue in the construction industry in particular, but also industries such as manufacturing and retail. There is a lack of assurance for businesses

importing and purchasing plant from New Zealand suppliers or from overseas, whether new or secondhand (for which there is a significant market). It was described as a particular issue for the types of equipment referred to above, proprietary scaffolding, and access assemblies and componentry.

Design information and inspection records are not easily available to PCBUs and others

The current regulations do not require public records or disclosure of design verification, inspection, or other records in relation to a particular item or model of plant. Controllers of plant are required to have all relevant documents available in the workplace, but in practice records are usually held and maintained by inspection bodies. This makes it difficult for the health and safety inspectorate and others to determine compliance, other than for cylinders and other plant and equipment that must meet requirements under the hazardous substances regulations (where there are labelling and central registration requirements already in place).

There are significant gaps in conformity with current inspection requirements

WorkSafe, Engineering New Zealand and businesses all describe gaps in conformity and compliance with the current regulations. WorkSafe estimates that at any given time about 75-80 percent of plant covered by the regulations has a current inspection certificate.

A (3) There is limited interaction with the regulator and not a sufficient feedback loop for "type faults" or failures of individual plant items

Although the PECPR regulations require the notification of a range of incidents and "type faults"[51] of machinery, and suppliers and manufacturers to remedy such faults, in practice there are very low levels of reporting. This is inconsistent with a culture of continuous improvement and active engagement with the regulator.

There is, however, a better level of reporting for notifiable incidents involving this equipment, such as uncontrolled release of pressure, collapse etc, under section 56 of the HSW Act, but it is desirable that a broader range of incidents and faults with equipment are reported to the regulator and manufacturers, and solutions generated and distributed.

A (4) Design verification requirements are not always clear, and are applied inconsistently

Design verification requirements are a prerequisite for inspection certificates under current regulations, and are usually prepared by inspection bodies for an item of plant that they will be inspecting for the owner. Engineering New Zealand and WorkSafe have advised that this approach means that inspection bodies have to draw from a very narrow pool of recognised design verifiers for a particular class of equipment.

Practising engineers advised that design verifiers apply varying degrees of peer review and professional rigour when verifying designs and seldom recommend amendments or impose conditions on designs before certifying equipment. This raises the question of whether a separate register of designs and the additional scrutiny this entails would encourage more

[51] Inherent faults in equipment that all owners need to detect and remedy.

professional rigour through a more transparent process and by encouraging more consistent practices.

There is also a considerable amount of older plant installed before the 1999 regulations that has not been design verified. This issue is diminishing over time as older plant is decommissioned, or is significantly altered and therefore requires design verification, but requirements for older equipment need to be clarified. Transitional provisions for existing plant will be further considered once policy decisions concerning new plant have been made, and we have therefore excluded transitional arrangements from this regulatory impact analysis.

A (5) Plant is often altered without peer review or full consideration of the impacts

Practising engineers describe many situations where plant has been altered from original designs without sufficient consideration of the impacts on safety. This is a problem for equipment currently covered by the PECPR Regulations inspection regime, but a more prevalent problem for equipment such as elevating work platforms, scaffolding systems, and other such equipment not currently subject to design verification or inspection requirements.

A (6) There is an established body of inspection personnel, but some scope for tightening standards

Overall, the current system of accrediting inspection bodies and inspection personnel is seen as effective and working well for the inspection of equipment that is mainly covered by the PECPR Regulations.

There is scope for further work to review and refine the competencies for the inspection and certification of particular types of plant. Including new classes of equipment will allow this to happen.

A (7) There is insufficient consideration of seismic performance of certain types of plant and structures in workplaces

Recent earthquakes have placed attention on the seismic performance of not only buildings but plant and structures, including plant and structures both in and beyond buildings. The *Building Act 2004* contains extensive requirements to manage seismic risk to buildings, but plant and structures covered by the PECPR Regulations are beyond the scope of that Act. The Regulations require consideration of seismic performance, but the engineering profession and others note a lack of consistency in standards, particularly for older equipment and where there is not a clear indication of the standards that should apply.

Because seismic performance is most relevant to individual items of plant, and because the location and installation of the item is important, as well as the design, it should be addressed under both design verification processes and in considering the registration of individual items of plant.

Further work is needed to ensure requirements and processes are appropriate for the seismic risks in New Zealand, versus those that Australian or other Standards are based on.

(B) Under the Amusement Devices Regulations

B (1) Coverage issues

Because the current regulations only apply to amusement devices where there is a driving motor, there are anomalies and inconsistencies in the amusement devices they apply to. WorkSafe has not, for example, been able to apply the regulations to inflatable devices, some of which are large slides and other structures that present real risks to patrons. There have also been difficulties in applying the regulations to pedal powered and gravity driven, and inflatable amusements, and inconsistencies in coverage of organised quad bike activities and similar.

The sector comprises a combination of the traditional fairground rides and amusements, alongside constant development of new rides and experiences for patrons. Operators of amusement devices requested more clarity of coverage, particularly to allow the inclusion of larger inflatables, and there is support for replacing the current definition of "amusement device" with one that is risk-based and allows for the wide range of amusements in use today, as well as allowing for future innovation.

Coverage should rest on the description of the risks that the regulations are to address, and consultation confirmed that the current Australian Standard for amusement devices provides an adequate classification system for this purpose.

B (2) Territorial authorities' involvement in permitting is unclear and variable

Operators report wide variation in the extent of involvement and the expectations of territorial authorities in permitting amusement device installations. They questioned the need for territorial authority permits.

Local Government New Zealand (LGNZ) previously expressed concerns that the currently low level of fees discourages authorities from maintaining the required capability and this represents a risk to the public and authorities (further investigations into fee adequacy will be carried out at a later stage). LGNZ surveyed territorial authorities on their involvement in the Regulations and found the same wide variability of responses and expertise referred to by operators. LGNZ proposed removing the permit requirement from the regulations.

We consulted on whether territorial authority permitting should be retained, on the assumption that there needs to be a consistent standard and application of permits. We consulted on options for narrowing the types of amusements for which permits are required and providing clearer direction in the Regulations on aspects of operations, eg for ensuring geotechnical support and stability, and operations that require inspection and/or approval for permits.

Submissions and subsequent consultation with the sector has led to proposals to:

- limit territorial authority involvement to higher-risk portable amusements that are installed temporarily, and
- clarify territorial authorities' obligations for permitting/inspection role.

An alternative response, considered and rejected in submissions, would have involved transferring responsibility for inspection to operators themselves, by requiring them to ensure

devices are inspected by a competent person. This was not supported by the industry itself, local authorities, or the engineering profession. In general it was felt that territorial authority inspection and permitting added “another set of eyes” and perspective that all groups drew benefit from.

B (3) Increasing the emphasis on safety management systems and audit approaches

There is some overlap between certain activities covered by the Adventure Activities Regulations and the Amusement Devices Regulations. For example, some bungy operations that do not use a powered winch are deemed adventure activities and are subject to that regime, while those that use a winch are considered amusement devices.

The Adventure Activities Regulations require the maintenance of formal safety systems and processes, and operators must complete a safety audit before offering or providing the activity to the public. This may include engineering or other certification.

The Amusement Devices Regulations, although focused on the mechanical aspects of the operation, may also require systems audits as a condition of registration.

We consulted with operators of bungy and similar activities regarding which regulatory approach or combination of approaches provides the most safety assurance. Operators referred to the benefits of completing audits under the Adventure Activity Regulations and supported the incorporation of these approaches, as appropriate, into the regulations concerning amusement devices, but thought the current emphasis on the safety of plant should remain in new regulations. We therefore propose that the new regulations continue to cover these types of amusements and other new types that meet a risk-based definition, while preserving the split between amusement devices and adventure activities.

B (4) It is unclear which NZ or other Standards apply in any given situation

The current regulations do not refer specifically to NZ or other Standards. Which Standards apply to any particular amusement device is left to the professional judgement and discretion of the chartered professional engineer (CPEng) that issues the certificate to allow registration.

Similarly, the regulations do not formally require design verification, unlike the PECPR Regulations. The extent to which design verification is completed is left to the discretion of the certifying CPEng. Engineers tend to verify the design of imported devices in the light of the European, American or Australian Standard to which they have been designed and built, and adjust for local conditions accordingly.

In practice these requirements seem to be working with respect to amusement devices. We consulted on formalising the design verification and registration of designs for amusement devices and there was support for keeping existing competency requirements for design verifying and inspecting amusement devices.

B (5) Model engineering and heritage boilers

Model railway and steam engine clubs that carry passengers have been exempt from the requirement for a certificate from a CPEng since an amendment to the regulations made in 2011. Instead they may be registered after an audit by a competent person from another club. We consulted with the Model Engineering Association of New Zealand Incorporated

(MEANZ) on whether to retain the existing requirements for registration. They represented the view that model railways operated by their membership should not be required to register individually under the regulations and drew a distinction between commercial amusement device operations, and clubs and societies affiliated to a national body. Discussions with MEANZ have led to agreement on this distinction, as well as acceptance of the need to improve standards and consistency of practices. We are proposing that MEANZ be required to be audited by IANZ and recognised as an inspection body under the regulations, and appoint equipment inspectors to similar standards as for other machinery. MEANZ will, however, as a "qualification issuing agency" be able to appoint inspectors

We also sought views on the optimum level of regulation for full scale heritage boilers used on land, such as traction engines.

B (6) Importers of amusement devices have signalled they face unnecessary costs

We heard differing views on the costs faced by importers of amusement devices. Because most amusement devices are serially produced items of plant built to overseas Standards, the issue is similar to that discussed under the PECPR Regulations above. We propose a central register of designs of amusement devices as high-risk plant, with corresponding access to Australian registers (subject to any additional seismic considerations). Submitters said that this had the potential to improve consistency of standards and reduce costs for importers of serially produced amusement devices.

B (7) There are limited incentives for building the competency of those installing, operating and maintaining amusement devices

We propose that new regulations support improvements in competencies within the sector, particularly for workers who operate devices and are responsible for patrons' safety as a consequence.

There are training and competency standards in the current regulations, but they are criteria based and do not refer to specific competency standards.

After consultation we have concluded that some tightening of training requirements in the regulations will contribute to the improvement of competencies in the sector, but that provisions should not be prescriptive.

What do stakeholders think?

Proposals concerning high-risk plant received a high number of submissions, with between 60 and 70 submissions received on the more significant changes, and extensive submissions from a range of industry and professional groups, specialist engineers, interest groups, and several significant engineering asset owners.

There was a high level of support and engagement from the engineering profession involved with high-risk plant. Detailed submissions were received from Engineering New Zealand and each of the specialist professional groups concerned with the different classes of equipment,

There was a good level of engagement with amusement device operators and detailed submissions were received from the industry group (NZOAD), several individual operators, and the specialist engineering group. A majority of model engineering clubs and societies submitted, and four traction engine enthusiast groups.

There were subsequent discussions on particular aspects of the proposals with a range of engineering professional groups and sector groups.

Overall levels of support

In summary, there was broad support for replacing the current PECPR Regulations and Amusement Devices Regulations with modernised regulations for “high-risk plant”. Support was particularly clear from the engineering profession and specialist groups concerned with different types of equipment, who consistently supported the regulations being made more transparent through registration processes, and suggested there are currently gaps in coverage that need to be addressed. The only body of opposition was from the 12 model engineering clubs and 11 individual enthusiasts submitting, although subsequent consultation resolved most of their concerns.

Support for the accreditation and inspection processes being retained in new regulations was almost unanimous, suggesting that the current regulations are properly oriented, but need refinement in certain areas. There was support for including most of the new categories of plant as proposed, but opposition to some others, most notably the various types of steep-slope forestry/harvesting equipment. We consider the case for requiring registration of this plant is clear, in the absence of practical obstacles, of which we have no evidence. Again, further consultation with the sector has resolved concerns and provided a way forward.

A range of significant purchasers or users of high-risk plant supported both registers, including the construction sector, ports, property interests, territorial authorities, and other types of manufacturing.

There was a good level of support for establishing a register of designs from both users and suppliers of plant.

Each of the amusement device, cranes and lifting equipment, and passenger ropeway industries provided clear support for central registration of both types.

Some owners of large scale “bespoke” pressure equipment were opposed to both design registration and registration of items of plant. These included meat processors, a paper and board manufacturer, petrochemical plants, and power generators – some of which operate older equipment that is inspected under the PECPR regulations, but if installed before 1999 may not have been design verified or any reassessment completed of their design or service life, which is proposed. Many of these businesses operate under “recognition” by the regulator under the current regulations that allows them to vary their inspection cycles according to risk assessments, and to take a systems-based approach to plant maintenance. We have worked with these asset owners and interest groups to address their concerns through revised proposals, while achieving more transparency for the regulator, maintaining intellectual property rights and not creating undue administrative or engineering consultancy costs.

Design register

Design verification is a long-accepted feature of engineering practice, and New Zealand and overseas legislation has included requirements for it in building, health and safety and other regimes for several decades.

It was first used as a prerequisite to indicate fitness for purpose before registering a boiler, crane, or other item of high-risk plant.

More recently it has been used by Australian and other regulations to indicate fitness for purpose of design of a broader range of access and other high-risk plant, for which item registration and formal inspection programmes under regulation may not be justified. This is particularly relevant when serially produced equipment is being imported from countries that may not have plant registration or other accreditation processes themselves, or where high-risk plant is being sold "as is" and recommissioned to perform work for which it was not originally designed.

There was good support for a design register for the equipment currently required to be design verified under PECPR, and for most of the new types of access equipment, scaffolding systems etc. that are proposed:

- There was support for the equipment prescribed in the Australian Model Regulations, but resistance to including forestry equipment. In contrast to the views of MBIE and WorkSafe, the sector would prefer to maintain an Approved Code of Practice rather than specifying requirements in regulations. There was, however, some support from manufacturers for design registration, and the industry is already implementing a voluntary inspection regime for this equipment. We do not consider the compliance burden imposed on industry will be substantially higher than it has imposed on itself, but there will be a significant improvement in standards.
- Engineering New Zealand have indicated support for improving professional standards for design verification of different classes of equipment, and we received other detailed submissions on how this could be done.
- There was mixed support for accepting all classes of Australian state design registrations, but good support for accepting design verification from other jurisdictions for recognised types of plant as appropriate. We are working with WorkSafe and engineering bodies to ensure design verification quality standards and seismic performance standards are not compromised by any recognition of other registers.
- There was good support from the construction and manufacturing industries in particular for the proposal making it an offence for a PCBU to supply high-risk plant that is not design registered.

Registration of individual items of plant

There was good support for introducing a register of items of plant, with:

- Strong support for retaining the registration of amusement devices, while keeping the CPEng responsible for inspection.

- Good support for introducing a new register of pressure equipment, cranes and passenger ropeways currently subject to the inspection regime under the PECPR Regulations and including other types of equipment, including some forestry equipment.
- Mixed support from larger pressure equipment asset owners, as noted above.
- Strong support for retaining existing inspection body and inspection personnel accreditations and processes for inspection.
- Strong support for maintaining existing "type fault" notification requirements for all categories of high-risk plant.

Some submitters, particularly owners of large quantities of plant, or large scale plant, referred to costs of registration as an issue. We have been working with WorkSafe to determine the desirable level of functionality with the registers and to clarify costs to users from the registers. Indicative costs, recoverable as fees, are summarised in Appendix 3.

These costs have been calculated at an aggregate level and are overall costs, and may be adjusted for different types of plant. We will refine these costings and consult on this aspect at a later date after initial policy decisions have been made.

Costs of inspection of existing and proposed new types of plant are summarised in Appendix 2.

Amusement devices

A majority of submissions on proposals for amusement devices were from model engineering clubs and societies. They were opposed to any changes to the system of MEANZ accredited inspections (ie rather than by a CPEng) under the current regulations, as is required for other amusement devices. We have since undertaken further work with this group to determine how the regulations can best maintain and encourage improvements in the standards of inspection.

From the remaining submitters there was good support for:

(i) adopting the risk-based definition of "amusement device" from the Australian Model Regulations ie, defining such regulations as applying to a broader range of engineered recreational activities, according to risk. The definition will need to be modified to preserve the split between amusement devices and adventure activities, because Australian states do not have an adventure activities regime.

(ii) retaining territorial authority permitting of higher-risk portable amusement devices only (we will work with Local Government NZ to better define this and consider applicable fees).

(iii) introducing new requirements for operator training, inspection and maintenance of plant.

What are the objectives?

Proposals are aimed at the following objectives:

A. Addressing gaps and inconsistencies in coverage under existing regulations

B. Increasing transparency for system participants and the regulator

C. Clarifying standards for plant and structures, and improving consistency of application of standards

D. Reducing the risk of plant being altered or moved without considering risks to health and safety, including seismic risks

E. Improving the quality of imported plant and structures.

Preferred options

After consultation, proposals for high-risk plant can be summarised as the following:

Consistent coverage of different types of high-risk plant

- A single set of regulations for high-risk plant based on the Australian Model Regulations:
    - replacing the Amusement Devices Regulations, and using a risk-based approach to determine coverage of different amusement devices.
    - replacing the PECPR Regulations while retaining existing accreditations for inspection bodies and inspection personnel.

Require central registration of designs of high-risk plant

- Making it an offence for PCBUs to use or supply high-risk plant that is not design registered or equivalent.
- Establishing a WorkSafe-operated register of designs of high-risk plant and associated competencies and processes for design verification. Coverage to continue for amusement devices, and also pressure equipment, cranes and passenger ropeways currently inspected under the PECPR Regulations, and expanding to cover:
    - scaffolding systems and construction support systems
    - hoists, lifting and access equipment (other than that covered by the Building Act)
    - new classes of hydraulic boom lifting equipment
    - steep-slope forestry harvesting equipment
    - higher-risk inflatable amusement devices (giant inflatable slides etc. and certain other devices not currently regulated under the Amusement Devices Regulations).
- Providing for classes of equipment for which Australian state design registrations or design verification processes from other jurisdictions should be recognised in New

Zealand and/or be subject to further seismic performance requirements or other review by an engineering professional.

- Requiring design reverification and re-registration where there are alterations to plant that could affect the health and safety risks arising from plant.

Require registration and inspection of specified items of high-risk plant

- Making it an offence for PCBUs to operate items of specified classes of high-risk plant that are not registered and inspected according to the regulations.
- Establishing a register of items of high-risk plant, operated by WorkSafe, accessed and updated by accredited inspection bodies and inspection personnel (ie as accredited under the current PECPR regulations), for all classes of equipment currently subject to the Amusement Device Regulations and the PECPR Regulations, and, in addition:
    - specified lifting and access equipment (other than that covered by the Building Act)
    - new classes of hydraulic boom lifting equipment
    - steep-slope forestry harvesting equipment.
- Providing for owners of large-scale "bespoke" pressure equipment that meets defined criteria and audit requirements to apply to WorkSafe to be recognised to maintain their own records of plant, with a noting reference on the central registers, but a requirement to make the plant available for inspection by WorkSafe.
- Transitional provisions for moving existing plant onto both registers – including requiring a special assessment of items of plant that are not design verified/registered, and which may be subject to a risk-based inspection as a prerequisite to item registration; excluding legacy equipment as appropriate.
- Maintaining current "type fault" notifications for all categories of high-risk plant.

Amended requirements for amusement devices

- Maintaining existing MEANZ-accredited inspection processes for affiliated model engineering clubs, while requiring MEANZ to be recognised as an inspection body.
- Limiting the requirement for territorial authority permitting of amusement devices to temporarily installed, portable higher-risk amusement devices only, and clarifying inspection procedures for authorities through Safe Work Instruments.
- Clarifying operator training, maintenance and inspection requirements, and associated record keeping for amusement devices.

Options identification and analysis

The proposals are consistent with the objectives A – D described above. The following table sets out in more detail the options considered and the basis for selection of each of the components of the above proposals.

Proposal 1: Combine current two sets of regulations for consistent coverage and processes and extend coverage to new types of machinery			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
Consistent risk assessment, design verification, registration and inspection standards for existing and new classes of equipment		Strong support from key stakeholders, submitters, professional and sector groups for the proposals, and for improving the consistency of response to different plant and structures	**Recommended** A single set of regulations and processes applies to all high-risk plant will improve consistency of requirements and improve conformity.
Retain existing accreditation for inspection bodies and inspection personnel	Refer to the section "what do stakeholders think?" above	Strong support from key stakeholders, submitters, professional and sector groups Low production volumes and limited economies of scale for some industries mean much New Zealand plant is kept in service longer than elsewhere. Submissions referred to a culture of inspecting and maintaining plant in New Zealand past the end of design life, rather than operating plant for its design life or expected service life and then scrapping it, as often occurs in other economies. The inspection regimes in the current PECPR Regulations and for amusement devices are seen as well developed and were viewed favourably by submitters. The existing provisions were generally described as preferable to the Australian model regulations in that respect. All submissions suggested the current levels of competency and practice of inspection bodies required by the PECPR Regulations are appropriate and should continue.	**Recommended** Retaining and enhancing the current regime of inspection bodies and inspection personnel for high risk plant will build on existing capability and capacity in the regulatory system. Extend into newer types of plant will widen this capability and competency to new equipment and sectors.

Establish two central registers for high risk plant	See proposals 2 and 3 below for description of each proposed register	Strong support from key stakeholders, submitters, professional and sector groups for wide range of equipment on the establishment of central registers. There was agreement from submitters that central registers will improve the transparency and consistency of application of the regulations. Several sector groups, manufacturers, engineers and professional associations concerned with particular classes of plant made this point. Some operators of current voluntary inspection and accreditation regimes for access equipment, hoists and other equipment not currently covered by regulations wrote in support of being included in the regulations. Some operators of large scale "bespoke" pressure equipment that have invested in existing processes under PECPR regulations objected to central registration of designs and items of plant that are part of large scale pressure equipment systems in particular. The forestry sector support steps to establish registers and formalise inspection of steep-slope harvesting equipment but indicated its preference for a voluntary system maintained by the Forest Industry Contractors Association (FICA)	**Recommended** The proposed registers will improve transparency and consistency of application of the regulations, particularly for serially produced equipment. Central registration should apply to all classes of high-risk plant, except under specified conditions.

Proposal 2: Require registration of designs of certain high-risk plant on a central register			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
A new duty on suppliers and PCBUs who manage or control a workplace to only supply or use design registered plant of particular types	Design registration is preferred for high-risk plant as a mandatory control to manage the risks of operating the plant in a workplace Current regulations include design verification for high-risk plant that is covered, but only as it applies to specific registered items of plant and there is no central registration of designs	We consulted on design registration as a way of avoiding or reducing the scope for high-risk plant to enter the workplace without being of acceptable design and fit for purpose. There was a good level of support for the proposal, and the construction and other sectors referred to evidence of equipment of questionable standards being in use without workers, inspectors or others being able to establish its suitability or fitness for purpose. There is wide acceptance that design verification is necessary for all specified types of high-risk equipment used in workplaces. The degree of documentation, and whether registration is required for legacy or imported equipment in all circumstances will depend on factors provided for in the regulations. We discuss this in more detail under the case for and against inclusion of different classes of equipment on the register, and below.	**Recommended** Will ensure designs for high-risk equipment are fit for purpose and meet the Standards on which they are based Requirement to register will further support and encourage the development and availability of engineering expertise in reviewing designs A register will assist with compliance in the construction and other sectors where there is extensive use of high-risk plant.
Requiring design verification by an independent design verifier approved by Engineering NZ, or a recognised overseas body, or design registered in an Australian state	NZ design verification in all cases	This is the status quo for items of plant currently requiring inspection certificates under the PECPR or Amusement Devices regulations. In practice it is often not achievable and there are various exemptions or recognitions in place for legacy equipment or imported equipment that is not able to be fully design verified in New Zealand. Sometimes designs are reviewed by a competent person as a prerequisite to issuing an inspection certificate under the PECPR or amusement device regulations.	**Not recommended** Currently inconsistently and incompletely applied. Can result in reviews of designs of serially produced plant at some cost to operators and of limited value. Unlikely to prove practical for the range of, usually imported, serially produced access equipment and similar that the design register is intended to cover.
	NZ design verification or recognised overseas alternatives	This option will provide for a range of alternatives that are currently provided for under different regulations or supporting codes.	**Recommended** Allows consistent treatment for the range of situations that occur when plant enters the market and/or is

Proposal 2: Require registration of designs of certain high-risk plant on a central register			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
			commissioned in workplaces and is: • designed or manufactured in New Zealand; or • imported new or used; or • legacy equipment that has been in use in New Zealand
	No design verification requirement and rely on other duties only	As noted above, consultation confirmed the importance of independent design verification for assuring equipment is fit for purpose. It has long been required for types of plant currently requiring inspection under current regulations, and consultation confirmed it should be retained and strengthened.	**Not recommended** Would significantly undermine processes for equipment operated and inspected under current regulations, while not achieving the desired improvements for new classes of serially produced plant.
Including some new classes of equipment for design registration only	Scaffolding, edge protection and construction support systems (<300 designs involved)	Clear support from scaffolding industry and broader construction sector, and leading manufacturer/importer of equipment	**Recommended** Will improve quality of imported product in particular
	Vehicle hoists (<100 designs involved)	Support from sector and industry association for design and item registration. Item registration not recommended as there is a high level of inspection currently. There is a large number of items, and although there are regular product failures and low standards with some product lines, overall there are low incident numbers and few product failures causing injury.	**Recommended** Design and manufacturing quality issues, particularly for imported plant, will be adequately addressed by design registration.
Requiring design registration as a prerequisite for registration of new classes of items of plant	Elevating work platforms *Numbers of designs involved:* <100 Steep-slope forest harvesting equipment *Numbers of designs involved:* <50 Telescopic and articulated booms	We propose a single charge for registration of all classes of designs (comparable with that for a single item of plant) which will only be a marginal additional charge for new classes of plant requiring registration of individual items of plant. For serially produced items of plant the costs of design registration will usually be met by the manufacturer or supplier of the equipment or a New Zealand or Australian agent. The costs will only fall on	**Recommended, subject to transitional provisions** Design verification is an essential component of engineering design and inspection processes. The additional documentation and registration costs involved for manufacturers,

Proposal 2: Require registration of designs of certain high-risk plant on a central register			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
	(including concrete pumping booms) *Numbers of designs involved:* <200 Reach stackers *Numbers of designs involved:* <50 Higher risk inflatable amusement devices and some other new classes of amusement devices *Numbers of designs involved:* <50 Mast climbing work platforms *Numbers of designs involved:* <80	owners/operators of plant when they import or otherwise "supply" it to themselves.	suppliers and operators of plant are marginal. Refer to transitional and grandparenting provisions below.
Including equipment currently covered by PECPR or amusement device regulations for which design verification processes have applied, but for which design registration has not previously been required.	Where designs are altered in a way that affects health and safety Required for a new item of plant	*Numbers of designs involved:* Limited records held of when or how often this occurs in practice. *Numbers of designs involved:* Numbers will increase progressively as registers are fully implemented over a generation/life cycle of plant We expect gradual growth in registered designs to a potential maximum of 10,000, after full implementation and coverage of plant (ie after >20 years)	**Recommended, subject to transitional provisions** Items of plant currently covered by the PECPR or Amusement Devices Regulations will usually have undergone design verification or an alternative engineering assessment before being issued with an inspection certificate, but without central registration. Refer to transitional and grand parenting provisions below
Transitional and grand parenting provisions.	Begin for new equipment only from a fixed future date	Reduces compliance costs for operators of new types of equipment but creates an incentive for businesses to retain older equipment which may be less safe and efficient than new plant.	**Not recommended**
	Staged introduction for different classes of both new and existing equipment of different ages	Means equipment is included in new requirements according to risk levels and with regard to the costs of compliance for operators and improvements in safety that can be achieved.	**Recommended**

Proposal 2: Require registration of designs of certain high-risk plant on a central register			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
	Require all classes of equipment to comply from a fixed date	Numerous submitters reported there would be practical difficulties and considerable expense in completing design verification and registration for legacy equipment.	**Not recommended**

Proposal 3: Require registration and inspection of specified items of plant			
Key component	**Options**	**Impact on stakeholders**	**Conclusion**
Duty on operators of specified types of plant to register each item and ensure it is inspected as under current regulations	Consultation confirmed a 5-yearly registration, conditional on annual or two-yearly inspection and with inspection bodies maintaining inspection records on the register	Strong support from key stakeholders, submitters, professional and sector groups Additional costs to operators for central registration charges Allows regulatory oversight	**Recommended** Maintains status quo with addition of central registration requirement for all but large scale pressure equipment
Requiring design registration as a prerequisite to item registration, or an overseas design registration or verification process after consideration of seismic performance and other relevant factors by an accredited CPEng	NZ only design verification	*See section "What do stakeholders think?" above for discussion of options*	**Not recommended** Not compatible with market realities and the predominance of overseas designed and manufactured plant in New Zealand
	NZ or recognised overseas design verification or registration, but with additional seismic assessment and consideration of other factors where appropriate. A provision will enable WorkSafe to specify by Safe Work Instrument the acceptable jurisdictions from which design verification documentation will be accepted for different classes of equipment.		**Recommended** Allows consistent and proportionate treatment for the range of situations that occur when plant is commissioned in workplaces and is: • designed or manufactured in New Zealand; or • imported new or used; or • legacy equipment that has been in use in New Zealand
	No design verification or other assessment before registration		**Not recommended** There was very clear consensus that wherever practical, designs of equipment must be reviewed for fitness for purpose and conformity with Standards before individual items of high-risk plant are accepted for registration and an inspection certificate issued.

Proposal 3: Require registration and inspection of specified items of plant			
Key component	**Options**	**Impact on stakeholders**	**Conclusion**
Include new classes of equipment	**Elevating work platforms (>2.4m platform height)** *Extent of requirements*: Design registration, item registration or engineering assessment, annual inspection *Numbers of plant involved:* 8-10,000 estimated	*Total costs of compliance*: Manufacturer and supplier design verification and registration costs For operators, initial 5-yearly registration and inspection cost and annualal inspection costs $150-250. Most of these costs are already being met as voluntary compliance. For inspection personnel: $5,100 initial CBIP registration fee and $360 pa annual renewal. There may also be costs in their forming an association with a certification body. *Injury and incident rates for types of plant*: Regular serious incidents and fatalities involving elevating work platforms. Because their use involves work at height, the potential for high consequence incidents is high. Additional costs of design verification and registration will generally be met by manufacturers and suppliers. *Other benefits accruing*: Reduced maintenance and breakdown issues for plant and improved safety and efficiency for workers. Industry has been adopting a similar scheme voluntarily in response to failure and incident rates.	**Recommended** Most of the proposed costs are already being met by operators under sector guidance. Design registration will improve performance and safety of equipment. The majority of costs associated with inspection and registration are already being met by responsible operators, with support of suppliers and the industry association. The central register will improve consistency of standards.
	Steep-slope forest harvesting equipment	*Numbers of plant involved*: 300 (120 winch assisted harvesters, 180 yarders/haulers) *Extent of requirements*: Design registration, item registration or engineering assessment, annual inspection *Total costs of compliance*: Manufacturer and supplier design verification and registration costs	**Recommended** Registration will ensure consistency of inspection practices. Most costs are already being met in conformity with WorkSafe guidance. Additional costs for some inspection personnel entering the regime, as outlined above Industry has adopted a similar scheme for hauler

Proposal 3: Require registration and inspection of specified items of plant			
Key component	**Options**	**Impact on stakeholders**	**Conclusion**
		For operators, initial 5-yearly registration and inspection cost and annual inspection costs <$1000 *Injury and incident rates for types of plant* There have been regular incidents involving both classes of equipment, in particular haulers, where much of the equipment is older and needs regular inspection and maintenance. There have been mast failure incidents (12 in 2019) involving operators and other workers and the potential for high consequence incidents is high. *Other benefits accruing:* Reduced maintenance and breakdown issues for plant and improved safety and efficiency for workers involved in cable logging and skid work. WorkSafe will be better informed about incidents involving forestry plant. Incidents involving high-risk plant are already required to be notified, so when forestry plant becomes 'high risk plant' the notification requirement will apply.	masts voluntarily in response to equipment failure and incident rates. Regulatory underpinning will improve conformity and standards of inspection.
	Telescopic and articulated concrete pumping booms *Numbers of plant involved:* 250 approx.	*Extent of requirements*: Design registration, item registration or engineering assessment, annual inspection *Total costs of compliance*: Manufacturer and supplier design verification and registration costs. For operators, initial 5-yearly registration and inspection cost and annual inspection costs <$400-$1000 Additional costs for some inspection personnel entering the regime, as outlined above. *Injury and incident rates for types of plant* Lower, but risks are comparable, and can be higher than with mobile	**Recommended** Registration will ensure consistency of inspection and maintenance practices. Additional costs for some inspection personnel entering the regime, as outlined above

Proposal 3: Require registration and inspection of specified items of plant			
Key component	**Options**	**Impact on stakeholders**	**Conclusion**
		cranes and the potential for high consequence incidents is high. *Other benefits accruing*: Reduced maintenance and breakdown issues for plant and improved safety and efficiency for workers	
	Telehandlers *Numbers of plant involved: 2,300*	*Extent of requirements:* Similar to those for elevating work platforms described above. WorkSafe expect current crane inspection personnel and inspection bodies to provide inspection services at similar costs. Additional inspection overheads mean this will be a marginal increase in costs for operators. *Total costs of compliance*: Manufacturer and supplier design verification and registration costs. For operators, initial 5-yearly registration and inspection cost and annual inspection costs $350-450. Most of these costs are already being met as voluntary compliance *Injury rates for types of plant* Regular incidents and fatalities underline the potential for high consequence incidents because of work at height, overturning of plant, or failure of loads at height. *Other benefits accruing*: Reduced maintenance and breakdown issues for plant and improved safety and efficiency for workers	**Recommended** Registration will ensure consistency of inspection practices. Most costs are already being met in conformity with WorkSafe guidance. Additional costs for some inspection personnel entering the regime, as outlined above
	Vehicle hoists *Numbers of plant involved: >20,000*	*Extent of requirements:* Manufacturer and supplier design verification and registration only *Total costs of compliance*: Annual inspection costs of $150-250 are already being met as voluntary compliance, with inspection usually	**Item registration not recommended** There was support for design registration of equipment and industry association support for inspection of vehicle hoists. Although these items of plant are increasingly

Proposal 3: Require registration and inspection of specified items of plant			
Key component	**Options**	**Impact on stakeholders**	**Conclusion**
		occurring during maintenance/servicing visits to workshops *Injury rates for types of plant* Low, but some potential for high-consequence incidents *Other benefits accruing*: See next column	common, Incident and injury data shows that there are relatively few injuries resulting from hoist failure. There is some potential for high consequence incidents, we do not consider the additional costs to industry of mandatory registration and inspection is justified. Design registration alone is a more efficient means of improving the design, build quality and reliability of equipment available. Maintenance and inspection of vehicle hoists will continue to be subject to WorkSafe guidance, manufacturer's instructions and warranty arrangements for plant.
	Straddle trucks and reach stackers *Numbers of plant involved:* <200	*Extent of requirements* Design registration, item registration or engineering assessment, annual inspection *Total costs of compliance*: Manufacturer and supplier design verification and registration costs. For operators, initial 5-yearly registration and inspection cost and annual inspection using similar personnel and with costs comparable with those for mobile cranes <$400-$1000 *Injury rates for types of plant:* There have been several significant incidents and two deaths involving these types of equipment in recent years. There is a strong case for increased regulation and Ports of NZ support the proposal.	**Recommended** Straddle trucks and some other equipment is already being inspected under PECPR regulations as lifting equipment, but the regulations are ambiguous regarding coverage, which may lead to gaps in certain situations. Registration will ensure consistency of inspection practices. Most costs are already being met in conformity with approved codes made to support PECPR regulations
	Mast climbers and personnel hoists *Numbers of plant involved: <250*	*Extent of requirements*: Design registration, item registration or engineering assessment, annual inspection	**Recommended** This type of equipment is becoming more common and individual items are becoming larger with greater risks. It is currently

Proposal 3: Require registration and inspection of specified items of plant			
Key component	**Options**	**Impact on stakeholders**	**Conclusion**
		Total costs of compliance: Annual inspection costs of $400-500 and similar to those for a smaller mobile crane or gantry crane. It will be able to be performed by the same personnel, and as is often the case currently. *Injury rates for types of plant* Low, but with regular injuries from use of plant, and some potential for high-consequence incidents *Other benefits accruing:* There is variation in who completes inspection, and inconsistent inspection standards and practices currently. Regulation will improve standards and lead to more consistent practice and costs for operators.	only regulated through inspection provisions as scaffolding. Registration will ensure consistency of inspection and maintenance practices. Additional costs for some inspection personnel entering the regime, as outlined above
	Gravity driven amusement devices *Numbers of plant involved*: <100 ***(Based on a risk based assessment of amusement devices to determine whether design and item registration is required)***	*Extent of requirements*: Design registration, item registration or engineering assessment, annual inspection *Total costs of compliance*: Costs will vary according to the complexity of engineering and risks involved but will be comparable with those for other types of amusements currently registered with annual inspection costs ranging from $800 to $2000, but most new equipment is expected to be at the lower end of the range. *Injury and incident rates* There have been incidents involving new types of amusement devices. There has been a gap in coverage of new classes of amusements that do not meet the definition of “amusement device” under current regulations or the definition of “adventure activity”. *Other benefits accruing*:	**Recommended**

Proposal 3: Require registration and inspection of specified items of plant			
Key component	**Options**	**Impact on stakeholders**	**Conclusion**
		Regulation will resolve uncertainty for operators and others and improve consistency of safety standards.	
	Larger scale inflatable amusement devices *Numbers of plant involved*: <100 (Based on a risk based assessment of amusement devices to determine whether design and item registration is required)	*Extent of requirements*: Design registration, item registration or engineering assessment, annual inspection *Total costs of compliance:* Annual inspection costs are expected to be less than $800. *Injury and incident rates for types of plant*: There have been regular incidents involving these larger inflatable amusements, some involving serious injuries of multiple children when they collapse while in use. *Other benefits accruing*: Design and inspection requirements provide for controls to prevent collapse and restraint of falls from height of children using amusements. Provides an incentive for operators to use smaller, safer devices to avoid regulatory costs.	**Recommended**

Proposal 4: Recognising operators of large-scale bespoke pressure equipment systems to operate without central design or item registration			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
	Require central registration for all types of plant, including large scale pressure equipment	Additional costs of registration for existing operators Costs of completing or documenting design verification for existing plant subject to any new registration requirements. Intellectual property rights issues raised by submitters with large scale plant. Potential benefits for operators in reduced record keeping costs and improved competition of providers of inspection services, but not considered significant or of greater benefit than potential loss of commercial confidentiality from a central register.	**Not recommended** Significant objection from operators of plant. Support from engineering profession. Evidence is that large facilities tend to be well managed and inspected. Registration proposal is directed largely at smaller scale operators of high-risk plant where compliance is lower and regulator has difficulty maintaining oversight of inspection and maintenance of plant.
	Recognise operators to maintain their own records with independent audit and disclosure requirements	Limited additional costs for upper tier operators under the Major Hazard Facility regulations. Minimal application fees payable. Additional costs of auditing and accreditation, and application fees for those operators seeking recognition under the regulations. Currently several large operators are granted recognition to complete their own inspections (with accredited inspectors), or maintain risk based, extended inspection programmes for plant to reduce costs of decommissioning etc. for large scale plant. Only disclosure and/or auditing requirements will be additional for these operators. Additional large scale operators will be able to seek recognition according to criteria contained in the regulations.	**Recommended** Allows regulator to access records and require reporting of content of records, as well as notifiable incidents. Provides for auditing of compliance by accredited independent auditor. Allows granting of recognition on a consistent and equitable basis and according to criteria contained in regulations.
	Exempt from central registration without conditions	No additional administrative or professional services costs for operators Would still require provisions to allow current recognition of operators to continue. Does not address current problems of opacity of the system and difficulties for the regulator and others determining compliance	**Not recommended** Doesn't address problem and doesn't allow a "feedback loop" to the regulator to monitor or be advised of compliance failures or failure to meet inspection standards.

Proposal 5: Requiring territorial authority permitting of only higher-risk portable amusement devices			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
	No permitting by TAs	There were divided views among territorial authorities on whether they should continue to permit amusement devices. Because amusements are very often used on TA owned or controlled land, there is often authority involvement and another form of authorisation required, but these do not have regard to the safety aspects of rides. TAs referred to their obligation to ratepayers to ensure public safety on the parks, roads and other assets they control. Others suggested that the permitting function would sit better with WorkSafe, although that agency doesn't control the site on which the device sits. WorkSafe do not feel that they hold sufficient information or authority in relation to the sites where amusement devices operate to perform the role that a TA usually does. In some cases there were high costs to TAs in response to a low level of risk to the public, and this was a major source of objection to TA permitting.	**Not recommended** There was overall agreement from submitters that territorial authorities provide a useful check on the operation of amusement devices in place. The permitting provision should be retained.
	Permitting for higher risk temporary rides only	Submissions from amusement device operators and territorial authorities supported TA permitting where the level of risk justified involvement and that there was a reasonable level of cost recovery for authorities. Both groups also wanted clarification of what needed to be inspected for permits and simplification of the standards to be expected of operators, particularly with respect to geotechnical assessments, electrical safety and inspection of records. Councils did not feel confident to inspect the engineering of rides, and saw difficulties in inspecting operator training records, maintenance logs and other documentation, other than to determine if it was present as required. Submitters, including Recreation Engineering NZ were agreed that temporary amusement devices of risk classes 3 and above (of classes 1-5) should be subject to TA permitting. Fee levels were seen by all as too low and needing to increase to stop them being a disincentive to TAs carrying out the permitting function.	**Recommended** There is good scope to reduce the workload and costs of territorial authorities by limiting permits to temporary rides with a risk rating of 3 or above (as determined under AS 3533 and included in the certificate of registration for the amusement device), so that the activity is more proportionate to the risk. The regulations could provide for Safe Work Instruments to be published by WorkSafe to aid TAs in the application of the regulations in issuing permits and encourage consistent practice. Fees will be increased to allow cost recovery and ensure TAs are not discouraged from maintaining the role.

Proposal 5: Requiring territorial authority permitting of only higher-risk portable amusement devices			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
	Status quo permitting by territorial authorities of all installations	Consultation confirmed that current requirements under the Amusement Devices Regulations doesn't distinguish between lower and higher risk plant, or have regard to Building Act or RMA permitting requirements and standards for permanent installations. There is also a lack of clarity concerning what TAs are required to inspect before issuing a permit, and wide variation in how different authorities apply the regulations.	**Not recommended** Problems with status quo will be addressed in the preferred option.

Proposal 6: Retaining MEANZ operated certification scheme for model engineering amusement devices, with new audit requirements			
Key component	**Option**	**Impact on stakeholders**	**Conclusion**
	Retain existing MEANZ certification without change	The MEANZ certification only applies to affiliated clubs. Some other model engineering clubs and business operators remain subject to the usual registration requirements under the regulations. This is the option preferred by MEANZ, the only group which, together with individual affiliated clubs, submitted on the issue in numbers. MEANZ submitted that the activity of model engineering is a club based activity at which private individuals bring along and operate their model engines for the enjoyment of the public. Clubs own tracks, passenger rolling stock and related equipment and amenities and are responsible for their safe operation. They follow formal inspection processes for this equipment and are audited by MEANZ auditors for conformity with agreed standards and processes of inspection. MEANZ advise that there is a variation in standards of different clubs. WorkSafe and territorial authorities have reported incidents involving members of the public being injured on model engineering, suggesting that risk management could improve.	**Not recommended** Evidence suggests that the current system is not always adhered to and standards maintained. It lacks an independent assessment of MEANZ's performance and is dependent on individual incidents and injuries to initiate improvements in clubs.
	Improve audit standards and processes of MEANZ by requiring it to be accredited as an inspection body under the regulations, which in turn authorises clubs to complete their own regular inspections and inspect the equipment of club members and that it is operated safely.	WorkSafe advise that they have limited visibility of MEANZ's audit processes and the standard of inspection carried out by clubs. Introducing an independent audit to an international standard will provide a comprehensive standard that ensures clubs maintain adequate inspection standards and that appropriate procedures are followed in responding to any deficiencies. The public can be reassured that a similar standard is being followed by MEANZ to accredited inspection bodies under the regulations.	**Recommended** An independent audit provides a "lighter touch" response that will improve visibility of the system and improve standards. It recognises the non-commercial, club nature of the activity while providing a structure for ongoing improvement and accountability.
	Exclude all model engineering activities from the regulations	Rides are offered to the paying public, who are usually children and their parents or caregivers. There are risks to passengers from the operation of the rolling stock and tracks, and from the moving parts and boilers associated with locomotives. MEANZ clubs are usually incorporated societies that do not employ anyone. This	**Not recommended** The exemption would leave an activity aimed at a vulnerable group unregulated and without alternative accountability mechanisms or sufficient incentives to operators to manage risks.

Proposal 6: Retaining MEANZ operated certification scheme for model engineering amusement devices, with new audit requirements			
		makes them exempt from the duties of a PCBU under the Act No other regulatory requirements, other than the consenting under the Building Act and RMA apply to the activity. Because clubs are considered "volunteer associations" under the Act and not subject to the duties of a PCBU, the general duties of the Act and other obligations do not apply to them. However, section 12 of the Act provides that regulations applying to high-risk plant under the Act will apply to any operator of the plant as if they were a PCBU with duties under the Act.	Instead, including model engineering as amusement devices subject to high-risk plant regulations will provide a framework for managing risks without clubs incurring unreasonable or onerous obligations under the Act or other law.

Impact analysis

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
No action	**0** Rates of harm associated with high-risk plant covered by current regulations are low. Rates of harm with those types of high-risk plant that are not currently covered by regulations are higher and there are regular fatalities involving such plant. The absence of central design registration means some types of plant may be not fit for purpose or not in conformity with standards. The absence of central registration for items of plant other than amusement devices, allows lower levels of inspection for some types of plant covered by current regulations. Voluntary requirements mean inconsistent inspection of plant not covered by regulations currently.	**0** Obligations for controllers of plant are in proportion to the size and complexity of machinery and the associated risks. Territorial authority involvement with some types of lower-risk amusement devices may be disproportionate to the risk involved.	**0** Current regulations are supported by a range of approved codes of practice, competency standards and supporting administrative processes to accredit inspection bodies and inspection personnel. Records of design and design verification and inspection are not easily available to the regulator or plant owners for plant covered by current regulations, and are not practically available at all for plant not covered by current regulations. Inspection records are not easily accessed by the regulator	**0** Costs within current regulations mainly relate to engineering inspections and consultancy services and are in proportion to the size and complexity of machinery and associated risks. Costs of accreditation for service providers are recovered through charging for services provided in a competitive market. Fees for registration and for territorial authority of amusement devices are disproportionately low.	**0** Current regulations provide key duties and processes for controllers of high risk plant and authorisations for inspection personnel etc. Detail is provided by approved codes etc. which are more easily revised and altered to reflect changing risks and practices. Regulations are incomplete in their coverage, undermining durability.	**0** Duties and processes contained in current regulations are sound and well supported. A lack of transparency in recordkeeping and gaps in coverage undermine their effectiveness.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
High risk plant 1	**Combine dual existing regulations for consistent coverage and processes and extend coverage to new types of equipment**	++ Implements an extended version of regulations that have been effective in mitigating the risks posed by existing PECPR classes of equipment. Broadens the set of qualifying high-risk plant to address the emergence of more modern types of equipment.	++ Limited in its application to a defined subset of plant, encompassing only those categories of plant with innate high-risk features. Achieves balance in the way that modern high-risk plant is regulated, relative to the extended controls in use for high-risk plant traditionally.	++ Retains central, longstanding elements of PECPR and Amusement Device Regulations for inspection, and auditing. Consistent approach to all types of plant. Provides a better basis for standard setting in WorkSafe guidance, and ACOPs will assist with interpretation. Retains existing recognitions, and relationships with inspection bodies.	+ Supports inspection, auditing and design verification services to persist as competitive, decentralised services. Maintains existing recognitions of large scale equipment operators Fee recovery will apply to directly assign costs regarding registration.	+ Avoids detailed prescription, setting only the general processes that are to be used to guide how specific controls are determined. Durability is improved by the inclusion of wider, more modern types of plant identifiable as high risk.	++ Offers a more refined regulatory method, which ensures equitable and consistent treatment for a broad range of high-risk plant.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
High risk plant 2	**Require registration of designs of certain high-risk plant on a central register**	++ Will improve quality of imported serially produced high-risk plant in particular. Provides consistent treatment of designs. Improves conformity with Standards on which designs are based. Encourages "safety by design" practices. Better accountability of designers, manufacturers and suppliers.	++ Design verification is required at a standard to match the risks of the plant and the Standards on which designs are based. Ensures plant is fit for its intended purpose and is independently assessed against applicable standards. Retains recognition of large scale pressure equipment systems.	++ Retains and clarifies processes introduced by PECPR and Amusement Device Regulations. WorkSafe and Engineering NZ guidance will assist with interpretation. Easier for operators, suppliers and regulator to check and ensure compliance.	++ Supports design verification services to develop as competitive, decentralised services. Registration fee is expected to be low. Overseas registrations accepted or partially accepted where appropriate. Register means multiple items of plant may be based on a single design registration. Reduces costs for serially produced equipment Safety by design reduces life cycle costs of plant	+ Future proofs regulations while allowing existing designs and intellectual property to be utilised. Durability is improved by the inclusion of wider, more modern types of plant identifiable as high-risk. Acceptance of overseas design verifications as appropriate. Regulations will provide for design verification of larger pressure equipment systems to be recorded separately.	++ Encourages and supports best practice in design while using existing intellectual property and filling in gaps in coverage and processes. Supports development of design verification disciplines in the engineering profession.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
High risk plant 3	Require registration and inspection of specified items of high-risk plant	+ Maintains current protections and inspection standards for existing classes of PECPR equipment and amusement devices Includes new types of lifting equipment and some new amusements Central register and/or auditable recordkeeping improves conformity and compliance. Improves body of knowledge and sharing of type faults and solutions	++ Systematically addresses plant that presents higher risk—including newer types of plant not currently covered Strengthens some critical processes where necessary Better allows risk-based management of plant Provides for recognition of larger complex industrial processes to maintain own records (see proposal 4).	+ Retains and strengthens existing certification and inspection regimes. Supplementary WorkSafe guidance will follow, to assist with interpretation.	0 Supports existing inspection, auditing and design verification services as competitive, decentralised services. Existing inspection bodies maintain inspection records on register. Marginal costs to plant owners but efficiencies through central register and processes Supports competitive market for inspection services and improved choice for plant owners	+ Avoids detailed prescription, setting only the general processes that are to be used to guide how specific controls are determined. Durability is improved by the inclusion of new types of high risk plant.	++ Retains current emphasis on regular and systematic inspection of plant while improving regulator oversight and clarity for participants through central registration. Provides for the development of a shared body of knowledge of types of plant on register. Will improve standards and availability of design solutions for new types of equipment. Will improve standards for new classes of equipment. Will improve conformity rates for all types of plant.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
High risk plant 4	**Provide for owners of large scale " bespoke" pressure equipment to be recognised by WorkSafe to maintain their own registers of plant**	+ Ensures records are maintained and audited to standard agreed by regulator Supports risk based inspection approaches for large installations Allows existing systems, personnel and processes Documentation and auditing requirements provides reassurance to operators and regulator	++ Recognises the complexities of a small but significant group of plant operators with well-developed systems Only requires documentation to the extent to allow regulator and operator to ensure there is compliance with the regulations	+ Provides for better regulator oversight of individual plant records and overall systems and processes	+ Allows plant owners to maintain existing recordkeeping Avoids fees for large operators with extensive plant Plant operators and inspection bodies continue to benefit from their investment in systems and processes Additional costs to regulator will be recoverable by fees for recognition Keeps focus of central registers on smaller to medium sized operations	++ Keeps prescription to a minimum Recognises particular needs and efficiencies of large pressure equipment systems Enables operators to tailor systems and processes to their production cycles Encourages operators to invest in quality management systems	+ Recognition of large scale pressure equipment installations to maintain their own records will make the best use of existing systems, inspection personnel and processes. New auditing requirements will maintain and improve standards and regulator involvement

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
High risk plant 5	**Limit requirement for territorial authority permitting of amusement devices to temporary higher risk rides only**	+ Provides better assurance that risks to public safety from amusement devices are being addressed More consistent application of the regulations Relies on registration process and other controls for managing lower risk plant	++ Focuses on amusement devices presenting greatest risk to public safety Recognises that Building Act (and Resource Management Act) consenting requirements apply to permanent amusements	++ Restricts permitting and inspection activity to a more clearly defined body of risk. Inspection and permitting roles will be better defined in the regulations and Safe Work Instruments as required Risk levels for amusement devices assessed for registration	+ Better use of territorial authority resources (will apply to 68 of 345 current devices) Reduced compliance burden for lower risk and permanently installed amusements Territorial authorities are able to recover inspection costs by fees	++ Risk based assessment of amusement devices means new types of temporary amusements are included Requirements/ practices for permitting are able to be set and adjusted by Safe Work Instruments	++ Better defining the types of amusement devices to be permitted will allow territorial authorities to better target types of device and the things that they inspect before issuing permits. Authorities will be better able to plan and resource permitting activities and develop staff competencies for inspection tasks. Operators will be able to measure their compliance against more consistent standards

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
High risk plant 6	**Require MEANZ to be recognised as an inspection body before issuing inspection certificates for affiliated clubs**	+ Provides better assurance that risks to public safety from model engineering are being addressed More consistent application of the regulations Includes formalised mechanisms for ensuring compliance	++ Recognises and encourages MEANZ investment and commitment to developing safety management and inspection systems Acknowledges that risks to passengers are lower than for other forms of amusements, but still present risks and warrant regulation	+ IANZ audit of MEANZ provides independent review of inspection standards and processes for better regulator oversight of individual plant records and overall systems and processes Utilises MEANZ expertise and investment in the development of inspection standards and guidance	+ Allows MEANZ clubs to retain and build on existing competencies and systems Avoids fees and engineering consultancy costs for MEANZ affiliated clubs and societies	+ Documentation and auditing requirements provide reassurance to operators and regulator Encourages MEANZ and affiliated clubs to invest in quality management systems and processes Supports continuous improvement in sector Accommodates unique operational arrangements of clubs and societies – ie that groups of volunteers maintain tracks and facilities for their members who own and operate plant	+ Maintains regulatory oversight with least intervention Recognition of MEANZ as an inspection body will allow it to maintain its own records and make the best use of existing systems, inspection personnel and processes IANZ accreditation will maintain and improve standards and improve the potential for regulator review and involvement

Key:

++	much better than doing nothing/the status quo
+	better than doing nothing/the status quo
0	about the same as doing nothing/the status quo
-	worse than doing nothing/the status quo
- -	much worse than doing nothing/the status quo

Summary of conclusions: high-risk plant

Key conclusions from this chapter are summarised below.

"High-risk plant" is comprehensively regulated under two existing sets of regulations covering:

- pressure equipment, cranes and passenger ropeways, and
- amusement devices.

Consultation confirmed that current regulations have supported the development of engineering practice in New Zealand that is based on ensuring fitness for purpose of plant through regular inspection and maintenance, including where equipment is modified or repurposed. The regulations support a well-developed competency and practice framework that responds to a situation where much of our high-risk plant is operating beyond its initial design life, or has been refurbished or repurposed.

Consultation also confirmed that the two sets of regulations provide a comprehensive and generally effective inspection regime for the equipment covered, but that there are aspects of the regulations that warrant improvement:

- some new types of, usually imported, lifting and access equipment are not adequately covered
- processes and standards applied to different categories of plant are inconsistent
- there is a lack of transparency of design verification and inspection records for the regulator and businesses to use to monitor practices
- there is insufficient emphasis on the impact of alterations to designs of plant, and on seismic performance on health and safety.

MBIE's recommended changes are to address particular aspects of these general issues, while aligning with the Australian Model Regulations as appropriate, and retaining the aspects of the current regulations that are working well.

MBIE's recommended changes are:

- replacing the existing two sets of regulations -- for amusement devices, and for pressure equipment, cranes and passenger ropeways -- with a single set of regulations for "high-risk plant" (defined in a schedule)
- making it an offence for PCBUs to use or supply high risk plant that is not of a registered design
- establishing a central register of designs of high-risk plant, operated by WorkSafe
- establishing a central register of individual items of high-risk plant operated by WorkSafe, with inspection records maintained by recognised inspection bodies – applying to all currently regulated and some new types of plant
- providing for operators of large scale "bespoke" pressure equipment to apply to WorkSafe for recognition to maintain their own design verification and inspection records, instead of using the central register
- addressing concerns with the regulation of amusement devices by:
    - requiring territorial authority permitting of portable higher-risk amusement devices only, and clarifying inspection processes and standards for authorities
    - requiring the Model Engineering Association of NZ (MEANZ) to become recognised as an inspection body under the regulations
    - clarifying training, inspection and recordkeeping requirements for operators of amusement devices.

There will be some new costs for PCBUs operating plant covered by existing regulations:

- fees for design registration and item of plant registration
- new auditing and accreditation costs for MEANZ and larger operators of pressure equipment seeking recognition to maintain their own records instead of using the central register.

There will be some new costs for PCBUs operating plant not currently covered by regulations:

- fees for design registration and item of plant registration
- some new engineering consultancy costs for design verification and inspection costs for the new types of equipment.

For engineering consultancy services and MEANZ there will be some new costs for:

- recognition as inspection bodies able to inspect the new types of equipment
- authorisation as design verifiers (by Engineering NZ) or as inspection personnel (by CBIP) with respect to the new types of equipment.

There was overall support for the proposals, and various submitters referred to inspection costs already incurred for all classes of equipment. Registration costs were considered marginal by all but the largest industrial users of pressure equipment, and the proposals have been modified in response to their objections to cost.

Chapter 6: Working at Height

What is the current state within which action is proposed?

Falling from height is a persistent cause of work-related fatality and injury in many different sectors. The construction sector has consistently had higher rates of harm, with falls from height accounting for 27% of harm in the sector in 2009 and 18% in 2015. This compares with harm from falls from height being less than 10% of total work-related harm in all other industries. In recent decades, injury rates from falls from height have been highest in residential construction.

These higher levels of harm have occurred even when work in the construction sector has been subject to scaffolding and working at height requirements under the *Health and Safety in Employment Regulations 1995*.

Until 2012 residential construction, particularly single-storey housing, had been wrongly considered by many in the industry as exempt from scaffolding and other requirements to manage work at height that applied to commercial construction. Guidance published that year recommended the use of safety constraints (eg scaffolds, edging, or safety nets) for all single-storey new builds[52]. This guidance was accepted by the commercial building construction sector, but at the time met some resistance from house builders, particularly for single-storey housing.

Since that guidance, there has been increased activity in the residential construction sector, with residential building consents increasing from a total of just over 17,000 in the year to March 2013, to more than 37,000 in the year to March 2020. Despite this rise in activity over the period, there has been relatively flat growth in the rate of injuries resulting in a week away from work and incidents in the construction sector, indicating a significant improvement in rates of harm. Scaffolding services has also become a more competitive market and costs have, in general, reduced.

Whether the improvements in safety, and any improvements in productivity that resulted from the changes have been large enough to offset the additional costs imposed by the requirements in the guidance documents has been the subject of some debate, with separate independent reports in 2014 and 2017 falling on different sides of analysis of cost: benefit tests.

In 2014, the Building Research Association of New Zealand (BRANZ) was commissioned by Scaffolding, Access and Rigging Association New Zealand (SARNZ) to independently assess the costs and benefits of the regulator's Working at Height programme. This initial review, focused on the residential construction subsector estimated a Benefit: Cost ratio of 1.06 with lower injury rates and improved productivity estimated as being sufficient to offset the costs.[53]

In a follow up report, BRANZ commissioned the New Zealand Institute of Economic Research (NZIER) to undertake another, more detailed, cost benefit analysis of the change

[52] Best Practice Guidelines for Working at Height in New Zealand

[53] A cost-benefit analysis of improved working at heights regulation, BRANZ, 2014

in injury rates in single-storey residential construction following the guidance. This review found that there were improvements in injury rates and improved productivity, though these improvements were not sufficient to make up for the costs imposed, with a Net Benefit: Cost ratio of 0.71:1[54], indicating that the costs exceeded the benefits for the single story buildings included where guidance had led to change in behaviour.

These reports depend in large part on the cost of scaffolding, with scaffolding being the highest cost portion of builders responding to requirements. While scaffolding needs and complexity, and the associated costs, depend on the nature of the site (flat, on an uneven section etc), the region and the nature of the build, cost of safety systems have been variously estimated as:

- In 2009: An additional $3,304 for single-storey house builds, and $2,300 for two-storey developments (that already used safety systems)
- In 2017: $4,971 for the median-sized house (between 201-250 sq. m), $4,907 for a house with a simple design – through a Nielsen survey associated with the 2017 BRANZ review
- In 2018: A total cost of $5,000 for a two-storey house.[55]

The variation of these cost estimates drive conclusions on the overall impact of higher requirements. For most estimates, these are a relatively small fraction of construction costs for new construction, though they are a substantial cost for some small jobs.

Taken together, these reviews and the ongoing data on the level of harm caused when working at height indicate that, particularly in the construction sector, risks are not universally being appropriately managed.

For the work where the greatest harm occurs, stronger more explicit protections should reduce the level of harm. This is the primary area of focus in the proposed reforms.

Complementing this, there is a need to provide greater clarity on how to best manage activity that is of relatively low risk, where a different risk management process will still provide suitable protection – in particular for short duration work with low levels of physical stress that are appropriately carried out from a ladder, and for work that should not be considered construction work, such as replacing a lightbulb, or cleaning out a gutter.

This will allow the overall regulations to be more proportionate to the risk, and provide clarity to reduce the level of expenditure on some jobs that is partly responsible for the benefit cost ratios below 1:1. A proportionate hierarchy of controls will provide clarity that in cases where a tubular scaffold or other working platform is not reasonably practicable, and an alternate form of protection, such as a harness may provide suitable protection at a lower cost.

[54] BRANZ Report ER24 [2017] Cost benefit analysis of scaffolding for single storey houses

[55] Deloitte Access Economics: Cost of residential housing development: A focus on building materials, December 2018

What regulatory systems are already in place?

Existing rules and guidance that impact on work at height

Although the general duties of the HSW Act apply, New Zealand regulations concerning work at height contain very few mandatory controls and do not reflect construction industry practice. Existing requirements and guidance are set out below.

HSW Act *Sections 36 - 38*	• PCBUs must ensure that so far as is reasonably practicable, the health and safety of workers is not put at risk by providing and maintaining safe plant and structures, and ensuring that plant and structures are used, handled and stored appropriately. • The Act also provides other obligations, such as obligations for workers, and duties for PCBUs to consult.
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 *Regulation 9*	• Provides that a PCBU must ensure, so far is as reasonably practicable that workers are adequately trained or supervised in the work that they are carrying out, so that workers will not adversely affect the health and safety of the worker or any other person.
Health and Safety in Employment Regulations 1995 *Regulations 21 and 22*	**Regulation 21 – "the 3 metre rule"** • This regulation applies to all workplaces, other than where agricultural work is performed. The provision is generally referred to as "the 3 metre rule" and requires an employer in control of a workplace to do what is reasonably practicable to ensure that where any employee may fall more than 3 metres, means are provided to prevent them from falling. The means provided must be suitable for the purpose for which they are to be used. **Regulation 22 – scaffolding in construction work** • Regulation 22 requires PCBUs to provide and maintain scaffolding in any construction work where the work cannot be carried out safely without it. The regulations define "construction work" very broadly to include many different types of engineering works and structures, and all stages in their lifecycle, including building, repair and maintenance. • The regulations describe "scaffolding" very broadly to include fall arrest systems, trestles and other basic scaffolding systems. In practice, regulation 22 provides a regulatory basis for the management of work at height on construction work. • The regulations do not set a single limit for height at which scaffolding must be used. They require that scaffolding is provided by all PCBUs commissioning construction work at height where it is not possible to carry out the work without it.

Regulations 35 and 53	**Further scaffolding requirements** • The Health and Safety in Employment Regulations also set competency requirements for persons constructing and using different types of scaffolding/fall prevention systems, with inspection rules. These competency requirements are set through issuing Certificates of Competence (CoCs) with people able to construct and inspect scaffolds at the level of their certificate.
Non legislative measures	• Relevant examples include: - Best practice guidelines for Working at Height in New Zealand, - Scaffolding in New Zealand: Good Practice Guidelines 2016.

What is the policy problem or opportunity?

Issue 1: Harm caused by falling from height

Internationally, falls from height contribute significantly to work-related harm, including fatalities. Fatalities result from falls from any height, with consistently high rates of injury in the construction sector.

Statistical comparisons between countries are difficult to make and should only be considered indicative, but they do provide a meaningful comparison of the effectiveness of New Zealand practices compared with the jurisdictions we most often compare ourselves with, the UK and Australia.

In Australia from 2003 – 2015, there were 359 fatalities involving a fall from height, with half of these fatal injuries from falls of less than 3 metres. The construction industry accounted for 37% of fall-related fatalities in this period. Australia's construction sector was estimated as employing 1.05 million people at the end of that period, indicating an annual rate of 0.97 fatalities from falls per 100,000 construction workers.

In the UK, there was an average of 36 fatalities a year involving falls from height over the period from 2014/15 to 2018/19, accounting for 25% of all work-related fatalities. Half of these fatalities were in the construction sector. The UK construction sector has been estimated as employing 2.2 million people[56], indicating that there are approximately 0.82 fatalities from falls per 100,000 construction workers.

New Zealand's experience is similar. Over the period from January 2011 – December 2019, there were 38 fatalities involving a fall from height, with nine of these in construction. New Zealand has 177,000 people in the construction industry, indicating a fatality rate from falls from height of 0.56 per 100,000 construction workers.

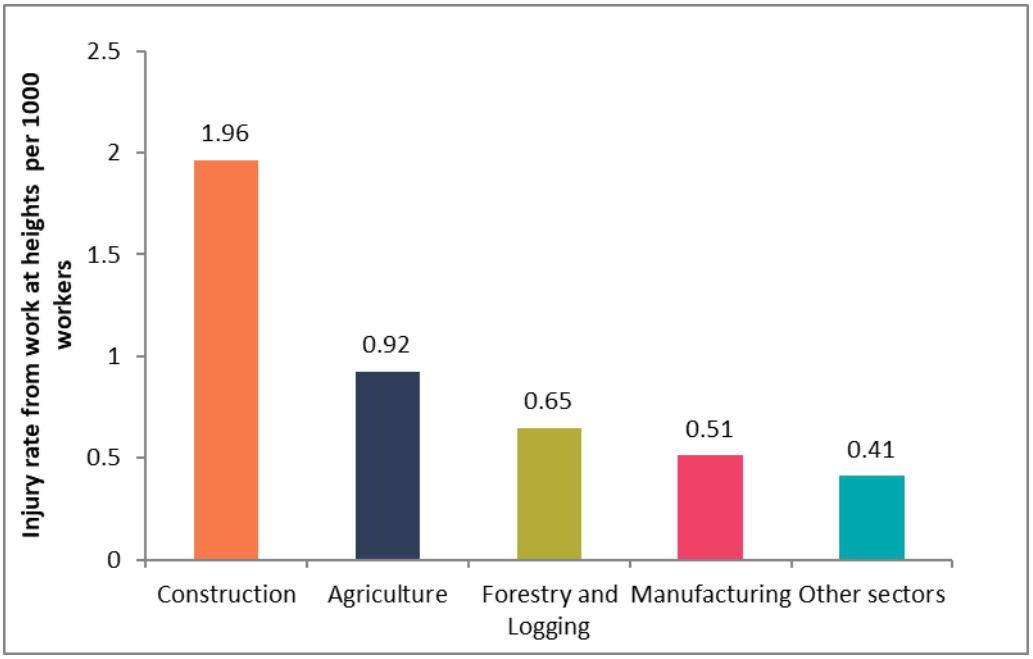
This period largely reflects behaviour following the 2012 guidance, which has lowered the rate of harm when falling from height, indicating that the new process in guidance is, as anticipated, helping to reduce the level of harm that occurs when working at height.

Figure 15 below also indicates that in New Zealand, injuries involving a fall from height have been much more common in the construction sector than in any other sector. Reporting on

[56] House of Commons Library, Briefing Paper 01432 Construction Industry: Statistics and Policy

notifications of serious harm indicates that this harm occurs in a wide range of situations, with falls from scaffolding, from ladders and from roofs all contributing.

Figure 15: Rate of fall from height work-related injury with more than a week away from work per 1,000 workers by industry, 2018/19 financial year.



Source: WorkSafe SWIFT and HLFS Data

Issue 2: Ambiguity in process resulting in inappropriate protection for tasks when working at height

Compared with those in Australia and the UK, the current regulations do not describe a process for managing the risk of work at height, or criteria for assessing what is "reasonably practicable". Regulations in other jurisdictions prescribe a clear hierarchy of mandatory controls for managing work at height in construction.

Current requirements are to provide scaffolding, though scaffolding is very broadly defined, covering tubular scaffolding systems, hoists, harnesses and other scaffolds restricted to certificates of competence, along with any other framework or structure used or intended to be used to protect people working in construction work. An interpretation that this is a requirement to provide a full tubular scaffold in all cases will lead to scaffolding being used for some work / tasks where alternative, cheaper methods could be used while still providing adequate protections. While guidance is clear that tubular scaffolding is not needed, an interpretation of only parts of regulations may lead some PCBUs this way.

As assessed by recent reports by BRANZ and NZIER, the lack of a clear process to adjust the type of protection to the task has resulted in instances of expensive, overly conservative approachesover-compliance, with high costs for certain tasks, notably those involved in single story residential construction. This creates a possibility of a shift towards those tasks being undertaken by those not covered by the regulations ie, home occupiers taking on these jobs themselves, with increased risk as they will be less skilled in carrying out tasks than workers who have developed expertise in working at height.

Issue 3: Incoherent regulatory system with inconsistencies in definitions

While the regulations currently provide a system of protection, they have a number of areas where similar requirements have different definitional triggers, and these inconsistencies create the potential for compliance issues.

Of primary focus is the series of regulated competency skill levels for the construction and inspection of scaffolding set under the *Health and Safety in Employment Regulations 1995*, which are now inconsistent with the national qualifications framework and industry practice.

In addition, there are two separate requirements for scaffolding both use a 5 metre rule, determining when a qualified scaffolder or a notification to WorkSafe are required. However, the measurements for these 5 metre rules are slightly different:

- notifications to WorkSafe are required when erecting or dismantling scaffolds where a person *may fall more than 5m* in height
- any scaffold *with any point above 5 metres* – eg a hand rail rather than just the working platform – may be only completed by an appropriately qualified scaffolder.

These two different thresholds are inconsistent and create confusion about scaffolding obligations.

What do stakeholders think about the problem?

Regulation of work at height has been subject to debate on the appropriate level of controls, with public scrutiny following the release of the BRANZ and NZIER reports.

Submissions from Scaffolding, Access and Rigging New Zealand (SARNZ) and the Roofing Association of New Zealand (RANZ) included surveys of their members, with references to the adjustment already underway within the industry since the 2012 guidance, with improved safety standards, and a market developing in response to the clarified regulatory requirements. These two submissions covered a wide range of members, and the summaries show consistent views on the issues with previous requirements for working at height, and support for consistent, appropriate controls from those most affected by the changes.

> "*Respondents to our survey and workshop commented that suitable controls for working at height must be used in every industry*"

These submissions also raised that there is a need to ensure clear directions for the use of appropriate controls, commenting that:

> *"A simple gutter leak should not entail the construction of a $1000 of scaffolding to complete a 5 minute task. Ladders can be used safely".*

This is one response, and illustrates an instance of how the current rules may be understood, and a system of defaulting to regulations, even when guidance includes cases of working safely from a ladder. Other responses included that thresholds for working at height can cause confusion.

These responses also indicated that there had been increased competition of suppliers since the guidance, leading to prices remaining stable or falling over time.

These submissions, along with the views expressed in consultation meetings, indicated that our assessment of the problems is an accurate reflection of the issues in the industry.

Section 3: Option identification

What options are available to address the problem?

Addressing the problems in working at height recognises that this work is already subject to regulations requiring the safe practice of working at height and the appropriate use of scaffolding. Based on the high level of risk involved in working at height, it is appropriate to maintain a level of regulation. The specific provisions that relate to scaffolding are contained within 1995 regulations that are out of date with the New Zealand qualification system and industry practice. For this scaffolding change, regulatory reform is the only option.

Complementing this existing set of regulatory requirements is a set of guidance issued for working at height. Judging from injury rates, this has improved practice, though this is not universal and high rates of harm persist. Current rules have led to confusion on the ability of PCBUs to use a range of protections, with indication that there are cases of conservative behaviour (where PCBUs misunderstand regulations and provide a higher level of protection than is necessary or in good practice guidance) in some circumstances.

We do not consider that non-regulatory options alone will be sufficient to address the harm that continues.

Non-regulatory options, such as guidance that clarifies obligations as the new requirements come into force, will support PCBUs to understand obligations and how to keep workers safe. These are a complement to, rather than a substitute for, regulatory requirements.

Preferred option

The preferred option comprises multiple components that jointly promote effective risk management across prevalent areas of risk.

Process for Working at Height

Levels of protection required will increase as the level of risk increases, with PCBUs in all industries being required to follow the Prescribed Risk Management Process (PRMP) in order to manage the risks of working at height. The PRMP will increase the focus on applying the necessary controls in all sectors, adding more detail to the risk management requirements already in the HSW Act.

For construction work, which has shown a higher rate of injury than other sectors, there will be an additional requirement to follow a mandatory hierarchy of controls that provides additional specificity of how to protect workers. This proposal will address the highest risk activities to reduce harm.

The PRMP and hierarchy of controls should be used together – first, carrying out the PRMP to determine if there is a way to not work at height, then, if work remains, using the hierarchy of controls to manage remaining risks.

To ensure this higher obligation is placed appropriately, we propose a revision to the definition of construction work, to be more in line with the Australian Model Regulations (AMR), with language that explicitly excludes cleaning and electrical work. This clarification will clearly define the types of work that is of higher risk, owing to the nature of the work involved and require the additional protections of the clear mandatory hierarchy of controls for this higher risk work.

For these areas of higher risk work, mandatory controls for work at height in **construction work** will be required. This includes, in descending order, the provision of:

- a safe working platform (eg tubular scaffold or elevating work platform etc.), or, if not reasonably practicable,
- fall prevention (eg edge protection on a sloping roof), or, if not reasonably practicable,
- fall arrest (eg static line and harness, or nets).

This is in line with industry practice and the current guidance in the WorkSafe best practice document.[57] Stepping up the requirements from guidance to regulation should support the improvement in practice within the industry, and improve minimum standards towards best practice approaches.

Drafting of regulations will set out definitions of each step and clarify that multiple steps on the hierarchy can be used together where this is prudent for the particular situation.

To accommodate minor work that is of short duration and lower risk, an alternative to the hierarchy of controls in the form of ladder work rules will allow work to be carried out from ladders in specified circumstances only.

This recognises that some work can be safely carried out from a ladder, and will reduce compliance costs where following the hierarchy of controls down to a fall arrest system would have only a minor safety benefit (for instance, carrying out a minor repair from a ladder.)

The criteria for when ladder work is acceptable will incorporate a combination of:

- length of time and frequency of task (ie, it may be suitable to use a ladder for a task that takes minutes, but not hours),
- the nature of the work and strain on the person undertaking work on the ladder (for instance, accounting for carrying weight / lifting weight above the head, where even a short duration may cause risk)
- the potential consequences of a fall, considering the height, and the surface below
- the frequency of the task (ie., a one-off job on site, rather than workers regularly being exposed to the risk of working at height).

The two processes together will remove the need for the 3 metre rule and support a risk-based approach.

Scaffolding Requirements

Reflecting that one of the main controls for working at height is appropriate scaffolding, the proposed requirements refresh the scaffolding rules in place. New Zealand's scaffolding

[57] Available at https://worksafegovt.nz/dmsdocument/500-best-practice-guidelines-for-working-at-height-in-new-zealand

requirements require scaffolds to be both constructed and inspected by a competent person. This process helps to ensure the suitability of scaffolding, and is intended to continue with changes to align with industry practice and the qualifications system.

Recognition of competence is currently through issuing of Certificates of Competence, issued under the Health and Safety in Employment Regulations, with three classes of scaffolding competence:

- basic scaffolding,
- advanced scaffolding, and
- suspended scaffolding.

Licensing Regime

Since the consultation document was released, the development of a high risk work licensing scheme, consistent with the arrangements for high risk work in Australia has been approved[58]as part of the licensing scheme for alternative refrigerants.

Using the process under development in the refrigerants regulations will improve consistency between processes for areas of high risk work. This will support coherence of the regulatory system when it is complete, with one standard registration process for high risk work.

Maintaining the Certificate of Competence process would be out of line with the intended direction of licensing where we move to a consistent process for recognition with all areas of high risk work. We are aware that scaffolders have not had a chance to provide feedback on the detailed processes of high risk work licencing, so intend to consult on the process for the application of high risk work licencing to scaffolders.

Five licences for scaffolding will replace the current three levels of scaffolding certificates of competence. The new framework will involve:

- Four classes of scaffold constructors (who can also inspect the class of their licence):
    - elementary,
    - intermediate,
    - advanced, and
    - suspended,
- A fifth, inspection-only licence, allowing inspection of elementary and intermediate scaffolds.

This responds to submission feedback that raised that the process of inspection can cause delays at some worksites. As a result, we are recommending an additional inspection-only licence for inspection of scaffolds. This is in recognition that in sparsely populated areas, scaffolding inspection requirements may increase costs and lead to delays in construction.

[58]The Australian model regulations outline a process whereby before undertaking high risk work, people must be qualified and recognised to carry out work. Part 4.5 of the model regulations sets out requirements for licensing and related matters such as renewal and suspension of accreditation, with specific requirements for high risk work and what each class of licence is allows set out in the remainder of the model regulations.

The final change is a clarification of multiple height thresholds related to scaffolding, that both come in at a height of 5 metres, measured from the height of the working platform.

Reflecting that scaffolding can cause catastrophic risk if it fails, designs of scaffolding systems (though not individual components) will require registration as high risk plant. This is covered in chapter 5 “High Risk Plant.”

Final recommendations were informed by stakeholder submissions that endorsed the developing industry practice that has improved since the 2012 working at heights guidelines. Improvements are visible in improved outcomes in terms of injury rates and the consolidated view of the construction industry was that a return to pre 2012 practice was not an option.

Table 7.1: Recommended proposals and how they have been informed by consultation feedback – Summary overview

Working at Heights 1: Requiring the PRMP		
Title and description	**What submitters said**	**MBIE position**
Requiring the PRMP for all work at height in all workplaces. This is a base level expectation that currently applies to a wide range of activities with similar levels of risk. This will implement specific procedural requirements for all work at height, regardless of industry.	There was broad support for requiring the PRMP for all work at height in all workplaces, including construction. Those opposed included some union groups, as work at height is high risk and they felt more specific mandatory controls were needed to appropriately protect workers. We consider that these views will be addressed by proposals below related to the mandatory hierarchy of controls.	**Recommended** The PRMP will be required for all work at height in all workplaces. Requiring the PRMP in all workplaces, when there is risk from working at height is consistent with the regulatory regime, which, through the General Workplace and Risk Management Regulations, requires the PRMP to be followed for common critical risks that are similar in scale to working at height. This provides consistency with the Australian Model Regulations and sets a baseline process for industries not covered by the additional, more detailed construction work process.

Working at Height 2: Revising Construction Work Definition		
Title and description	**What submitters said**	**MBIE position**
Revising the definition of "construction work", to be more in line with the Australian Model Regulations by explicitly excluding cleaning and electrical work. The differences between the definitions were set out in Annex 4 of the discussion document with the largest changes being that moving towards the AMR definition will remove requirements for cleaning and minor testing and repair, whilst adding requirements where prefabricated elements are used in construction. The other differences between the definitions are largely different words for the same purpose – removal vs decommissioning, renewal vs refurbishment etc.	There was strong support for aligning the definition of "construction work" with the Australian Model Regulations. Submitters asked for electrical maintenance work and cleaning to be excluded from the definition. Submitters from the forestry, meat processing, electrical supply and other sectors referred to the particular needs of their sector. WorkSafe supports a shift in definition.	**Recommended** The explicit removal of cleaning and electrical work allows clarity that for these tasks the PRMP is sufficient. Excluding cleaning was implied in the definition, as is minor testing, maintenance, and repair. We accept industry's views that these activities involve their own distinct practices for working at height and that there is guidance available. Requiring the hierarchy of controls for construction work to be followed for these activities will likely not be considered reasonably practicable.

Working at Height 3a: Implement a mandatory hierarchy of controls for construction work		
Title and description	**What submitters said**	**MBIE position**
Set a mandatory hierarchy of controls for work at height in **construction work**. This includes, in descending order, the provision of: • a safe working platform (eg tubular scaffold or elevating work platform etc.), or, if not reasonably practicable, • fall prevention (eg edge protection, or railing on a sloping roof), or, if not reasonably practicable, • fall arrest (eg static line and harness, or nets).	There was strong support for requiring a mandatory hierarchy of controls for work at height in construction work. Numerous submitters said that this was already commonly accepted practice and was consistent with the current WorkSafe best practice document. Submitters made specific comments that will be further considered in drafting the regulations regarding the appropriate term for moving between levels.	**Recommended** This provides a clear process for protection, with more explicit controls in higher risk work in construction. *Note:* this links to the item 3b below on separate ladder work rules related to the ability to undertake some work outside of the controls of the hierarchy.

Working at Height 3b: Ladder work rules		
Title and description	**What submitters said**	**MBIE position**
Allowing some work outside of the mandatory hierarchy of controls in construction work, through one of: • A height threshold of either 2m or 3m, below which the hierarchy would not apply OR • A time threshold, with short duration work that took less time than the limit exempted from the hierarchy of controls OR Setting ladder work rules where some work (ie, carrying out a task, rather than moving between levels) may be undertaken on a ladder, rather than with the 3 steps on the hierarchy.	Submitters were divided on whether there should be a height threshold below which the hierarchy of controls should not apply, with further discussion at stakeholder workshops reinforcing that a height limit was not workable. Industry was of the view that all risks of falls from height need to be managed and a 2m threshold would make the obligation less clear, and would not have supported a risk-based approach. For much the same reason, there was overall opposition to regulations setting a duration of work below which the hierarchy does not apply. Submitters raised that a threshold will be useful to prevent small jobs from requiring scaffolding, when they could safely be done from a ladder. For instance, that a five minute gutter repair task should not usually require a $1,000 scaffold.	Recommended that ladder work rules are used. With a more concrete hierarchy of controls, there are stronger obligations for managing risk. Without a separate step, in some form, we would not be addressing the costs that have been disproportionate for some tasks. We accept industry views that the height and time thresholds are likely not workable and would not encourage a risk based approach. The hierarchy of controls above (ie Proposal 3a) will apply to all construction work. In some cases requiring the hierarchy to be used would be onerous, imposing cost without any substantial benefit. If this was too onerous, we expect that some jobs would be undertaken outside the regulatory regime (.e by home occupiers). On balance MBIE considers that the hierarchy with the ladder work rules best achieves good risk management while allowing limited, low risk work to be undertaken on a ladder.

Regulating Scaffolding 1: Register as High Risk Plant		
Title and description	**What submitters said**	**MBIE position**
Requiring proprietary scaffolding systems and components to be registered as designs of high-risk plant.	There was strong support for scaffolding systems and proprietary construction support systems, such as “Acrow” props (but not individual components) to be registered designs of “high-risk plant”. The proposal was supported by SARNZ and the country’s largest manufacturer/supplier.	**Recommended** For scaffolding, design registration is intended to address the same or similar levels of risk as with other high risk plant. It is intended that scaffolding systems are registered as systems, so that a combination of individual components needs to be registered, rather than each individual component in a system. Refer to Chapter 5, High Risk Plant for further information.

Regulating Scaffolding 2a: Construction of scaffolds		
Title and description	**What submitters said**	**MBIE position**
There is incompatibility between the existing terminology and standards under the regulations and the NZQA framework and guidelines that separate into 4 tiers. We proposed amending the current scaffolding system to move to 4 classes of scaffold constructors: • elementary, • intermediate, • advanced and • suspended. This is in line with the NZQA framework, guidelines and industry practice. There are some scaffolds that have required professional engineer (CPEng) involvement when they are particularly complex – for the various loads that are acting on the structure, where some level of expertise above the current scaffolding has been required. We sought views on whether these cases could be set through regulations, or, due to the complexity, if guidance should remain in place.	There was strong support for retaining a graduated licensing system for scaffolding. There was agreement that this should be achieved by amending regulations to reflect the competency requirements for scaffolding currently followed by industry and embedded in the qualification framework. *"Current legislative requirements of proof of recent training and experience to renew Certificates of Competence should be updated to require proof of competence, in line with current terminology."* The majority of feedback on classes focused on the value of the graduated system, and moving to the 4 classes in qualifications and industry practice.	Recommend that the constructor licences move to 4 classes of scaffold constructors: • elementary, • intermediate, • advanced and • suspended, The current good practice guide gives a wide range of situations where a CPEng should be involved in the development of scaffolds, including, for instance: • where the design is not covered by the manufacturer's specifications or instructions, • mast-climbers, • scaffolding erected directly from a supporting structure, roof, veranda or balcony. In addition to these existing criteria, there are other cases where the developing methods in the scaffolding industry require engineering solutions to ensure safety, such as the use of scaffolding wrap, where the wrap can be caught by the wind and place stress on the structure. We expect that future methods may evolve that will also require CPEng oversight. We do not believe that we will be able to develop regulations that sufficiently cover all cases where engineer involvement is required, and therefore recommend this is left to guidance.

Regulating Scaffolding 2b: Inspection of scaffolds		
Title and description	**What submitters said**	**MBIE position**
Scaffolding in New Zealand has and will continue to be required to be erected and inspected by a qualified person. Constructors (see 2a above) can inspect scaffolds covered by their class of licence. We propose creating a new licence for scaffolding inspection only, for elementary and intermediate scaffolding.	Most submitters suggested any scaffolder certified to construct scaffolds could carry out inspections up to their level of recognised competence, while SARNZ proposed the development of a dedicated certificate of competency to inspect scaffolding. This was most clearly noted as a valuable alternative where there are limited constructors of scaffolding, and requiring inspection would require long trips from out of town, where this could delay the start of work.	As suggested by submitters, we **recommend creating a new licence for scaffolding inspection only**, for elementary and intermediate scaffolding. This complements the classes in 2a above, whereby scaffold constructors can inspect up to the class they are licensed for. Inspection will continue to require a certified professional engineer for scaffolds of sufficient complexity.

Regulating Scaffolding 3: Scaffolding Inspection		
Title and description	**What submitters said**	**MBIE position**
At present scaffolds up to 5 metre height can be erected by a "competent person", ie with or without formal qualification, while those above this threshold must be erected by a person with a Certificate of Competence (CoC). Scaffolding where a person may fall 5 metres must be notified to WorkSafe. We proposed continuing to require notification and competency requirements at 5 metres, while aligning the rules to focus on the working platform. The definition of working platform will need to include a roof as a platform where scaffolding is used as edge protection.	There was clear support for keeping the current threshold of 5 metres for notification to WorkSafe, and for requiring a certificated scaffolder for work above a certain height limit. There was clear support for removing the difference in the way the two 5 metre rules are worded, to achieve consistency. The view was that the 5 metre rule should be the height of the working platform.	**Recommended** We see value in consistency between the requirements for notifications of scaffolds where the working platform is 5 metres above the ground. Drafting is intended to ensure that both thresholds cover the cases where the highest working platform is 5 metres above the ground.

Impact Analysis

Three proposals covered above are not analysed below. This is due to the fact that these changes either best fit within the context of other chapters of the RIA, or are simplifications or clarifications to existing rules, and do not provide substantial changes from current settings.

These items are:

- the definition of construction work (Work at Height 2) – a clarification.
- the registration of scaffolding systems as high risk plant (Scaffolding 1), - covered by the process for registration of high risk plant, chapter 6, and
- the definitions of the 5 metre rules in scaffolding (Scaffolding 3) – a clarification.

For the proposals related to working at height and scaffolding, this impact analysis section compares proposals to the status quo. This reflects both the regulations in place, and the current practice that reflects the good practice guidelines. A comparison to the regulations alone, not including how work at height is fully regulated in practice would provide little value.

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
No action	0 There are high associated rates of harm caused by falls from height, particularly in the construction industry, with 38 fatalities over the period from 2011 to 2019, and approximately 2,000 injuries a year resulting in at least a week away from work, including around 500 in construction.	0 Current requirements – through the HSE Regulations 1995 – provide only partial coverage of common risks, with insufficient coverage work at a height of 3 metres or less, placing reliance on the primary duty of care in the HSW Act.	0 Current regulations are inconsistent with industry practice of scaffolding construction and the qualification system, have inconsistency of definition of where requirements apply, when a licensed scaffolder is required, and when WorkSafe are to be notified.	0 Current regulations do not provide a clear process to work through for managing the risks of falls from work at heights. This can result in both over and under compliance by businesses.	0 Inconsistency with regulatory requirements places undue emphasis on guidance, while there is not a clear set of mandatory controls or requirements to form a basis for their development and ongoing review.	0 Gaps in coverage in protections, inconsistency in regulatory regimes and a lack of detail in how to comply create both over-compliance, resulting in disproportionate costs for the benefits, and some construction workers under-comply, resulting in continuing rates of harm.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Working at Height 1	**Implement the PRMP for work at height in all industries**	+ Introduces a common structured process to set consistent expectations for PCBUs and workers. Strengthens the baseline expectation for all sectors including those not covered by construction work.	++ Directs a PCBU's attention to those areas which warrant the highest level of protections, given the risk of harm.	+ Clear obligations to carry out the PRMP for all work at height. Requires what is "reasonably practicable" and commensurate to the level of risk. Methods of documenting assessments are not set by the requirements, allowing for businesses to customise their approach.	+ Following the PRMP provides process to assist PCBUs in meeting their general duties; requires what is "reasonably practicable" and commensurate to the level of risk. Methods of documenting assessments are not set by the requirements, allowing for businesses to customise their approach.	++ Embeds flexibility by specifying the end not the means.	++ Relies on a common structured process to set consistent expectations for PCBUs and workers. Reinforces HSW Act duties by providing additional specificity of process for risk management.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Working at Height 3a and 3b:	**In Construction Work, Implement a mandatory hierarchy of controls with separate ladder rules**	++ Provides clear requirement for providing the highest level of protection that is reasonably practicable. Explicit protections for workers, complements the PRMP for the specific risks in construction work.	++ Sets higher mandatory controls on higher risk work. Makes each of the descending hierarchy steps contingent on what is reasonably practicable – in this way ensuring proportionality. The ladder work rules support proportionate controls for particular tasks.	++ Clear process, consistent with best practice. Explicit steps in hierarchy set out processes for PCBUs.	+ Adds some cost to cases where no scaffolding, or a lower step in the hierarchy was incorrectly used in the past. Provides clear steps to alternatives in cases where method is not reasonably practicable or cost is grossly disproportionate. Ladder work rules allow the whole scheme to be cost effective by reducing obligations for lower risk tasks.	+ Provides explicit controls based on broad categories, allows actual methods to evolve.	++ Appropriately balances providing maximum level of protection for work at height with alternate step to manage costs for lower risk work.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Scaffolding requirements 2a and 2b:	**Develop a new licensing regime, with a separate inspection licence**	+ Maintains consistency of structure of existing process, where the tiered system of qualifications recognised as well organised. Ensures skilled inspection of scaffolds.	+ Allows separation of categories and ensures licensing is appropriate to task.	++ Allows regime to be consistent with industry practice and qualifications system, improving coherence. Clear roles for issuing agency, scaffolders and inspectors.	+ Replaces similar existing system. Inspection only certificate lowers costs for some jobs. Some small short term costs from shift to new categories.	+ Allows consistency with other regimes for qualification and best practice.	+ Removes inconsistencies between regimes. Allows skilled scaffolders to have roles of inspection, and reduces possible skill shortages in future.

Key:

++	much better than doing nothing/the status quo
+	better than doing nothing/the status quo
0	about the same as doing nothing/the status quo
-	worse than doing nothing/the status quo
- -	much worse than doing nothing/the status quo

Summary of conclusions: Working at Height

Key conclusions from this chapter are summarised below.

Falling from a height is a persistent cause of work-related fatalities and injuries in many different sectors. The construction sector has consistently had higher rates of harm, with falls from height accounting for 27% of harm in the sector in 2009 and 18% in 2015. This compares with falls from height being less than 10% of total work-related harm in all other industries.

Working at height is currently subject to requirements in the *Health and Safety in Employment Regulations 1995*, which cover:

- A process for recognition of scaffolder competency,
- Requirements for when scaffolds must be used
- Requirements for controls when work is above 3 metres.

Since 1995, the process for training scaffolders has evolved, and there is now inconsistency between the three tiers in regulations and the four tiers in the qualification system and industry practice.

In 2012, guidance was issued that recommended the use of safety constraints (scaffolds, edge protection, safety nets) for all new single story residential construction. Since 2012, there has been a reduction in the level of injuries in the residential construction industry, though some reports have raised concerns that the new process was overly costly.

MBIE's recommendation is that the requirements are updated to reflect industry practice and provide greater clarity on how different protections can be used. The changes will:

- Require PCBUs to apply the Prescribed Risk Management Process to all work at height.
- For **construction work**, which is of higher risk, also require PCBUs to work through a mandatory hierarchy of controls for work at height, providing:
  - a safe working platform (eg tubular scaffold or elevating work platform etc.), or, if not reasonably practicable,
  - fall prevention (eg edge protection on a sloping roof), or, if not reasonably practicable,
  - fall arrest (eg static line and harness, or nets),
  - in specified circumstances, allow for work to be undertaken from a ladder.
- Move the process for recognition of scaffolders from the three tiered, Certificate of Competence system to a High Risk Work Licensing system with five classes - four classes of constructors, with an additional inspection-only class.

MBIE's assessment is that:

- The changes proposed offer the best means of effectively reducing harm, with proportionate controls that adjust to the different levels of risks with different tasks.
- The changes proposed are durable, with limited though appropriate levels of prescription that supports PCBUs to meet their primary duty of care.
- Costs will differ for businesses depending on what is reasonably practicable and protections already adopted.
- As there is already a regulated class of scaffolders, with a competitive market for the supply of scaffolding, there is no concern of market failure in the licensing regime resulting from risks of limited competition.

Stakeholders were generally supportive of the proposals, on the basis of the improved clarity they provide. Transitional arrangements are to be determined.

Chapter 7: Excavations

Problem definition and objectives

Current state within which action is proposed

Excavations vary from small-scale trenching or site work to deeper pits and shafts, and all excavations present risks to workers and others. Collapse of ground is the obvious risk for deeper excavations, but collapse in shallower trenching can still cause injuries, though these are less likely to result in a fatality. Other risks include objects falling on workers from above, falling into excavations, hazardous atmospheres, contact with underground services, and flooding.

Construction work involving excavations is regulated through the general obligations under the HSW Act, and specific regulatory requirements within the *Health and Safety in Employment Regulations 1995*. Excavations that are part of quarrying, mining and tunnelling are covered by mining regulations (including proposed changes to those regulations currently underway).

The explicit protections that currently exist are intended to protect workers from falling from height into an excavation, and from the risks of ground collapse if a person is within an excavation.

There are additional risks that exist during the excavation process, mostly from striking utility lines and possible electrical shock or exposure to gas.

While not the focus of the changes in health and safety processes, international evidence suggests there are also significant economic costs resulting from gas main or electrical line strikes in excavation work that cause need for repairs, and disrupting activity down the line from the strike.

Stakeholder feedback throughout the consultation process indicated that line strikes are a problem in New Zealand. Survey data collected through the New Zealand Utilities Access Group (NZUAG) indicates that there were 13,572 utility line strikes against the assets of those responding in the 2018/19 year[59]. This data is based on respondents to a survey responsible for road corridors in areas that cover 83% of the population. This gives a clear lower bound on the number of utility line strikes.

Existing regulatory requirements

The existing regulatory standards for excavation safety are set through a combination of general duties under the HSW Act and specific requirements under the *Health and Safety in Employment Regulations 1995*.

Existing requirements cover the majority of the cases where excavation work takes place, with specific mandatory controls for all work at greater than 1.5 metres depth, with reliance on the general protections and duties in the HSW Act for work up to 1.5 metres.

[59] NZUAG, Code Performance Report 2018/19, available at: http://nzuag.org.nz/wp-content/uploads/2020/04/Code-Perfomance-Report-2018-19.pdf

Regulatory requirements are supported by guidance documents from WorkSafe that set out best practice.

For underground services, there are requirements for utilities to provide information under the *Utilities Access Act 2010*. A code sets out requirements for utility providers to communicate what cables, water and gas pipelines they have in the road corridor, and the process for installing new services in the road corridor. These information provisions support safe practice, by providing rules for the sharing of information and cost allocation for non-compliance. These are relevant to practice, though amending them is outside of the scope of this work, and the changes proposed within this RIA cover a wider range of work, including outside of the road corridor, where the code does not apply.

Proposals take this into account to ensure that the regulatory requirements for all construction work do not impose contradictory requirements for work in the road corridor, whilst providing sufficient clarity for other excavation work.

Existing requirements are summarised below.

Legislation	Requirements
HSW Act *Section 36 - 38, 45*	PCBUs must ensure that the health and safety of workers is not put at risk by providing and maintaining safe plant and structures, and ensuring that plant and structures are used, handled and stored appropriately. The Act also provides other obligations, such as obligations for workers, and duties for PCBUs to consult.
Health and Safety in Employment Regulations 1995 *Regulations 23 - 25, 26*	Covers excavations in construction work[60], which is broadly defined. This set of regulations provides requirements for excavations with a face more than 1.5m in depth, including appropriate shoring (and competency and supervision requirements), circumstances where shoring need not be carried out, such as where the face is cut back to a safe slope, fencing off or filling in an excavation once completed, and the requirements for notifications to the regulator.
Utilities Access Act 2010	The *National Code of Practice for Utility Operators' Access to Transport Corridors* (the Code[61]) provides a joint agreement on process for management of utilities in the road corridor, including labelling provisions, depth requirements and notifications.
Non legislative measures	Relevant examples include: • Excavation Safety Good Practice Guidelines[62] • Guide for Safety with Underground Services

[60] Note that there are changes to the definition of construction work in the Working at Height chapter of this RIS.

[61] Available at: http://nzuag.org.nz/wp-content/uploads/2019/07/National-Code-approved-version-150719.pdf

[62] Available at https://worksafegovt.nz/topic-and-industry/excavation/excavation-safety-gpg/

Moving to more consistent and detailed requirements for the management of risks provides a clear role for each party involved in excavation work, improving efficiency when the potential for harm is spread over a number of downstream companies.

What is the policy problem or opportunity?

Harm caused by excavation and cave-ins

New Zealand has clear evidence of the scale of harm from excavations, with around 15 reported injuries per annum since 2008, including a total of 5 deaths from incidents involving falls of ground.

Table 7.1: Number of excavation Work-Related Injuries by Severity and Year of Incident

Accident Year	Fatal	Severe	Non-Severe	Grand Total
2008	1	3	8	12
2009	1	2	10	13
2010		4	11	15
2011	1	3	11	15
2012		2	11	13
2013		1	9	10
2014	1	6	17	24
2015		2	10	12
2016		4	10	14
2017			13	13
2018	1	3	4	8
Total	**5**	**32**	**124**	**161**

Source: WorkSafe SWIFT

This table only counts those injuries directly linked to excavation work or cave-in. Other serious injuries and fatalities associated with excavation work include falls, unsafe atmospheres and injuries resulting from contact with underground services or machinery. These are not classified as excavation injuries, and the text based analysis used to create this dataset is not able to separately identify these incidents. For instance, we cannot separate electrical injuries involving line strikes from any other electrical injuries. As a result, our ability to detect the scale of electrocution injury from line strikes is limited.

While the categorisation is different in each country, both the UK and Australia have comparable rates of fatal injuries from excavation work (Australia's average of two fatalities per annum from a slide or cave-in over 2014 – 2018, is similar on a per capita basis to New Zealand's five fatalities over 11 years).

Reducing the level of harm, particularly the number of fatalities that result from ground collapse or underground services strikes when carrying out excavation is a primary goal of the regulatory reform.

Economic Disruption from Line Strikes

The other policy issue more broadly, that extends beyond the specific goals of the health and safety focus of this reform, is the economic losses that result from disturbance of

underground services or “line strikes”. These losses include both the direct cost of repair, and, more substantially, the economic costs of disruptions to services.

Consultation feedback was that this is a significant issue, which is consistent with experience in other countries.

In the UK, reports from the Utilities Strikes Avoidance Group[63] have reported around 1,500 lines strikes per annum over the last 5 years, based on survey responses from a range of industry participants. Research from the UK[64] indicates a range of direct repair costs, varying by type of utility affected by the line strike. These included £400 for copper wire telecommunications repair, £970 for electricity line repair, £485 for gas line repair, and £2,800 for fibre-optic cable repair. A 2016 Report[65], based on the analysis of 16 case studies estimated that the direct costs attributed to the repair of lines are significantly lower than the total social costs, with a 1:29 ratio of direct costs of repair (ie, fixing the underground pipe or cable) to the total social costs, including the additional noise, nuisance and disruption to business.

Based on the lower bound of line strikes in New Zealand based on NZUAG reporting of 13,572 line strikes in New Zealand, we estimate direct costs of repair to be between $10 million and $76 million annually (with the range of direct costs in the UK), with indirect costs based on case studies making this significantly higher. In addition there are notable instances of damage to underground services having extensive impacts, for example, the damage by an excavator to the Auckland fuel supply pipeline which led to its closure for 10 days in September 2017.

It is common practice for companies to check for underground services. However this is not universal, and line strikes occur frequently. Costs resulting from any line strikes will partially fall on companies who are not involved in the incident. The fact that this cost falls outside the companies directly involved in excavation work causes economic inefficiency, through companies not accounting for the full economic costs of not sufficiently checking to avoid harm. For efficiency reasons, regulation is appropriate to encourage companies to internalise these costs.

What do stakeholders think about the problem?

Submitters included a number from construction and utility companies who carry out excavation work. Some of these companies, along with local authorities, own a number of underground assets and are interested in ensuring utilities are not damaged in excavations.

Submitters indicated that there are inconsistencies of practice in carrying out excavation work, and not all work follows best practice. Feedback also noted that the existing requirements for excavations deeper than 1.5m do not reflect that there is risk from all work in excavations, including comments such as:

> *“In some conditions and situations shoring and fencing will be required at depths less than the current thresholds.”*

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63 https://www.utilitystrikeavoidancegroup.org/strike-damages-report.html

64 Causes, impacts and costs of strikes on buried utility assets

65 Cost estimation of utility strikes: towards proactive management of street works

This was one of a number of comments that reflected that current regulations do not support appropriately managing risks in all cases, with the 1.5m threshold acting to discourage a risk-based approach as work up to a depth of 1.5 metres does not carry specific requirements. Submitters noted that work in excavations with a depth of less than 1.5m can still be risky, with injuries possible in shallower excavations, particularly when any workers required to be in a trench are not able to work in a standing position.

This raises the question of whether the threshold provides a useful demarcation in all cases, and also whether the level of risk for excavations at a depth greater than 1.5m depth justifies mandatory controls in all cases.

Regarding the risk of line strikes, there was general agreement that this is a problem, with economic harm downstream as a result of strikes.

Option identification

What options are available to address the problem?

Excavation practice is currently subject to a series of regulations that require specific controls at a depth of 1.5 metres, relating to providing shoring (ie, controls to prevent an excavation from collapsing), fencing requirements to prevent access, and requirements to notify WorkSafe, given this is dangerous work.

This depth threshold is based on a height where a failure of the excavation structure would collapse onto the chest cavity of a person within the excavation. This 1.5 metre depth threshold has a number of existing conditions where the shoring requirements are not needed, as the ground is safe – such as if the ground has been cut to a safe slope, where the angle of the excavation means that it will not collapse onto a person.

There are three primary areas of change in the proposals put forward in the consultation document. The proposals are comprised of requirements placed through regulations, appropriate to the conclusions of the Independent Taskforce that a series of specific requirements are needed to complement the general duties in the HSW Act. The proposals recognise that with excavations, the existing obligations and guidance in place work well for most parties. The changes proposed are refinements that strengthen protections at shallow depths, refinements to existing requirements, and a new duty in regulations to check for underground services.

1. A requirement to follow the Prescribed Risk Management Process (PRMP) for all excavation work, including trenches.
    - This will require all excavations regardless of depth to apply the PRMP. This is consistent with the Australian Model Regulations.
2. Refining the existing thresholds for mandatory controls of shoring, fencing, and notification of excavations in construction work at depths exceeding 1.5 metres.
    - One proposed change related to who should be able to determine whether the sides of an excavation are safe (given the nature of the ground conditions and the angle of the face) and thus do not need to be shored. There is currently no requirement on the skills and qualifications of who can make this decision. Reflecting the variety of ground conditions, and limited number of

geotechnical engineers, we recommend a competent person be the requirement. Recent guidance developed alongside industry outlines competence requirements based on ground conditions and depth that allow flexibility in approach.

- The consultation document also queried whether requiring the PRMP for all excavation work would reduce the need for the explicit controls at 1.5m.

3. Create an explicit duty to identify underground services before excavating.

   This is a new requirement, responding to international evidence on the level of harm and a range of analysis of the net benefits of checking for services, given the costs of inspection and the levels of reduced economic harm.

These proposals reflected a combination of existing industry practice, and the current guidance (such as WorkSafe's *Excavation Safety Good Practice Guide* and the *Guide for Safety with Underground Services*). These best practice guides, while not a requirement, were developed recently alongside industry and are often, though not universally, followed. We consider that any new regulations should reflect the good practice to minimise the extent of disruption of businesses and not force any changes to practice where this would not have a safety benefit. More detailed analysis follows in the table below.

Recommended proposals and how they have been informed by consultation feedback – Summary overview

Title and description	What submitters said	MBIE position
Excavations 1: Requiring the PRMP for work in all excavations. This is a new obligation. The PRMP is required for some aspects involved in excavation work, such as the requirements for managing risks for objects that may fall – a risk that occurs when workers are in excavations.	Submitters widely supported regulations moving to a risk-management based approach in line with the PRMP, or the Australian Model Regulation processes for carrying out all excavation work, regardless of depth. Comments reflected that there is currently a lack of protections for excavations of less than 1.5m and this universal obligation will help to address this lack of obligations for shallower excavations.	**Require the PRMP in all workplaces carrying out excavation work**. This is consistent with providing similar protections when there is a similar level of risk, and provides consistency with the Australian Model Regulations. This requires a more detailed process for depths less than 1.5 metres, aligning with industry practice.

Title and description	What submitters said	MBIE position
Excavations 2: Refining current 1.5 metre mandatory thresholds Existing regulations set 1.5 metres as the threshold for shoring, notification and fencing requirements, and is the depth threshold for high risk construction work in the Australian Model Regulations (AMR). We sought views on if these explicit thresholds should be maintained, amended or removed in the presence of the PRMP. If retained, we sought views on whether the existing exceptions in place in the current regulations that allow for cases where shoring, fencing and notifications are not required are sufficiently clear, and who should be able to determine whether the faces of an excavation are stable, and do not need to be shored, given the structure of the ground is currently not clearly defined.	Most respondents supported retaining the existing 1.5 metre depth threshold in guidance for each area where a threshold would apply ie. notifying WorkSafe, shoring an excavation, and fencing around an excavation. Those who felt the current requirement should be removed pointed to the PRMP, if required, being sufficient. Most submitters supported controls at depth thresholds applying to all excavations, not just trenches. Some submitters noted that with the hilly nature of existing and possible new developments, cutting deeply in to the side of a hill should also be considered an excavation, and risks should be managed in a similar manner. The majority of submitters supported that the determination of whether the faces of a trench are “of proven good standing” should be prescribed in more detail, with a competent person and / or an engineer the most common responses. The existing guidance of a competent person, with tiered recognition of competence based on complexity of work was recognised as being of high quality, and was suggested as the basis for a tiered classification system for competence. Submitters almost universally indicated that the current shoring requirements are sufficient.	**Retain the 1.5 metre threshold.** The current explicit requirements put in place a burden of proof for those PCBUs responsible for excavation work so that if there is not shoring in place, in particular circumstances, this can be easily ruled as insufficient. The 1.5 metre requirements sets a clear obligation at a depth where a collapse has more severe consequences, rather than a judgement call on what is reasonably practicable. For this reason, we recommend that this is retained. For consistency with existing guidance and regulations 1.5 metres has been chosen as a continuing threshold for each of fencing, shoring and notifying WorkSafe.

Title and description	What submitters said	MBIE position
Excavations 3: Require an explicit duty to check for underground services Require an explicit duty to check for underground services. The consultation reflected that there are substantial risks from ground strikes, and sought views on if and how such a duty should be carried out. The discussion document was non-committal on the form this should take, though noted the AMR requirements, whereby the PCBU withmanagement or control of the workplace must takeall reasonable steps to obtain current underground services information before directing or allowingexcavation to commence. This could be in a range of formats (such as checking through the use of underground radar, proof of a check of records, require documentation that a check has been carried out) and could fall onto a number of participants in excavation work, from the land owner, to the PCBU in charge of the site, to the worker physically carrying out the work, or some combination of overlapping responsibilities.	Submitters almost universally agreed with the proposal to create an explicit duty to identify underground services, with most of the submitters considering this should be the responsibility of the Person Conducting a Business or Undertaking (PCBU) with site control. There was debate in submissions between this being the responsibility of the PCBU in charge of the excavation work, or in charge of the workplace. In addition to the PCBU duties above, some submitters suggested further duties, with utility asset and land owners also responsible for ensuring there was information available to be checked. Others suggested overlapping responsibilities between the PCBU with control of the workplace, as well as the PCBU with responsibility for the excavation work, or, as WorkSafe indicated, on the worker carrying out the excavation work. Stakeholders indicated that the current practice with excavation work is that the PCBU with management or control of the workplace carries out a check for services through a combination of using third party sources of plans (eg the *beforeUdig* process, in which a commercial provider provides information on utilities) and with the use of scanning devices. Submitters suggested that this duty could take the form of requiring PCBUs to have documentation that indicated how they had identified underground services. Existing guidance (such as the *WorkSafe*	**Introduce an explicit duty on the PCBU with site control to do what is reasonably practicable to check for underground services** and provide information to otherPCBUs involved in the work. The PCBU must then provide the information to any person they engage to carry out the excavation work and make the information available for inspection until the completion of the work, or, if there is a notifiable incident in connection with the work, for two years after the incident. This is similar to the Australian Model Regulation (AMR) included in the discussion document. This would support existing good practice, without introducing undue burden or an alternative process with limited health and safety benefits. This provides a concrete and explicit requirement that reinforces the primary duty of care in the HSW Act, with the PCBU with most control being responsible for ensuring that surveying activity is carried out. This should contribute to one complete, consistent set of information for each site. We expect that this will slightly raise costs for PCBUs responsible, as they will directly pay the capital or rental costs of ground penetrating radar equipment. These are available commercially for rent at around $400 per day for large ground penetrating radar (GPR), and $150 for smaller, handheld items. The range of options for GPR is increasing over time, and the price decreasing.

	Excavation Safety Good Practice Guide, and the *Guide for Safety with Underground Services*) was suggested as a useful base for how this duty should be carried out. The consultation process included the view that practice in complying with the Code is inconsistent, and that as a result, relying on plans alone does not provide sufficient clarity and operators need to check for services on site. There are concerns about legacy underground services, which are hard to identify.	However, this will be recouped with the savings of repairs and down time for service strikes. We expect that the PCBUs will be able to come to the efficient arrangement of sharing complete information with all PCBUs downstream, or subcontractors on the site, so that one set of information is used. This can be encouraged through guidance.

Impact analysis

The changes we are making are largely reinforcing and clarifying existing obligations (in the case of the PRMP and the alterations to existing requirements to appropriately bench, batter or shore the sides of an excavation and fence of areas), or require a step to be followed that is consistent with best practice guidance and industry practice (an explicit duty to check for underground services). The table below provides MBIE's more detailed assessment of impacts.

	Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
No action	0 An average of one fatality every two years, and 15 injuries per year indicate relatively low harm relative to other areas of reform. This is through common, but not universally good practice in excavation work. High numbers of line strikes indicates a problem with checking for services. Unidentified number of electrocution injuries as a result.	0 Current requirements set out in the HSE Regulations 1995 – provide only partial coverage of common risks, relying on the primary duty of care obligations in the HSW Act, with no more stringent requirements at depths less than 1.5 metres where harm can still occur. Current requirements allow any person, with unspecified level of competence, to determine ground is "*of good standing*" and does not need to be shored.	0 Current regulations provide insufficient clarity for duty holders on the expected means of compliance with HSW Act duties. There is a lack of clarity regarding who is responsible for the identification of underground services.	0 Costs from failure to check for underground services fall on businesses and workers, but also unregulated parties. International evidence indicates a high level of downstream economic costs as a result of service disruptions.	0 Regulations impose a strict limit at a depth of 1.5 metres, though no requirements at lesser depths. Current regulations could continue though harm and economic costs on unregulated parties would continue.	0 Lack of proportionality in regulations, with requirements only for excavations deeper that 1.5 metres, but uncertainty for businesses in determining whether or not they apply. Processes essential for safe practice are not always carried out. Clarifying that these are requirements and who the costs fall on decreases uncertainty in process.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Excavations 1	**Requiring PCBUs follow the PRMP for all excavation Work**	+ Relies on a common structured process to set consistent expectations for PCBUs and workers. Provides additional specificity to support the central concepts of risk management embodied by the HSW Act.	++ Reduces the threshold of current mandatory system, supporting risk based approach. Directs a PCBU's attention to those areas which warrant the highest level of protections, given the risk of harm.	+ Implements a recognised process which gives additional prominence to common risks.	+ Requires what is "reasonably practicable" and commensurate to the level of risk. Methods of documenting assessments are not set by the requirements, allowing for businesses to customise their approach.	++ Will operate as an enabling provision, which specifies the end not the means.	++ Reinforces HSW Act duties by providing additional specificity of process for risk management.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Excavations 2	**Clarifications to mandatory controls for excavations at 1.5m depth.**	++ Provides additional specificity to require controls at a depth at a height where a body would be engulfed should an excavation collapse.	+ Reflects that risk increases where a person would be engulfed / entrapped by a collapse, with increased proportionate control. Tiered "competent person" requirement allocates expertise where most needed.	+ Explicit depth thresholds provide clarity of requirements for highest risk excavations. Exceptions, as in current regulations that reduce obligations where the face is safe, will reduce compliance costs and allow alternative measures to manage risk, though reduce certainty.	+ Consistent with depth threshold under current practice and regulations, minimising training costs. Increased competency requirements in line with industry practice, though may increase costs for some PCBUs. Tiered threshold of competent person reduces cost for relatively low risk excavation where geotechnical engineers would not add significant value.	++ Consistent with current good practice, the AMR, and guidance. Requirements on a competent person are not so strict as to limit activity.	++ Reinforces HSW Act duties by providing more specificity in risk management for common critical risks, in a way that is proportionate, durable and flexible.

		Effective	Proportionate	Clear	Cost effective	Flexible and durable	Overall assessment
Excavations 3	**Create an explicit duty to identify underground services before excavating**	++ Explicit requirement on the party with control to check. Should sufficiently collect and disseminate information, relying on existing obligations under the HSW Act to share information and for PCBUs to co-operate.	++ Places legal incidence on one party with clear responsibility, allocates responsibility to the party best able to carry out activity.	++ Provides certainty on who is responsible for checking for services, improving certainty.	+ Clear obligation on one party, with no duplication of costs. Placing requirement on PCBU with site control reinforces existing behaviour, minimising transition cost.	++ No obligation to use any particular service or method. Allows enduring ability to meet obligations as technology and / or publicly available records of existing services evolve, with a shift towards records being cheaper and encouraging better record keeping by industry and communication between parties to reduce costs.	++ Use relies on effective communication through contracting chain and communication between PCBUs, so that workers have, and use on site knowledge to reduce injury and line strike damage. This is consistent with obligations in the Act. May achieve superior safety with overlapping duties (eg, on land owner, other contractors, workers), though this could bring in uncertainty on who carries out checking.

Key:

++	much better than doing nothing/the status quo
+	better than doing nothing/the status quo
0	about the same as doing nothing/the status quo
-	worse than doing nothing/the status quo
- -	much worse than doing nothing/the status quo

Summary of conclusions: Excavations

Key conclusions from this chapter are summarised below.

Excavations vary from small-scale trenching or site work to deeper pits and shafts, and all excavations present risks to workers and others. Ground collapse is the obvious risk in deeper excavations, but collapse in shallower trenching can still cause injuries, though these are less likely to result in a fatality. Other risks include objects falling on workers from above, falls into excavations, hazardous atmospheres, contact with underground services (with associated electrocution risk and economic disruption from line strikes), and flooding.

Currently, requirements set through the *Health and Safety in Employment Regulations 1995* provide the basis for excavation work, covering excavations in **construction work,** where the excavation work is at 1.5 metres or more of depth, with**:**

- requirements to shore an excavation
- circumstances where the shoring need be carried out (eg, where the face is cut to a safe slope)
- requirements for fencing off an excavation, and notifying WorkSafe of an excavation.

In addition, the *National Code of Practice for Utility Operators' Access to Transport Corridors* sets out an agreement on practice for excavation in the road corridor, including requirements on the depth that cables should be buried at, and marking of services, whilst a good practice guide sets out recommended processes, including following the prescribed risk management process and checking for underground services (ie electrical cables, gas lines).

MBIE's recommendation is that the current requirements are refined and extended, incorporating elements of existing good practice guidance, with new requirements to:

- Apply the Prescribed Risk Management Process to all excavation work,
- Require a competent person to determine whether the faces of an excavation are of good standing, and do not need to be shored,
- Check for underground services before excavation work commences.

While non-regulatory measures will have an important supporting role, MBIE has discounted these as an alternative course of action, as guidance already exists and has been insufficient to resolve issues in bringing every firm up to standard.

MBIE considers that:

- The changes proposed offer the best means of effectively reducing harm, consistent with good practice, without imposing undue costs.
- The changes are economically efficient, as they reduce externalities resulting from line strikes to parties who are not regulated, via ensuring that services are identified in advance.
- The changes proposed are durable, with a process to be followed rather than a prescribed tool or method, allowing regulations to be durable as technology improves.

Stakeholders were generally supportive of the proposals, welcoming the clarity that they would bring. Transitional arrangements are to be determined.

Chapter 8: Conclusions

In this chapter we provide a summary of our analysis and overall conclusions. Individual chapters of this RIA should be referred to for further supporting details.

MBIE is pursuing reform to address central causes of harm

Improvements to regulations for working with plant, structures, at height and on excavations are being sought due to their pervasive role in New Zealand's workplaces and scale of associated harm. These activities are a factor in 79 percent of work-related fatalities (652 deaths between 2008 and 2019) and are areas MBIE has concluded warrant better protections for workers and others.

Better risk management is required

MBIE has determined from our regulatory review that risk management is not always properly carried out, resulting in workers and others being persistently exposed to avoidable risks. While it is apparent there are variations in practices across businesses, consultation responses confirm that best practice risk management is not consistently adopted. This is resulting in entrenched unsafe practices (such as inadequate guarding, and unsafe modifications of machinery and other types of plant) and continuing high rates of work-related harm.

Related secondary issues identified in consultation with stakeholders are that:

- There is insufficient consideration of the full range of work-related risks from plant, across its full life cycle (from purchase to disposal), and at the design, manufacturing, importing stage
- There are specific risks from plant (such as collisions) that are persistently not being well managed and cause significant harm
- There are large volumes of poor quality plant being imported without sufficient transparency over its safety
- Improved clarity and consistency of expectations is needed due to regulatory changes (eg the removal of the *Machinery Act 1950*) and the emergence of newer types of plant (eg elevating work platforms, as a new form of high-risk plant).

Risk management is core to the outcomes the HSW Act requires of duty holders, who in turn require adequate clarity on how to meet their obligations.

MBIE's view is that better regulations are needed for this to happen

Current regulations are outdated and have a number of gaps that need to be corrected. These regulations have not kept pace with the types of plant that are now in wide use (eg quad bikes and telehandlers), do not always align with accepted industry practices (eg in classes of scaffolding licensing awarded), and address only selected risks from plant. As a result, requirements the regulations set are not clear, consistent, or equitable for businesses and workers. Australia and the UK – as countries with much lower incidence of workplace harm (where fatalities are a half and a quarter of those in NZ, respectively) – have much more comprehensive regulations that provide more extensive coverage of the risks from plant.

Work-related harm continues to be high under current regulations and MBIE's assessment is that non-regulatory options (like increased guidance, or other forms of support for businesses) do not offer a suitable alternative. WorkSafe already supports businesses through a variety of interventions such as guidance, collaborative industry partnerships, and subsidy schemes exist (through ACC). Due to the ubiquitous nature of plant, both more widely spread and more intensive measures would need to be targeted due to the high costs of doing otherwise. Without regulatory change, workers and businesses will continue to face diminished clarity and unequal rules. New Zealand's work-related harm is anticipated to remain at comparatively similar levels if existing regulations remain.

Health and safety legislation has undergone significant modernisation and change recently. Unlike the prescriptive rules of the past, the HSW Act sets general duties that are performance-based. The compliance pathways for meeting these duties are not always clear, given the gaps that existing regulations – made under previous laws – contain. Because of this lack of clarity, workers and businesses are not well supported to comply and there will be weaknesses in how risks are managed and both non-conformance, and very conservative approaches can occur.

These proposed reforms further implement recommendations from the Royal Commission and Independent Taskforce in response to the Pike River Coal Mine tragedy.

Recommended reforms

In assessing potential improvements, we have adopted as a specific objective:

> to reduce New Zealand's high rates of work-related fatality and injury from working with plant, structures, at height and on excavations, and to reduce the harm to workers and the associated economic burden to New Zealand.

We recommend a package of regulatory changes to achieve this objective, based on Australian Model Regulations. We have adopted the Australian Model Regulations as a starting point because they are well tested, address common practices and problems, and are compatible with the HSW Act (which is based on Australian Model Law). By aligning with Australian Model Regulations, we can also draw from Australian case law developments and re-orient our rules to be closer to those of an economy with much lower work-related harm.

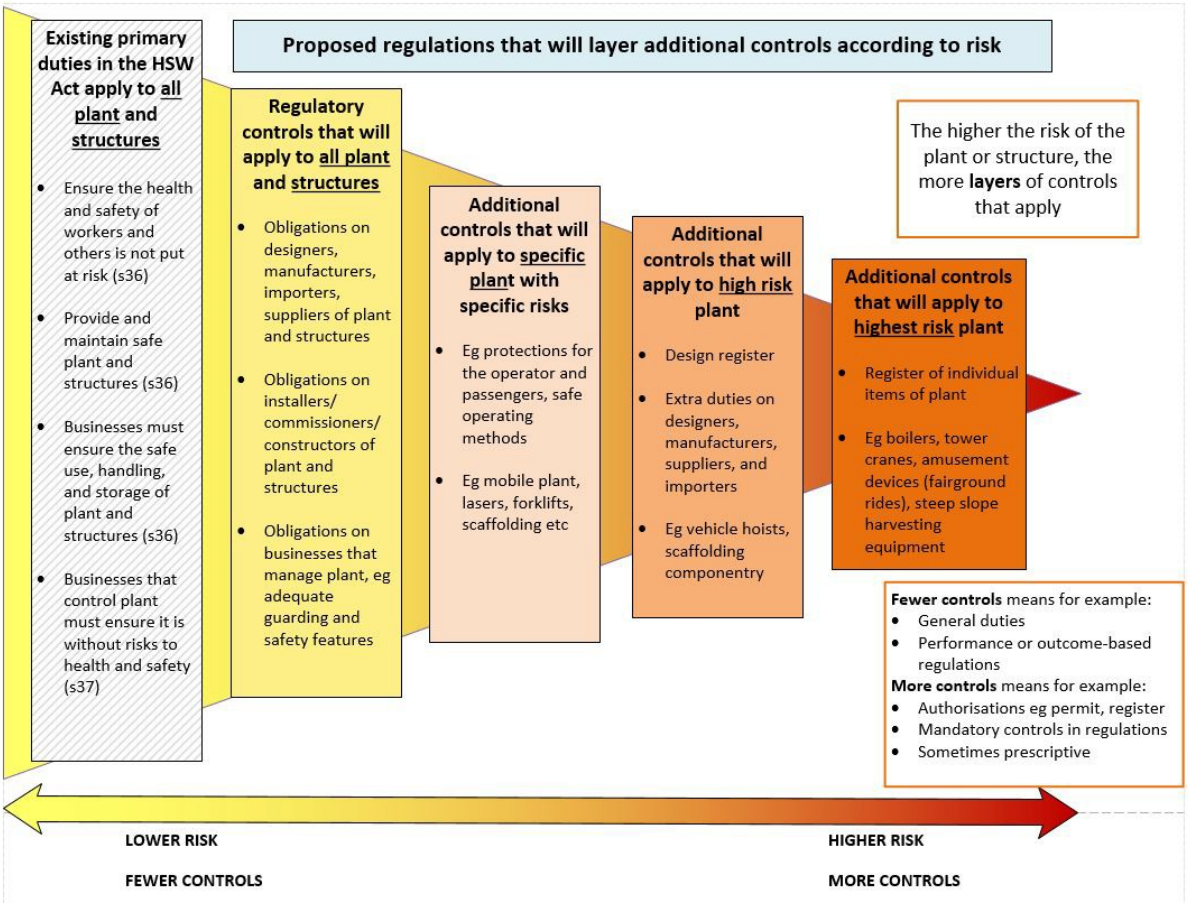
As with the Australian Model Regulations, the requirements recommended for introduction are proportionate, involving a layered series of protections, the highest of which are reserved for plant with the greatest risks (such as high pressure boilers, and tower cranes). As illustrated in figure 4, these protections build from the general duties of the HSW Act, and in general terms will require businesses to:

- provide and maintain safe workplace plant and structures, with central registration of designs and individual items of plant, and accredited inspection regimes for the highest risk plant such as amusement devices, pressure equipment, cranes and passenger ropeways
- ensure the safety of operators and passengers on mobile plant such as forklifts, through the adoption of appropriate safety devices and safe operating methods

- design, manufacture, import, or supply plant and structures that are safe for use in New Zealand workplaces, supporting PCBUs to comply with the existing duties in the HSW Act, by providing requested additional detail about how to comply
- ensure safe working at height and on excavations by providing a clear process to manage risk, using appropriate levels of controls for the risk of the work undertaken, with clearer and explicit controls to eliminate risk (eg mandatory check for underground services in excavations).

Figure 16 outlines this proportionate layering of controls for plant and structures according to risk.

Figure 16: How the proposed changes layer controls to manage risks



The package of changes recommended largely replace and modernise existing controls, or implement incremental change. Only a small proportion are wholly new, moderating overall costs as a result. MBIE's recommended requirements incorporate a number of adjustments from Australian Model Regulations that we have made in response to stakeholder feedback. These adjustments have been adopted to overcome practical challenges, improve cost effectiveness, and to retain what is working well currently (particularly with the regulation of high-risk plant).

The full set of specific requirements proposed for introduction is described in detail below and Appendix 3 in summary form.

General plant (Chapter 2)

What we want to achieve	Recommended proposals	What this means in practice
Appropriate guarding is used	• Requiring PCBUs to ensure appropriate guarding is used, as determined against a hierarchy of guarding measures – from permanently fixed barriers to interlocked guarding and presence-sensing safeguarding. [**A refined variant of consultation proposals, incorporating a revised hierarchy of guarding measures**]. • Requiring the PCBU to ensure: ○ guarding is solidly constructed, bypassing is as difficult as is reasonably practicable, does not create a risk in itself, and is properly maintained. ○ that hot and cold parts of the plant are guarded or insulated, so far as is reasonably practicable. ○ that guarding will control risks from broken or ejected parts and work pieces. ○ guarding is of a kind that can be removed to allow maintenance and cleaning at any time that the plant is not in normal operation, and if it is removed it cannot be restarted unless the guarding is replaced ○ if the need for operation of plant during maintenance or cleaning cannot be eliminated, operational controls permit operation only during cleaning or maintenance, by authorised persons, and in such a way that any risks can be eliminated or otherwise minimised. • Requiring PCBUs keep records (and make these available for inspection purposes) of safety integrity tests for presence-sensing safe guarding systems, and inspections, maintenance, commissioning, decommissioning, dismantling and alterations of the plant. • Requiring PCBUs to ensure: ○ plant with multiple emergency stops are the kind that prevent the plant from being restarted until the emergency stop is reset ○ an emergency stop is clearly marked, essential features are coloured red, and cannot be adversely affected by electrical or electronic malfunction ○ any operational controls are identified on the plant, appropriately located, and able to be locked off so as to disconnect from all motive power ○ any warning devices are positioned on the plant to ensure they are most effective ○ all reasonable steps are taken to ensure that safety features and warning devices are used in accordance with instructions, information, and training provided.	Mandatory layered processes for determining appropriate guarding that conform with prior Machinery Act requirements and AS/NZS Standards. Specific safety-by-design rules for guarding and emergency stops, to encourage increased ‘at source’ control measures. Specific duties requiring that the distinct risks of cleaning and maintenance are managed in line with specific guarding and operational requirements. Enduring records are kept of practices carried out to ensure presence-sensing safeguarding systems are maintained in good working order.

What we want to achieve	Recommended proposals	What this means in practice
Better management of the risks from plant throughout its lifecycle	• Require PCBUs to ensure: ○ The Prescribed Risk Management Process is applied to all health and safety risks from plant ○ A person who installs, assembles, constructs, commissions, or decommissions or dismantles is a competent person and is provided with the available information for eliminating or minimising risks to health or safety ○ Installation, construction, commissioning, decommissioning or dismantling plant includes inspection that ensure risks from the activities are monitored, so far as is reasonably practicable ○ Plant not being used does not create a risk to health and safety, so far as is reasonably practicable ○ Maintenance, inspection, and testing of the plant is carried out by a competent person. ○ Maintenance, inspection and testing of the plant is to be carried out with regard to the manufacturer's recommendations, so far as is reasonably practicable, or otherwise in accordance with the recommendations of a competent person, so far as is reasonably practicable, or otherwise annually inspected [**A refined variant of the consultation proposal, that is intended to better accommodate for circumstances where a manufacturer's recommendations are deficient]** • Prohibit PCBUs: ○ from commissioning the plant unless the person has established that the plant, so far as is reasonably practicable, is without risks to the health and safety of any person. ○ decommissioning or dismantling plant unless it can be carried out, so far as is reasonably practicable, without risks to health and safety of any person. • Require PCBUs to: ○ prevent alterations to or interference with the plant that are not authorised by the person responsible for management or control of the plant ○ ensure, so far as is reasonably practicable, that plant is used only for the purposes for which it was designed, unless the person has determined, in consultation with a competent person, the proposed use does not increase risks to health and safety	Risks presented by plant are required to be managed across all points of the lifecycle through broad-based control measures. The distinct risks of modifications and aging plant – as are prevalent in New Zealand workplaces – are adequately addressed.

What we want to achieve	Recommended proposals	What this means in practice

Better management of risks from plant that lifts or suspends loads	• For plant used for lifting or lowering or suspending loads, require PCBUs to ensure:
	  ○ the use of plant specifically designed for the purposes of lifting or suspending
	  ○ if using specifically designed plant is not reasonably practicable:
	  ▪ its use does not pose increased risks to health or safety (relative to the risks that specifically designed plant involve)
	  ▪ the use of an attached workbox, if workers are being lifted or suspended, featuring a safety harness and exit, with certain exclusions for tree lopping (see below for fuller details).
	  ○ the plant is used in accordance with its design capabilities, including through the use of suitable lifting attachments and adherence to safe working limits
	  ○ loads are not lifted over a person unless allowed for by its design
	  ○ loads remain under control at all times
	  ○ no load is lifted simultaneously by more than one item of plant unless permitted by the rated capacity of the plant.
	
	• Certain exclusions will apply in the case of plant used for the purposes of stunt work, acrobatics, and theatrical performance. For requirements regarding the use of work boxes, the provisions will in certain circumstances allow for an alternative approaches to be adopted for tree lopping. The instances where this will be permitted are where:
	  ○ crane and safety harnesses are able to be confirmed through risk assessment as providing a safer alternative
	  ○ the relevant person is competent in using a harness
	  ○ the crane features safety mechanisms to prevent inadvertent falling while attached to the crane
	  ○ the worker is in visual, audio or radio contact with the crane operator
		'At source' control measures are encouraged, by the preferential standing the requirements place on 'safety-by-design' measures.
		
		Alternative means of compliance will be allowed for in certain circumstances (such as tree lopping, and theatrical performances), to ensure proportionality is achieved.

What we want to achieve	Recommended proposals	What this means in practice

The risks of lasers are effectively managed	• Require PCBUs to ensure laser equipment:
	  ○ intended for use on plant is designed, constructed and installed so as to prevent accidental irradiation
	  ○ on plant is protected so the operator or any other person is not exposed to direct radiation, radiation from reflection or diffusion or secondary radiation
	• Require PCBUs to ensure visual equipment used for observation or adjustment of laser equipment on plant does not create a risk to health or safety from laser rays
	• Require PCBUs to ensure operators of laser equipment are trained in the proper operation of the equipment.
	[**A refined variant of consultation proposals, which discounts usage prohibitions for specified classes of lasers]**
		Introduces a new duty requiring the specific and distinct risks of lasers to be catered for in plant design, and its operation. In doing so, sets a baseline for safety ahead of expected future growth in uptake.

Mobile plant (Chapter 3)

What we want to achieve	Recommended proposals	What this means in practice

Key risks of mobile plant are effectively managed	• Require PCBUs to ensure the PRMP is applied to specific risks from mobile plant (ie overturning, falling objects, being thrown from the plant, mechanical failure of pressurised elements, and collisions)
	• Require PCBUs to ensure, so far as is reasonably practicable, that a suitable combination of "operator protective devices" is provided, maintained and used
	• Requiring PCBUs to ensure, so far as is reasonably practicable, collision risks are managed through:
	  ○ An adequate field of vision and the provision of appropriate visual aid devices, and
	  ○ The use of suitable warning devices, such as warning lights and / or alarms ***[A refined variant of consultation proposals which discounts an express prohibition on collisions]***
	• Requiring PCBUs to ensure that no passengers ride on mobile plant unless the passenger is provided with protections at least as high as those of the operator ***[A refined variant of consultation proposals that does not preclude greater protections for passengers, and discounts express passenger bans on plant not intended for that use]***
		Introduces consistent, proportionate rules for addressing prevalent causes of harm, with current wide-ranging exemptions removed to address anomalies with general HSW Act duties.
		
		Sets adaptable requirements, with a low level of prescription, informed by individual workplace risk assessments.

The heightened risks of forklifts are better managed	• Requiring PCBUs to ensure forklifts have lifting attachments suitable for the load • Requiring PCBUs to ensure the operation of a forklift in a manner that ensures the risks that arise from systems of work and the environment for use are eliminated, so far as is reasonably practicable, or otherwise minimised. [***A refined variant of consultation proposals that discounts certain duplicate aspects of Australian Model Regulations***[66]]	Introduces a set of balanced requirements, encompassing operational and safety-by-design elements, that responds to high levels of observable harm.

[66] In particular requiring PCBUs to ensure that the forklift is not used to carry passengers unless it is designed to carry a seated passenger and the passenger seat is fitted with suitable seat restraints and located within the zone of protection provided by any operator protective device.

Upstream duties (Chapter 4)

What we want to achieve	Recommended proposals	What this means in practice
Ensure that adequate information is shared between PCBUs, and the information is acted on. Improve the understanding of upstream duties by PCBUs. Ensure that alterations do not create risks to health and safety. Improve the quality of imported plant.	• Require a designer to provide a manufacturer with specified information about the design of the plant, and require a manufacturer to take reasonable steps obtain that information from the designer • Require an importer and a supplier to take all reasonable steps to obtain the information from the designer • Require manufacturers and importers to ensure plant is manufactured, inspected and tested in accordance with the information provided by the designer • Require PCBUs requesting or ordering new designs of plant to provide designers with information about reasonably foreseeable risks and hazards at the workplace where the plant will be used or that could arise from the intended use of the plant **[an addition to the AMR]**	This introduces processes for upstream PCBUs to share information with other duty holders, and describes the type of information that must be shared. The requirements are across the range of upstream duty holders and are complementary – where the designer is required to provide information to the manufacturer, the manufacturer is required to seek that same information from the designer. It applies where plant is designed and manufactured outside New Zealand, by requiring the importer or supplier to take all reasonable steps to obtain information equivalent to what would be provided should the plant have been designed and manufactured in New Zealand. 'A The reasonable steps to be taken will depend on the circumstances. This will help to improve the quality of plant, including imported plant.
Ensure that adequate information is shared between PCBUs, and the information is acted on. Improve the understanding of upstream duties by PCBUs. Improve the quality of imported plant.	• Require designers, manufacturers and importers to take action to eliminate, or, where elimination is not possible, minimise, hazards that are identified as part of their role, and to consult with the designer where possible	This introduces processes for upstream PCBUs to identify and resolve hazards during manufacture, or import. It also includes processes for duty holders to work with other duty holders to address hazards. This will work with the provisions in the general plant chapter to improve the quality of plant, including imported plant.

What we want to achieve	Recommended proposals	What this means in practice
Improve the quality of secondhand plant.	• Require suppliers of secondhand plant to, so far as is reasonably practicable, identify faults in the plant and to give that information in writing to the person being supplied the plant. Note that this will not apply to suppliers of secondhand plant being sold 'as is' because this is excluded from the section 42 duty on suppliers in the HSW Act **[a necessary modification to the AMR, given how the HSW Act differs from the Model Law]**	This will create a process for PCBUs to share information, and mean that the person purchasing secondhand plant for use in a workplace will either: - know about the faults in the plant because they have been given that information by the supplier, or - know that they must seek that information themselves, because they have not been provided that information by the supplier (where the plant has been sold 'as is').
Ensure that safety features are designed appropriately.	• Where safety features (specifically guarding, operational controls, emergency stops and warning devices) are included as a control mechanism on plant, require designers and manufacturers to meet minimum standards for these safety features	This requirement will complement and support the requirement in the general plant chapter for plant to have these safety critical features, by setting minimum standards that the designer and manufacturer must meet. Requiring these features to be included at the design stage, means that PCBUs who purchase the plant for use in their business do not have to retrofit safety features (which is often more expensive and less effective).
Improve the understanding of PCBUs of how to fulfil their duties in relation to structures, by providing processes to follow.	• Require installers / constructors / commissioners of structures not covered by the Building Act to have regard to information provided by upstream PCBUs or the instructions provided by a competent person • Require PCBUs requesting or ordering new designs of structures not covered by the Building Act to provide designers with information about risks and hazards at the workplace where the structure will be used, or that could arise from the intended end use of the structure **[an addition to the AMR]**	These requirements will make it clearer how upstream duty holders can fulfil their duties in relation to structures by setting out a process to share and use information. It responds to the feedback from stakeholders that they are unsure how to fulfil their duties in relation to structures.

High risk plant (Chapter 5)

What we want to achieve	Recommended proposals	What this means in practice
Addressing gaps in coverage and conformity with current regulations	• Combine two sets of existing regulations for consistent coverage and processes and extend coverage to new types of machinery	Consistent risk assessment, design verification, registration and inspection standards for existing and new classes of equipment Retain existing accreditation for inspection bodies and inspection personnel
Improve transparency and consistency of application of the regulations, particularly for serially produced equipment	• Require registration of designs of certain high-risk plant on a central register	A new duty on suppliers and PCBUs who manage or control a workplace to only supply or use design registered plant of particular types Requiring design verification by an independent design verifier approved by Engineering NZ, or a recognised overseas body, or design registered in an Australian state Including new classes of equipment for design registration only Requiring design registration as a prerequisite for registration of new classes of items of plant
Improve transparency and consistency of application of the regulations, particularly for serially produced equipment	• Require registration and inspection of specified items of plant	Duty on operators of specified types of plant to register each item and ensure it is inspected as under current regulations Requiring design registration as a prerequisite to item registration, or an overseas design registration or verification process after consideration of seismic performance and other relevant factors by an accredited CPEng Including new classes of equipment for item registration

What we want to achieve	Recommended proposals	What this means in practice
Improve transparency for system participants and the regulator	• Recognising operators of large-scale bespoke pressure equipment systems to operate without central design or item registration **[a modification from the consultation proposal, and an addition to the AMR]**	Allows regulator to access records and require reporting of content of records, as well as notifiable incidents Provides for auditing of compliance by accredited independent auditor. Allows granting of recognition on a consistent and equitable basis and according to criteria contained in regulations
Clarifying standards for plant and structures, and improving consistency of application of standards	• Requiring territorial authority permitting of only higher-risk portable amusement devices	Reduce the workload and costs of territorial authorities by limiting permits to temporary rides with a risk rating of 3 or above (as determined under AS 3533 and included in the certificate of registration for the amusement device) Regulations to provide for Safe Working Instruments to be published by WorkSafe to aid TAs in the application of the regulations in issuing permits and encourage consistent practice. Fees will be increased to allow cost recovery and ensure TAs are not discouraged from maintaining the role.
Clarifying standards for plant and structures, and improving consistency of application of standards	• Retaining MEANZ operated certification scheme for model engineering amusement devices, with new audit requirements	Improve audit standards and processes of MEANZ by requiring it to be accredited as an inspection body under the regulations MEANZ is able to authorise clubs to complete their own regular inspections and inspect the equipment of club members and ensure that it is operated safely.

Work at height (Chapter 6)

What we want to achieve	Recommended proposals	What this means in practice
Improved safety when working at height	Require the Prescribed Risk Management Process for all work at height, in all industries.	The PRMP must be followed for all work at height, providing a clear baseline process to support risk management.
Better protection for work at height, in order to reduce the level of harm in construction work	Require a mandatory hierarchy of controls to be followed for work at height in construction work[67].	Requires the provision of: • a safe working platform (eg tubular scaffold or elevating work platform etc.), or, if not reasonably practicable, • fall prevention (eg edge protection, or railing on a sloping roof), or, if not reasonably practicable, • fall arrest (eg static line and harness, or nets).
Reduce misunderstanding and allow less expensive control measures for low risk work at height	Moving outside the hierarchy of controls in construction work in specified circumstances, through applying ladder work rules. Hierarchy in place clarifies that options beyond scaffolding can be acceptable.	Where there are low risks, allowing some work from a ladder, outside the hierarchy of controls in construction work.
Improve clarity and coherence of mandatory controls for work at height, including scaffolding qualification	A single height threshold, based on the height of the working platform, at which notification and licensing construction requirements apply to scaffolding Move to 4 levels (elementary, intermediate, advanced and suspended) for erection of scaffolding, with an additional inspection only certificate. Shift from Certificate of Competence to High Risk Work Licences.	The same height threshold applies to both regulatory requirements. High Risk Work licences will replace existing certificates of competence, and align with current industry practice and the Qualifications framework.

[67] The definition of Construction work is being revised, to move in line with the Australian definition, removing cleaning and some electrical work.

Excavations (Chapter 7)

What we want to achieve	Recommended proposals	What this means in practice
Improve safety when working in excavations	Require the PRMP for all work in excavations.	The PRMP must be followed for all work in excavations, providing a clear baseline process to support risk management.
Refining the existing explicit thresholds for mandatory controls of shoring, fencing, and notification at a depth of 1.5m.	Retain 1.5m explicit thresholds with exemptions Require a competent person to determine whether the ground is of good standing to meet exempted circumstances.	When an excavation is 1.5m in depth, PCBUs must shore the excavation, fence, and notify WorkSafe, except for exempted circumstances where the risk is not present as a result of the slope and structure of the ground.
Reduce electrocution and line strikes	Require the PCBU with site control to check for underground services.	PCBU must use an appropriate method and have evidence of knowledge of underground utilities before excavating.

Application of the requirements

Generally we recommend these requirements are made to apply broadly and with limited exceptions, as supported by the majority of submitters.

MBIE's objectives, which has guided our selection of recommended options, is to set requirements that are clear, effective, proportionate, flexible and durable, and that do not impose unduly high costs. As innately flexible requirements, that primarily specify expected outcomes or processes rather than prescriptive rules, MBIE's view is the requirements should apply broadly to enable this aim to be met.

The limited circumstances where a different approach will be taken relate to:

- non-military aircraft, for which the regulations will only partially apply, on the basis of the extensive protections that Civil Aviation Rules already provide
- vessels, for which the regulations will provide certain exclusions for vessels and integral mechanical equipment subject to Maritime Rules, to avoid undue duplication
- lifting plant, for which proportionate rules will apply for tree-lopping, acrobatics, stunt work, and theatrical performances
- manually-powered hand-held tools, which will be exempted from the requirements, to ensure proportionality to the risk
- military aircraft, and Naval ships which will be subject to an alternative compliance pathway, set by defence order.

In a number of instances, Land Transport Rules will take precedence in what they require for mobile plant protections – to avoid unnecessary duplication or conflicting requirements.

The current exemptions for high-risk plant on ships and aircraft, including military ships and aircraft, will continue to apply.

Process of consultation

Plant, structures, work at height and on excavations are relevant to almost all workers and workplaces. An open and proactive process of consultation was carried out in recognition of the widespread interest this ubiquity generated in the review, including MBIE-convened workshops across different centres (Auckland, Wellington, Hamilton, Invercargill, Christchurch, Ashburton, and Rotorua). Further sessions were also held by external stakeholders, such as Scaffolding, Access and Rigging New Zealand (SARNZ) whose submission was informed from a series of workshops and member surveys. MBIE's consultation was advertised using a variety of different means, from social media through to industry partner (eg Construction Health and Safety NZ (CHASNZ)) led processes.

Consultation was carried out in three stages: targeted stakeholder engagement to inform the initial scoping of the review and the discussion document, followed by an extended period of public consultation and stakeholder forums – held from July–October 2019, and further additional targeted stakeholder sessions held to discuss specific points of detail raised in submissions. MBIE also worked closely with WorkSafe as the primary regulator, to access WorkSafe's specialist input and advice.

The public consultation generated 172 written submissions representing a broad range of interests and sectors. The submissions process in conjunction with the various dedicated stakeholder sessions held ensured a good depth of stakeholder participation overall.

Stakeholder views

Consultation has shown a high level of support for the proposals for plant and structures, and broad acceptance by stakeholders that the Australian Model Regulations offer the best foundation for new regulations.

The additional clarity and detail provided by the proposals on the obligations of PCBUs attracted broad support, across business and worker groups alike. Echoing this sentiment, the NZCTU, for instance, fed back that:

> Our submission is in support of a strong framework of regulation for plant, structures, and working at heights…Our concern is that when health and safety practices are left to the industry to develop in isolation from guiding regulation, then codes of practice and guidance will often serve business interests over the health and safety of those in the system.

Submitters generally agreed that risk management practices are a central weakness, with poor quality imported plant, deficient guarding, maintenance, and risk management a particular focus of many submissions. An additional underlying theme confirmed through submissions is the age of plant in New Zealand, and the importance of regular and thorough inspection and maintenance to maintain safety. Most plant is sourced from overseas, and often purchased secondhand and/or modified when installed in workplaces. There was therefore strong support for retaining inspection practices and competencies under current regulations and codes, while improving consistency and filling gaps in coverage (as enabled by proposals pertaining to **high-risk plant** - discussed in chapter 5 and **life-cycle risk management requirements for general plant** – discussed in chapter 2). There was also strong support for **new duties for upstream designers, manufacturers, importers and suppliers of plant** (discussed in chapter 4) – as a means of achieving better balance in the way responsibilities are assigned across the supply chain and to aid early safety interventions 'at source'.

In response to the consultation proposals, submitters frequently commented that "we do this anyway", particularly from those with responsibility for high risk plant, indicating that costs can be expected to be only marginal.

The consultation generated some mixed responses on selected matters, as discussed in the table below:

Proposals disputed	MBIE position
Adoption of mandatory requirements	MBIE does not support further weakening of the regime by changing to non-regulatory interventions, due to the continuing high level of risks and harm.
Making processing and other ancillary machinery on vessels subject to general machinery requirements unless covered by more specific Maritime Rules	MBIE supports the inclusion of machinery on vessels in requirements for guarding and related requirements, to maintain equity by ensuring seagoing workers have the same protections as those on shore.
Discontinuing current exemptions from operator protective devices	MBIE supports the removal of exemptions, to address anomalies with general HSW Act duties and to ensure consistency and equity for workers.

Making operators of high risk large-scale plant subject to central registration	MBIE supports exemptions from central registration subject to an audit requirement, as a more proportionate response.
Including steep-slope harvesting equipment as high risk plant that requires registration and inspection under the regulations	MBIE supports inclusion of these types of equipment in the regulations because it will provide the required consistency in technical standards and inspection practices.

A number of submitters provided constructive, technical advice on how the regulations could best cater to the specifics of different industries or classes of equipment. We will make use of this advice at the drafting stage of formulating regulations.

Cost impacts

The preferred proposals have been chosen based on the criteria of reducing the level of harm while taking into account good practice in industry, to ensure that any regulatory reform is effective without placing undue cost burdens on businesses. From the Australian experience, we are confident that the regulatory system we are working towards in these reforms will lead to improved outcomes. We have a good evidence base, from detailed WorkSafe reporting on the rate of work-related harm, broken down into categories by cause of harm, which will assist us in determining the effectiveness of these proposals in reducing harm over time.

We sought detailed cost information through the consultation. As the proposed reform touches on a wide variety of plant, practices, industries and types of work where costs will differ based on the businesses involved, it was important that submitters inform us of their expected costs. In most cases, there was little detail provided on additional costs of the proposals, as the companies submitting were often already following good practice guidelines and in fulfilling their general duties under the Act, and protecting workers in a way that is consistent with the proposed requirements. In other cases, submissions indicated that there would be additional costs, though this would have a commensurate safety benefit, or be balanced with savings of other costs. Precise, monetised costs on these changes were generally not available. MBIE has carried out its own assessments of indicative costs where possible to improve our understanding of impacts. In some cases, companies indicated that proposals as consulted on would have had a large cost to their business, with no significant benefit, as the new requirements would have duplicated existing processes. We have adapted proposals to ensure that we are still achieving health and safety benefits without imposing unreasonable costs, most notably with some high-risk plant through recognising operators of large-scale bespoke pressure equipment.

Overall, we conclude while these proposals will impose modest costs on a range of businesses, the costs are reasonable for the improvements in health and safety outcomes that we expect.

Expected impacts on rates of harm

As the proposed regulations are based on Australia's model regulations, we have looked to corresponding Australian rates of harm as a means of approximating – at an indicative level – how rates of harm may evolve in New Zealand as a result of the reforms. Our projected rates are based on average annual work-related fatalities and serious injuries in Australia for the years 2016 to 2018. This aligns with the period in which the HSW Act has been in place.

Plant and Structures Fatality and Serious Injury Projections

Sector	New Zealand work-related fatalities per 100,000 workers, 2016-2018 average	Projected new rate (indicative)	New Zealand serious work-related injuries[68] per 1000 workers, 2016-2018 average	Projected new rate (indicative)
Agriculture, forestry and fishing[69]	12.17	Marginally reduced ↓ 12%(10.87) [70]	19.53	↓ 10% (17.63)
Construction	3.51	↓ 23% (2.7)	20.83	↓ 25% (15.67)
Manufacturing	2.17	↓ 25% (1.63)[71]	24.53	↓ 25% (18.4)
Transport, postal and warehousing	12.45	↓ 25% (9.34)	23.08	↓ 25% (17.31)
Average for specified sectors	**7.57**	**↓ 17% (6.14)**	21.99	↓ **22% (17.25)**

Our projections show that a transition to regulations based on the Australian Model will have an overall positive effect on work-related fatalities and serious injuries in New Zealand. At an aggregate level, fatalities are projected to decrease by 17 percent, while serious injuries are projected to decrease by 22 percent.

With regards to agriculture, forestry and fishing sector fatality rates, a materially higher initial base of (population-adjusted) fatalities in Australia (14 per 100,000 workers vs. 12.17 for New Zealand) limits the comparability of the statistics. A marginal reduction (indicatively in the order of 5 percent) has been inferred on this basis. The observable downward trend in Australian fatalities (see figure 8.1) provides a level of confidence that positive measurable improvement will result.

These revised estimates lead to an estimated impact of a total of just over nine lives saved per annum, with an economic value of just over $43 million per annum based on fatalities avoided.

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[68] Resulting in more than 1 week away from work.

[69] The New Zealand fatalities data combines the categories "Agriculture, Forestry and Fishing Support Services", "Agriculture", and "Fishing, Hunting and Trapping" used by WorkSafe.

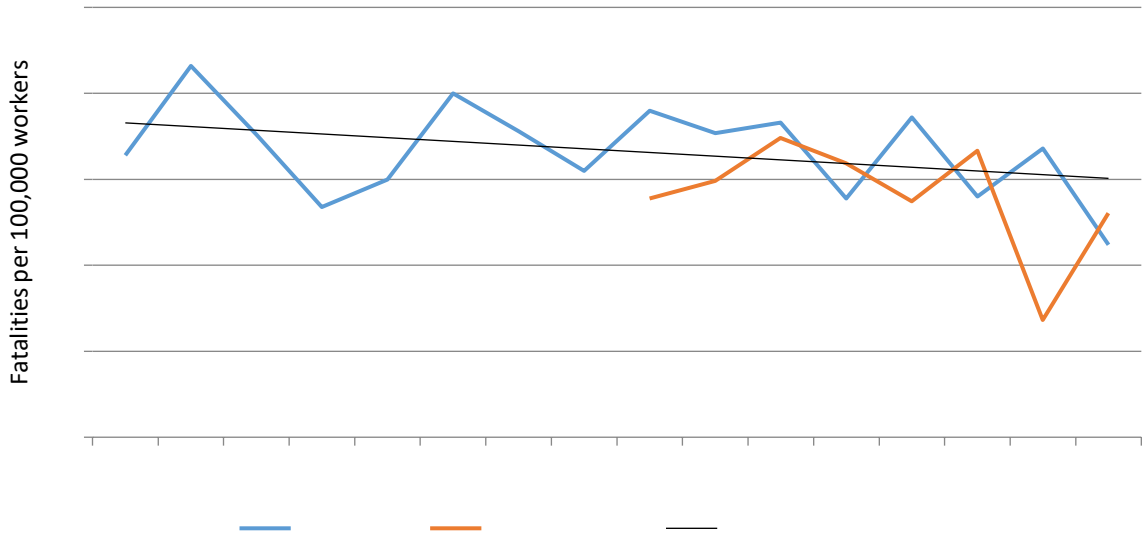
[70] Percentages in this table have been rounded to 0 decimal places.

[71] As raw estimates, fatalities and injuries:

- for the manufacturing sector were projected to reduce by 55.5% and 37.7%, respectively.
- for the transport, postal and warehousing sectors were projected to reduce by 42.7% and 36.3%, respectively.

We have adjusted these estimates down, in recognition of the significance of the difference, to an indicative value of 25%.

Figure 17: Work-related fatality rates, 2003-2018 (available data).



Summary table of costs and benefits of the preferred approach

An overview of MBIE's analysis of expected costs and benefits is set out in the table below.

Our analysis adopts a largely qualitative approach, to overcome the practical challenges of a quantitative assessment. For costs in particular, the requirements do not lend themselves to monetised overall estimates, as flexible performance and process-based requirements rather than prescriptive 'one size fits all' rules. Benefits are similarly difficult to quantify from available data across the interrelated proposals individually.

MBIE's assessment indicates that benefits – indicatively estimated to be approximately $43m p.a. – will counteract costs by a significant margin. Our assessment assumes compliance from the majority of businesses with the changes.

5.2 Summary table of costs and benefits of the preferred approach

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Additional costs of proposed approach compared to taking no action			
Workers	No direct costs anticipated (whether ongoing or on-off), as businesses will be the duty holders responsible for making and meeting the costs of the changes. There could be some marginal costs, depending on the particular business response, as an indirect result of the changes (eg from reduced work hours, to mitigate any business costs unable to be absorbed). It is not apparent that higher costs will likely result for workers from submission responses, however.	Nil / low costs.	Medium, given MBIE's extensive consultation feedback and MBIE's own analysis of illustrative costs.
Wider society	No direct costs expected (ongoing or one-off). There could be some marginal ongoing costs, if business cost pass occurs, though we do not have any clear evidence from submissions to indicate such costs will arise.	Nil / low costs.	Medium, given MBIE's extensive consultation feedback and MBIE's own analysis of illustrative costs.

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Owners and users of plant and structures (businesses and wider organisations)	Variable, depending on the type and safety of plant that is used. Costs (upfront and/or ongoing) are mainly anticipated low-level and operational (ie additional training, inspection, and engineering services, with some minor registration/documentation requirements where high-risk plant is involved). There will be initial capital costs in selected circumstances – where equipment requires alteration or replacement. Costs for different new types of high-risk plant covered are listed in the options analysis section of chapter 5.	Generally low costs, though these are anticipated initially to be higher: • for the agricultural sector, from proposed changes to requirements for operator protection for mobile plant • for the manufacturing, retail, warehousing, and transport sectors through new requirements on businesses to manage the risks of collisions. • for owners/operators of types of high-risk plant, through new and ongoing inspection and registration costs.	Medium, given extensive consultation feedback and MBIE's own analysis of illustrative costs.
Suppliers of plant	Some new periodic costs for design verification and registration of new types of high-risk plant. Costs (upfront and ongoing) will be in proportion to the scale of machinery. For all classes of machinery there will some reduction of costs through increased availability of design verification expertise and scope to use Australian or other design registrations where appropriate.	Low costs.	Medium, given MBIE's thorough consultation.

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Purchasers of plant	Purchase costs expected to marginally increase, flowing from quality improvements being recovered from cost pass through.	Low costs.	Medium, given MBIE's thorough consultation.
Sector and professional engineering groups	Some periodic recognition and new ongoing training costs for engineers choosing to extend their scope of practice into new types of machinery. Costs will be recovered through fees.	Medium costs.	High – based on close consultation, which is continuing.
Government and WorkSafe as primary health and safety regulator	Initially, WorkSafe anticipates fully absorbing the following implementation costs: • Confidential advice to Government, Free and frank opinions • Approximately $8 million in general implementation costs (eg new staff costs, and to fund the provision of practice tools, guidance and promotional campaigns). Confidential advice to Government, Free and frank opinions	Medium costs.	Medium – with costings to be revisited following further consultation on high-risk plant registers.

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Local territorial authorities	No material costs expected (one-off or ongoing).	Nil / low costs.	Medium, based on MBIE's thorough process of consultation.
Total Monetised Cost		• Confidential advice to Government, Free and frank opinions • Confidential advice to Government, Free and frank opinions	Medium, with costings for high risk registers to be revisited following further consultation.
Non-monetised costs		Low.	Medium – from MBIE's thorough process of consultation and analysis of illustrative costs.

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Expected benefits of proposed approach compared to taking no action			
Workers	Major beneficiaries of expected ongoing reductions in work-related harm – whether in terms of avoided losses in earnings, costs of disability or reduced quality of life. Also expected to benefit more generally from increased clarity on the protections they can expect in the work place.	High benefits – projected to result in $43 million p.a. in ongoing benefits from avoided deaths from acute injuries alone.[72]	Medium – from evidence of Australian outcomes.
Wider society	Families and wider communities, who also bear the costs of worker fatalities, injuries and work-related ill health, are also set to benefit from avoided harm. Public safety benefits for users of amusement devices and others using or coming into contact with other types of high-risk plant.	High benefits – plant and structures lead to a significant corresponding share of the $2 billion or more annual estimated social burden of work-related injury and disease.[73]	Medium – from evidence of the overall scale of the impact.

[72] From MBIE's projected reductions in work-related fatalities resulting from the changes, based on the reduced levels of harm in Australia. Excludes benefits from reduced ill-health and non-fatal injuries, due to the complexities involved in quantifying these.

[73] These are overall cost estimates, addressing the harm caused by injuries and ill health – from plant, structures, work involving excavations and heights, and other causes. We have not adjusted these estimates to correct for the double-counting of certain benefits also factored into MBIE's $43 million annual benefits estimated from the changes

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Owners and users of plant (businesses and other organisations)	Set to benefit from: • Avoided productivity and profitability losses, from reduced staff turnover, less lost work time, avoided shutdowns, and avoided reputational damage • Increased clarity and consistency of expectations, with reduced under and over compliance For high-risk plant operators additional benefits are also expected from an associated deepening of specialist engineering expertise from the new requirements (that include new procedures for design verification, and risk based inspection methodologies and improved consistency of inspection requirements for different classes of equipment).	High benefits.	Medium, given MBIE's robust process of consultation and from evidence of the scale of work-related harm currently.
Purchasers and suppliers of plant	Set to benefit from improved plant quality, across new and secondhand plant.	Medium benefits.	Medium, given MBIE's robust process of consultation.
Sector and professional engineering groups	The changes will support further development of engineering expertise in design and design verification, and inspection practices for existing and new types of plant and structures. Will support improved communication of solutions to engineering issues and problems with high risk plant.	High benefits for design and inspection professionals. There has been a high level of interest and support for changes from these groups.	High – MBIE and WorkSafe have consulted and are continuing to work closely with relevant professional groups and specialist groups for different types of plant.

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
WorkSafe as primary health and safety regulator	The changes provide a strengthened platform for WorkSafe to achieve reduced harm from work by: • Enhancing clarity for PBCUs as to expectations for managing the risks of plant and structures • Giving WorkSafe an improved regulatory framework to enforce against Improving WorkSafe's oversight of design and maintenance of high-risk plant.	High benefits.	High – as confirmed by WorkSafe views and evidence of Australian outcomes.
Government	Set to benefit on an ongoing basis from significant avoided costs, for example to the health, rehabilitation, compensation and welfare systems, of work-related ill-health and injuries (immediate, and long-term) and as New Zealand's largest employer.	High benefits – MBIE's estimates of social costs of work-related injuries and disease, incorporating fiscal costs, are approximately $3.5 billion per annum currently.[74]	Medium – from evidence of the overall impact.
Local territorial authorities	Sets proportionate permitting requirements – for high-risk mobile amusement devices only. Current fees ($10 base rate, and $2 and $1 for additional charges) were set in 1978 – increasing these (indicatively to $90, $18 and $9, as preliminary estimates) will be consulted on further.	High benefits – with an estimated 80 percent reduction (from 345 to approximately 69) expected in numbers of devices requiring permitting.	High – estimated from recorded register information.

[74] Overall estimates, not specific to plant, structures, or work involving excavations or heights. See also footnote 71 for further discussion.

Affected parties *(identify)*	**Comment** *Nature of cost or benefit (eg, ongoing, one-off), evidence and assumption (eg, compliance rates), risks*	**Impact** *$m present value where appropriate, for monetised impacts; high, medium or low for non-monetised impacts*	**Evidence certainty** *(High, medium or low)*
Total Monetised Benefit		$43 million annually (indicatively), resulting from reduced work-related deaths from injury.	Medium – from evidence of Australian outcomes.
Non-monetised benefits		High.	Medium from evidence of the overall scale of the impact, and MBIE's robust process of consultation.

Further detailed information on the impacts expected are outlined below.

Population impacts

Harm from plant and structures is not equally distributed across ethnicities or gender, and there are certain groups that proportionately higher benefits are anticipated for as a result.

As groups who disproportionately tend to suffer work-related harm, Māori and males are expected to benefit more from the changes relative to the population at large, with a corresponding closing of the gap expected in poor health and safety outcomes between ethnicities and genders as the level of harm reduces.

Māori workers have been over-represented in high risk sectors and, are, based on worker exposure surveys, more likely to be exposed to certain physical risks at work. Worker exposure surveys have had particular focuses on Maori, with less detail on other ethnic groups. Even accounting for the differences in sectors, Maori are over-represented in work-related harm statistics. Standardised for industry, 13.5 per 1,000 Māori workers suffered an acute injury that caused them to miss more than a week from work, compared to 9.6 for non-Māori in 2018.[75]

Work-related harm is particularly prevalent amongst males. Over the 5 years from 2015–19, 288 of the 318 people who died in an incident (91 per cent) involving plant and structures were male.

We also anticipate particularly significant benefits for migrant and Pasifika workers, on the basis of:

- their increased exposure to poor health and safety outcomes, as confirmed by research[76], and ACC injury data
- MBIE's consultations addressing issues of migrant exploitation – which have raised that migrants felt uncertain raising issues related to Health and safety risks in the workplace.
- specific vulnerabilities of Culturally and Linguistically Diverse (CALD) workers, eg that studies have found likely to be more inclined to resist speaking up.[77] The revised regulations will provide greater clarity on processes to be followed and/or protections that should be in place, assisting CALD workers and others to feel more empowered in raising their health and safety concerns.
- employment statistics, such as data indicating that a higher proportion of Pasifika workers are in trades or work as labourers.

People in rural communities will be one of the groups most affected by the changes, with plant and structures used extensively across the agricultural sector and certain existing regulatory exclusions (most notably, excluding quad bikes and other vehicles under 700 kg currently from roll over protections) expected to be removed. We have actively engaged with the rural community – through the consultation and associated sector meetings – to improve our understanding of perspectives on the changes proposed. MBIE has adjusted aspects of original proposals in response to feedback, and some of these changes will mitigate costs for

[75] Available at: https://www.worksafe.govt.nz/dmsdocument/30158-new-zealand-health-and-safety-at-work-strategy-outcomes-dashboard/latest

[76] Eg providing evidence of high rates of injury for Filipino construction workers in the Canterbury rebuild.

[77] Health and safety regulators in a superdiverse context: Review of challenges and lessons from the United Kingdom, Canada, and Australia

affected stakeholders, including those in rural communities. We will also be further consulting on transition timeframes, to allow more detailed assessment of the way changes can be appropriately phased, given the transition costs they will involve.

Throughout the engagement process, agricultural workers and health and safety experts highlighted that farmers can feel particularly disenfranchised by their limited ability to influence the type of plant the comes into the country, and subsequently, is available to purchase. This was noted as a particular concern for small farms.

We expect that the upstream duty requirements will support moving the management of risks to earlier in the design process. This should help ensure that the quality of plant available increases over time, and make it easier farmers to comply with requirements both their existing requirements as PCBUs, and the new proposed requirements.

Other proposals have been disregarded, in response to stakeholder concerns. For instance, MBIE also consulted on prohibiting passengers on mobile plant unless designed for that purpose. Following consultation, MBIE considered that the risks to passengers can be managed through a less inflexible requirement.

The monitoring and evaluation approach will further consider how the regulations affect the health and safety outcomes for population groups that have faced a disproportionate share of harm.

Wider societal impacts

Large societal benefits are expected from the changes. We anticipate benefits for:

- Workers, from avoided costs of injury (whether in terms of lost earnings, costs of disability, or reduced quality of life), and more generally from improved clarity over how they can expect to be protected while at work
- Businesses, for whom work-related injuries and ill-health of their workers can substantially impact on productivity and profitability by driving:
    - staff turnover
    - short or long-term site shutdowns following incidents
    - negative reputational impacts for businesses and industries.
- Businesses, in addition, are expected to benefit from improved plant quality, and a further deepening of specialist engineering expertise from high-risk plant requirements (that include, as one element, new procedures for design verification).
- Government which bears a substantial part of both immediate and long-term costs of work related injuries and ill-health through the health, rehabilitation, compensation, and welfare systems, while also bearing the potential costs of poor outcomes as New Zealand's largest employer.
- Families and wider communities, that also bear the costs of worker fatalities, injuries and work-related ill-health.

The social burden of work-related harm is significant and is currently generating an estimated $2 billion to $3.5 billion per annum in economic costs to society per annum.[78] Given the significance of the harm plant and structures causes, the improvements we are anticipating in the way that risks are managed are expected to lead to material reductions in these societal costs. The high numbers of ACC entitlement claims linked to plant and structures (with plant and machine operators and assemblers accounting for the highest number of entitlement claims made to ACC in 2019)[79], further illustrates the significance of the fall in economic societal costs we can anticipate.

Risks

As an outcome of the extensive consultation carried out, MBIE is confident that the risks of implementing the changes, as adjusted in response to stakeholder feedback, are modest (in MBIE's view, falling within a low-to-medium range), and can be effectively managed.

The main risks to be overcome are:

- Materially lower benefits and/or higher costs from the changes than originally anticipated
- Implementation readiness risks eg due to insufficient lead time for businesses
- Risks of adverse consequences caused by selected changes.

MBIE will address these risks in determining implementation timeframes for introducing the changes and as part of ongoing monitoring and evaluation.

Further details on MBIE's assessment of risks and associated mitigations are outlined in chapter 9.

[78] 50,000 disability adjusted life years are lost per year due to workplace harm, according to WorkSafe's estimates (refer: https://worksafe.govt.nz/dmsdocument/30158-new-zealand-health-and-safety-at-work-strategy-outcomes-dashboard/latest). Based on calculations using the Treasury's quality-adjusted life years, this equates to an estimated social cost of more than $2 billion per annum. Factoring in wider fiscal impacts, earlier MBIE estimates have suggested a total burden of harm from work-related injury and ill-health of approximately $3.5 billion per annum (refer: http://hstaskforce.govt.nz/documents/report-of-the-independent-taskforce-on-workplace-health-safety.pdf).

[79] Injury statistics – work-related claims: 2019 (provisional tables for 2019): https://www.stats.govt.nz/information-releases/injury-statistics-work-related-claims-2019

Chapter 9: Implementation and operation

How will the new arrangements work in practice?

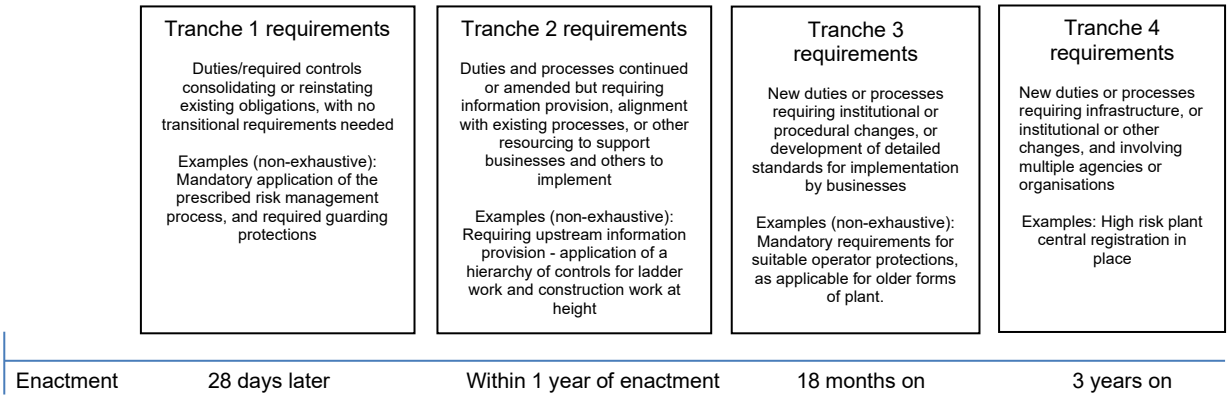
The recommended package of regulatory provisions will be introduced by:

- Health and Safety at Work (Plant and Structures) Regulations setting protections for people working with general plant, mobile plant, high risk plant and structures, and also requiring these risks to be managed at the appropriate point in the supply chain.
- Health and Safety at Work (Hazardous Work) Regulations providing protections for people working at height and on excavations.

Implementation phasing

Implementation will be carried out in phased steps over an extended period, the specific timings of which will be set in consultation with stakeholders.

Implementation is expected to occur in tranches. The indicative timeline and approach MBIE anticipates for the different tranches is summarised below.



MBIE will further develop the next level of implementation details based on consultation with stakeholders on an exposure draft that contains the proposed new duties and processes. In finalising the staged implementation steps, MBIE will balance the demands of implementation with the needs of workers and others exposed to the risks of plant and structures in the workplace. Implementation timeframes will take into account the need:

- to ensure workers and others begin to realise the benefits of reduced harm from better managing these long standing risks as soon as possible
- to allow WorkSafe sufficient time to support businesses by making guidance available, and to complete wider implementation planning (eg inspector training) and implement necessary infrastructure (establishing centralised registers of high-risk plant items and designs)
- to allow businesses and sector / professional groups sufficient time to adapt and respond by carrying out necessary machinery or equipment upgrades, changes to processes (eg completing design verification processes for new classes of equipment), and accessing any required specialist (eg CPEng) technical input

- for:
    - territorial authorities (who retain responsibility for permitting of temporary portable higher-risk amusement devices)
    - the Certification Board for Inspection Personnel (as the certification body overseeing the competency of inspection service personnel),
    - Engineering NZ (who qualify engineering personnel for design verification and other roles), and
    - International Accreditation NZ (IANZ) (who audit and accredit inspection bodies for high risk plant)

  to be provided with the time they need to support the introduction of new high-risk plant arrangements.

MBIE will use the exposure draft consultation to further inform:

- elements of the package that will become regulatory or infringement offences and applicable penalties for non-compliance
- administrative fees for high-risk plant elements of the package
- details of the high risk work licensing process for scaffolders.

We will carry out targeted public consultation on the exposure draft, in recognition of the disparate and broad-ranging affected parties.

Regulatory stewardship arrangements

WorkSafe is the primary regulator for the new regulations. Maritime NZ may also have responsibilities in restricted circumstances – ie where general plant provisions and relevant upstream duties provisions are breached – and the Civil Aviation Authority (CAA) for relevant upstream duties. MBIE will maintain oversight and administration of the regulations as the Government's primary adviser on health and safety policy.

MBIE and WorkSafe are confident that the Government's expectations for regulatory stewardship can be met. MBIE and WorkSafe in reaching this view have taken into account specific expectations the Government's guidance sets for:

- Robust analysis and implementation support by ensuring that practical design, resourcing, and timing issues required for effective implementation are met, alignment is achieved with system improvement priorities and interventions, and testing is carried out of key operational processes.
- Good regulatory practice, through effective engagement and support for regulated parties, predictable and well-managed compliance and enforcement processes, and appropriate feedback loops.
- Monitoring and review of regulatory systems.[80]

[80] Refer for additional details: https://www.treasury.govt.nz/sites/default/files/2015-09/good-reg-practice.pdf

The work health and safety system provides a strong platform for enabling good stewardship practices.

Pre-existing mechanisms that operate within the system provide established processes able to be leveraged for setting system outcomes and monitoring performance (eg the *Health and Safety at Work Strategy: 2018-2028*). System performance monitoring is enabled by a published dashboard developed by WorkSafe, which consolidates current data on system performance. There are dedicated funding sources in place to support the operation of the system, directed towards "right-sized" funding of work-related health and safety interventions over the past decade.

WorkSafe has been closely involved from an early stage in the *Plant and Structures* regulatory review. The package of proposals recommended has been informed by WorkSafe's views and adopts various adjustments put forward by WorkSafe to improve the effectiveness and operation of the proposed regulations.

WorkSafe has initial planning and implementation work underway with dedicated resourcing assigned to this work. To enable the changes to be implemented effectively, WorkSafe will need to carry out work:

- on organisational training and internal policy development
- addressing specialist technical resourcing needs
- to complete extensive supporting guidance material
- on supporting stakeholder communications and educational activities
- to set up necessary infrastructure, including registers of high risk plant designs and items
- to implement required operational processes eg for audits, reviews, recognitions, and fee charging.

How the regulations will support WorkSafe in its system leadership role, and connections with strategic objectives and harm prevention work with ACC

Up-to-date and comprehensive regulations on plant and structures will strengthen WorkSafe's ability to reduce harm arising from work, by:

- helping PCBUs to better understand what they need to do to manage risks of working with plant and structures, through clearer expectations in regulations that are more closely aligned to the Act
- giving WorkSafe an improved regulatory framework to enforce against
- improving WorkSafe's oversight of design and maintenance of high-risk plant.

New plant and structures regulations will also support WorkSafe's ACC-funded harm prevention activities. For example, current programmes focusing on working safely in and around vehicles would be backed up by education about, and enforcement of, new mobile plant regulations. Regulations about mobile plant safety are out of date and limit WorkSafe's ability to effect change. More modern, nuanced and comprehensive regulations (as

proposed) would mean WorkSafe can lead, influence, engage and enforce for better health and safety outcomes.

For high-risk plant specifically:

- It will be easier for inspectors to identify and take enforcement action about high-risk plant that is of an unsafe design, or has not been checked by an equipment inspector when it should have been.
- Registration will also lead to better data about numbers of high-risk plant, its condition, and incidence of harm associated with it. Improved data means WorkSafe can better target interventions.

How WorkSafe's regulatory approach will operate

The new regulations will be supported by awareness campaigns, educational tools and guidance to help inform and educate PCBUs about the new regulations and what they need to do.

In interactions with PCBUs, WorkSafe would usually favour engagement and education when regulations are new. WorkSafe would be more likely to use enforcement approaches when:

- new regulations re-state or update existing requirements that PCBUs should already be complying with
- PCBUs are still not complying even after they have had time to become familiar with new regulations.

WorkSafe is working to become an insights-driven regulator, which means using information to target efforts, being deliberate about how to intervene, and using the right mix of approaches to get good outcomes.

How other agencies with a substantive interest will be involved

WorkSafe will partner with stakeholders, including the other work health and safety regulators (Maritime New Zealand and the Civil Aviation Authority), on areas of common interest to maximise impact and ensure our messages about the new regulations are consistent.

Funding implications

Initially, WorkSafe anticipates fully absorbing the following implementation costs:

- Confidential advice to Government, Free and frank opinions
- Approximately $8 million in general implementation costs (eg new staff costs, and to fund the provision of practice tools, guidance and promotional campaigns).

Confidential advice to Government, Free and frank opinions

- Confidential advice to Government, Free and frank opinions
- Confidential advice to Government, Free and frank opinions
- Confidential advice to Government, Free and frank opinions

Further consultation will be undertaken to further refine the cost estimates for high risk plant registers. Supplementary information on these costs and MBIE's recommended cost recovery approach is provided in the accompanying cost recovery impact statement attached to this RIA.

Monitoring and evaluation

MBIE and WorkSafe will take a broad perspective in monitoring and evaluating the regulations that considers how the regulations have operated for regulated parties and WorkSafe's role in administering the regulations. We provide further details on our intended approach in Chapter 10.

6.2 What are the implementation risks?

As an outcome of consultation, MBIE is confident that implementation risks have been appropriately considered and are able to be addressed.

How MBIE's consultation proposals moderate implementation risks

Consultation proposals were developed with the demands of implementation in mind, with the proposed changes closely based on Australian Model Regulations. By basing the requirements on Australian Model Regulations, this has ensured:

- Compatibility with the HSW Act, based in turn on Australian Model Law
- Compatibility with previous mandatory requirements, such as those set by the *Machinery Act 1950* and *Pressure Equipment Cranes and Passenger Ropeways Regulations 1999*
- Requirements that are well-developed and tested
- Alignment with the practices of Australia, as a country with comparable workplace risks
- Ease of benchmarking, as informed by Australian case law, and experiences and developments over time.

MBIE's steps to address stakeholder feedback

Generally submitters viewed the changes as readily adaptable for businesses, given the consistency the changes provide with relevant industry (AS/NZS) standards and, for some, standard business practices. Selected elements of consultation proposals generated some concerns and MBIE is recommending a number of adjustments in response. Adjustments made include:

- An absolute ban on collisions – excluded from the package of recommended requirements on the basis that a ban may prove unduly onerous in some circumstances (eg incidents involving reckless third-party driving)
- Mandating that mobile plant is to be turned off when not in use – excluded from the package of recommended requirements due to concerns about associated practicalities and efficacy in reducing harm
- Modifying requirements for managing plant life-cycle risks to ensure that PCBUs are not unduly bound by manufacturer's recommendations, for their specific circumstances if contrary to the advice of a competent person
- Allowing qualified operators of bespoke pressure equipment systems to maintain decentralised record-keeping, at reduced administration costs
- Customised inspection arrangements for clubs affiliated with the Model Engineering Association of New Zealand (MEANZ), which allow for existing processes of MEANZ accredited inspection to continue to operate.

In relation to the recommended package of proposals, the broad risks we have identified from consultation, and our associated risk mitigations, are summarised below.

Risk	Mitigation
Low compliance due to reduced capacity of businesses to respond to the changes, eg arising from: • Insufficient lead time • PCBUs encountering difficulties in accessing specialist advice and/or equipment inspectors • Insufficient guidance	Implementation phasing remains under consideration. MBIE, in setting implementation timeframes, recognises the need to balance business' need for time to adapt and respond, with the needs of workers and others to begin to benefit from reduced harm as soon as possible. The needs of businesses will be assessed broadly through this process, with the accessibility of specialists and equipment inspectors to be considered as one component. To inform our views, MBIE in the interim will continue to monitor targeted initiatives underway (eg HASANZ's active programme to increase the number of health and safety specialists) and engage with relevant bodies (eg specialist engineering bodies and CBIP). Initial planning and implementation work is underway to deliver extensive supporting WorkSafe guidance on the requirements.
Wider implementation readiness risks eg leading to delays in delivering high-risk plant register of appropriate functionality.	Implementation readiness will be further considered and accounted for when deciding on implementation phasing for different proposals, following further consultation. WorkSafe is looking at the establishment of necessary infrastructure for the new centralised high-risk plant registers as a component of initial implementation work underway.
Materially higher costs eg due to the need for equipment upgrades and/or materially lessened benefits	Capital and other business costs, along with the need to secure timely benefits, will be relevant considerations in setting implementation timeframes MBIE and WorkSafe will continue to monitor impacts in accordance with the approach described in this RIA (see chapter 10), and will respond with corrective actions as required.

Risk	Mitigation
Risks of adverse consequences eg from: • A rise in the sale of poor quality secondhand plant 'as is' • Undue burden on PCBUs sourcing plant from offshore	MBIE has carried out extensive consultation on the changes. Recommended proposals incorporate a range of adjustments made in response to feedback from stakeholders and WorkSafe. MBIE on this basis has assessed the risks involved as falling within the low-medium range. Submitters identified the following concerns with the proposed upstream duties: • Suppliers may, in response to the requirements proposed, opt to supply plant 'as is' as a means of circumventing the requirements. The potential risks from this are mitigated through the design of the regulation –purchasers will either be provided with all of the required information about the plant, or know they have to check the plant for faults (because no information is provided). The requirements in the general plant section support this, as they require the PCBU who manages or controls plant at workplaces (in this case the purchaser) to ensure it is safe for use. WorkSafe guidance will also help explain how his provision works. • That the requirements do not accommodate the complexities posed where plant is sourced from overseas. This is mitigated by the fact that the requirement is to take reasonable steps to obtain information from offshore suppliers, rather than being absolute. WorkSafe guidance will also help duty holders to understand the requirements. MBIE and WorkSafe will continue to assess the way the regulations are operating by undertaking ongoing monitoring and evaluation.
Risks of inconsistent or incomplete application by the regulator	WorkSafe has been extensively involved in the Plant and Structures Review from an early stage. Recommended proposals incorporate a variety of adjustments made in response to feedback from WorkSafe. Implementation planning work is already underway within WorkSafe, incorporating an extensive programme of inspector training as one element. Further details on WorkSafe's intended enforcement approach can be found above.

The central assumption MBIE has adopted for our assessment is that consultation responses offer a fair representation of the impacts of the changes. Largely MBIE considers this was achieved, though there were particular affected groups (eg residential construction industry and some larger civil construction firms) that we did not get detailed submissions from and that we would normally expect to hear from. To encourage broad participation, MBIE's process of consultation:

- Involved an extended, three month, period for written submissions
- Invited feedback as part of a written submissions and also a number of MBIE-convened sessions, held across a number of regional centres
- Was advertised through various channels (eg CHASNZ, WorkSafe, and social media).

Chapter 10: Monitoring, evaluation and review

How will the impact of the new arrangements be monitored?

Context

These regulations will sit under the Health and Safety at Work Act and will form part of New Zealand's work health and safety system. The requirements will be a significant portion of the HSW Act regulations, particularly in terms of coverage of PCBUs.

Plant and structures are ubiquitous in New Zealand workplaces, and these regulations will affect a majority of businesses and workers. Almost 80 percent of work-related fatalities are related to plant or structures.

Challenges with monitoring and review

The broadly applicable nature of the regulations and the inter-relatedness of the work health and safety system means that monitoring and evaluating the impacts of the proposals is not straightforward. Many of the regulations are, like the HSW Act, performance based, meaning there is scope for PCBUs to determine how they should comply with the requirement in their particular circumstances. Some regulations introduce a process to be followed, such as the Prescribed Risk Management Process (PRMP) or the hierarchy of controls for guarding, but there are no reporting requirements for these, making it difficult to measure. We are introducing some requirements that will result in administrative data being collected (through the registers of high-risk plant, and through licencing for high-risk work) and this will provide some information.

Another aspect to note is that there is a long lead time until the full impact of these regulations will be felt, potentially five years or longer. Some components of the system (such as the registers) will take some time to put in place. Others are requirements that will be triggered over time, such as when new plant is purchased. The nature of others, such as the upstream duties requirements where we are aiming for a culture change that will permeate the processes for acquiring plant and structures, mean it will likely be very long time until we can see the full impact of the proposal.

Baseline and existing data

The baseline data we have is largely held by WorkSafe. WorkSafe collects and analyses a significant amount of information about the outcomes of the work health and safety system including:

- injury and fatality data
- other information, eg incidents, required to be notified to WorkSafe
- administrative data on WorkSafe's enforcement activities
- analysis on the effectiveness of its programmes and interventions

- attitudes and behaviours of PCBUs and workers
- sector-specific analyses.

In addition to WorkSafe's information, there is provision for the monitoring and evaluation of the work health and safety system more generally, including:

- MBIE's regulatory stewardship role
- WorkSafe's Crown-entity accountability documents
- The Health and Safety at Work Strategy (published under the HSW Act).

Our primary source of data on the harm comes from WorkSafe's SWIFT database, which can tell us:

- the number of fatalities caused by plant, structure or 'other', which can be broken down by industry
- serious injuries – those resulting in more than a week away from work – involving plant.

This data does have limitations. The fatality and serious injury data can be broken down into some types of plant (eg forklifts and quad bikes), but not necessarily into cause (eg lack of guarding or other safety features). This breakdown is also a manual process of searching the data and extracting the relevant information, not something easily done. This is a result of the way the data is captured from ACC claims, with its primary purpose to serve ACC and WorkSafe's needs and not necessarily inform policy development.

In addition, not all proposals have data supporting them, and the data available does not necessarily have the level of detail that will support individual proposals (eg data does not necessarily show if a fatality or injury was caused by lack of adequate guarding). Some areas we are looking at, such as upstream duties, are particularly hard to capture from this data source.

Finally, this data captures a lot of information about the cause of harm, however it is much harder to get data when harm is not caused – eg near-misses, or harm that was prevented by a control mechanism (such as guarding). Information on this is much harder to come by more generally.

Considering each of the stages of the intervention logic can help us to evaluate the impacts

Despite the difficulties described above, we think there is good scope to monitor and evaluate the effect of the proposals. All of the regulations have the aim of reducing work-related harm from plant, structures, excavations and height, and reduced harm is our key metric of success. We will also consider the other criteria that proposals have been considered against – proportionate, clear, cost effective, and flexible and durable.

We have developed a generally applicable intervention logic outlining the necessary steps to go from regulations to reduced harm (see figure 8).

If the regulations are not resulting in reduced harm, then we must figure out at what point in the intervention logic the problem is occurring. Our plan to monitor is therefore broken down into each of the stages of the intervention logic, as set out in table 10.1 below.

For each stage of the intervention logic, the second column in table 10.1 below sets out what success looks like for the regulations, and the final column sets out what we will monitor.

What success looks like and what and how we will monitor

Intervention logic stages	What success looks like/How we will know the benefits have been realised	How we will monitor this
Regulatory settings	- Requirements clarify and support HSW Act duties - Proportionate to risk involved - Coherent and logical to reduce compliance and transaction costs, and supported by all necessary components - Effective, proportionate, clear, certain, cost effective, flexible and durable - All components necessary to support the regulations are in place (ACOPs, SWIs, registers, inspection bodies)	- Continued assessment as to whether all components are in place - Regular feedback from stakeholders on individual components of system
Regulator action / effectiveness	- Ensures duty holders understand and comply with their HSW Act duties - Duty holders have the right information to manage risks to health and safety - Regulator has internal policies and procedures to implement regulations, and prioritise decisions - Resources are allocated within the regulator - Regulatory enforces and prosecutes against regulations	- Combination of administrative data, regulator accountability documents, survey, stakeholder information - Whether WorkSafe and other relevant regulators have policies and procedures in place - Regulator action across full suite of available enforcement tools - Regular feedback from stakeholders on regulator effectiveness
Response of the regulated parties	- PCBUs are aware of their duties and how to comply with them - PCBUs take action to comply with duties, and to eliminate/minimise risks - Workers comply with instructions - Industry organisations support PCBUs and champion processes - Transaction and compliance costs are minimised - Positive workplace behaviour change	- Potentially could be covered in WorkSafe's Workforce Segmentation and Insights survey (or other surveys)
Exposure to risk	- Risks are eliminated or, where that is not possible, minimised - Risk when exposed is reduced (ie reduced chance of exposure turning into harm) - Applies to workers, others in a workplace and patrons of amusement devices	- WorkSafe administrative data – notifications – and surveys - ACC claims data

Reduced harm	- Reduced work-related harm from plant and structures, height and excavations - Currently 79% of work-related fatalities are related to plant or structures (2008-2019), approximately 54 deaths annually	- WorkSafe's administrative data, broken down as per in discussion document - Effect on populations (including Māori and males), who tend to have higher rates of harm from plant and structures

This monitoring data will form the basis of an evaluation report, analysing the first five years of the regulations.

This is what we consider is appropriate to measure at this stage in the process. It may be that once the regulations are in place and we have more information that this is not sufficient. We will adapt and refine this approach if necessary, including based on any information received as part of this monitoring.

WorkSafe is the primary health and safety regulator, so the bulk of our monitoring activity will focus on WorkSafe's activities.

For the areas covered by the designated health and safety regulators (Civil Aviation Authority and Maritime New Zealand), we will look at the trends in harm statistics, and take a deeper look if needed.

Resourcing requirements

The programme proposed will be able to be completed within current resources, with MBIE and WorkSafe working together. As identified above, WorkSafe already collects significant amounts of data, and we will make as much use of this as possible.

Potential for additional work

We have also considered what we could monitor with additional resource. This would require specific commitment of resource (FTE and funding) and set up at an early stage, and further work to scope this.

The plan outlined above is a look down the intervention logic at the individual chapters. It would also be useful to look across the chapters to see how the suite of regulations applies to individual pieces of plant, or to look across a sector that uses many different kinds of plant.

The layered nature of the regulations mean that some types of plant will be subject to multiple proposals. Taking an in-depth look into the safety outcomes of a selected number of these items of plant would give insight into how well the components of the regulations are working. At this early stage we consider that looking at cranes, elevating work platforms and scaffolding could be helpful:

- Cranes are currently high-risk plant and will continue to be so. This would give us a point of comparison from the existing system to the new regulations.
- Elevating work platforms will become high-risk plant. This will give as information on how well the regulations are reducing harm in new areas.
- Scaffolding covers both plant and high-risk work licencing. This will let us check the interaction between the two.

Regarding looking deeper into a sector, we consider the forestry sector would be a good place to start. It is a focus of WorkSafe due to the high levels of harm, so there is some potential to leverage off work that WorkSafe has underway. This work includes a trial of industry health and safety representatives in the forestry sector across more than one PCBU, which could be a good source of information. While WorkSafe's ongoing work with the sector might make it difficult to separate out the direct effects of the regulations, it will be a good chance to look at how the regulations perform as part of the wider work health and safety system.

When and how will the new arrangements be reviewed?

This work is part of an overall reform of the work health and safety system, which is ongoing. The set of regulatory tools necessary to fully implement the Health and Safety at Work Act is not complete, and that work remains the priority of MBIE. Given this context, it is difficult to plan for future reviews of new regulations.

We should note that an independent review of the Australian Model Law (which the HSW Act is based on) was completed in 2019 and found that the model law is largely operating as intended, and contained recommendations to improve clarity and consistency. These recommendations included some changes to regulations considered as part of this RIA. We have taken into account the relevant recommendations when undertaking our analysis.

If any issues do come up via the monitoring outlined in the section above that show some aspects of the regulations are not working as intended, then we would consider a targeted update of that section. To prevent the need for this we have been working closely with WorkSafe on the proposals, and we intend to release an exposure draft of the regulations to get the views of affected parties on how workable they are in practice. This is in addition to the extensive stakeholder engagement undertaken.

Appendix 1: Existing and proposed equipment for inclusion in registers

NB: Assumes design registration for existing classes of plant will only be required for new equipment or as a prerequisite for new items of plant after the transitional period

Table A1.1: All current classes of equipment—total number of items with major inspection bodies

Commercial Information, Free and frank opinions

Table A1.2: Sub-classes of total current PECPR equipment and amusement devices

Number of items

Description	*Items of qualifying plant (indicative)*
Pressure equipment (classes A-D and associated piping)	47,950 (calculated by deducting classes below from total reported by inspection bodies)
Mobile cranes	1200
Passenger ropeways	50
Truck loading cranes (Hiab, Palfinger etc,)	3,000 (of estimated 4,500 in use)
All PECPR	**52,200**
Amusement devices (not in PECPR)	345
Total (incl. amusements)	**52,545**

Table A1.3: New classes of items of plant requiring central registration

Description	*Number of items (indicative)*
Winch assisted harvesting	120
Haulers/yarders	180
Vehicle hoists	20,000 approx
Elevating work platforms	8,000 approx (up to 10,000 estimated)
Truck loading cranes not currently inspected	1500
Concrete placing booms	250 (range 200-300)
Telehandlers	2300 (range 2250-2500)
Mast climbing work platforms	250 approx
Higher-risk inflatable amusement devices	100 approx
Total (excluding vehicle hoists)	**12,900**

Table A1.4: Total items of plant proposed for coverage by regulations

Description	*Number of items (indicative)*
New items for inclusion	12,900
Current PECPR equipment not held by recognised operators	22,540
Amusement devices	345
Total new and existing items of plant requiring central registration	**35,785**
Excludes	
Items held by currently recognised operators (not requiring central registration)	29,660
Total number of items of plant covered by regulations	**66,445**

Table A1.5: Designs of equipment requiring registration

Description	*Number of items (indicative)*
New classes of design registered plant (not requiring item registration)	<100
Vehicle hoists	<100
Existing classes of equipment:	
Involving alterations	TBD
Required for new item of plant registration	TBD

Appendix 2: Costs of inspection for existing and new classes of equipment registration

Usually annual inspection required. Does not include proposed item registration fee or design registration costs

Type of equipment	*Who inspects?*	*Current inspection costs*	*Impact of new regulations*	*Additional costs expected*
Category 1: Currently regulated inspections				
PECPR equipment	Inspection bodies / Inspection personnel	Inspection body charges average $170/hr plus $1/km travel + admin fee ($30-$60) per item to issue/print send certificate and report (plus disbursements Inspection of a simple pressure vessel, without travel involved may be as little as 30 minutes and approx. $150 A large ship to shore crane or larger and complex pressure equipment could cost $3,500- 5,000. An average mobile crane / overhead crane or pressure equipment on a shared visit would be S450-500 per item	None, but with additional classes of equipment included and central registration For new or imported equipment there will be a requirement for design registration if not held under a recognised jurisdiction.	Minor additional cost for inspection bodies to update register after inspecting plant. New inspection costs for cranes not currently covered (eg sideloaders).
Amusement devices	CPEng	Costs vary quite a bit depending on the engineering complexity of the device. The cost ranges between $800 (or less) for a simpler device to over $2,000 for more complex amusements. On average, approx $1,500.	Continue largely as is happening now except for new types of amusement devices. New audit requirements for and by MEANZ for model engineering clubs	MEANZ will face additional costs to register as an inspection body. Owners of newly covered types of device will face new inspection costs- mainly larger inflatables.
Category 2: Currently inspected under guidance				
Haulers – but only the tower is inspected currently	Hauler tower inspectors	Costs were obtained for two regions, and were consistent: • Average $800 to $900 / inspection. Charges increase if the location requires additional travel.	Current personnel continue but would need to become or join inspection bodies.	More thorough inspections (ie hauling equipment in addition to tower) will add cost. Additional costs for inspection body accreditation – passed on to client.

Type of equipment	*Who inspects?*	*Current inspection costs*	*Impact of new regulations*	*Additional costs expected*
		• 2-3 hours onsite plus approx. 1 hour reporting time = $500-650 plus travel.		Additional costs of maintaining register, and fees Additional design registration requirements for new or imported plant.
Steep-slope harvesting equipment	CPEng or manufacturer	Established engineering practitioner estimates similar costs to those incurred for a hauler. He also noted that in his experience forestry companies prefer to deal with the manufacturer for inspections.	Current personnel are l kely to continue, but manufacturers may choose not want to bother getting certified to inspect?	Additional costs for personnel certification and inspection body accreditation – passed on to client.
Personnel hoists	Scaffolders CPEng or manufacturer	There is a gap in the market and further training and accreditation will be required	Current personnel may continue	Additional costs for personnel certification and inspection body accreditation – passed on to client.
EWPs	CBIP-authorised inspectors	A simple scissor lift $125-150 (most are tied into servicing visits) Larger EWPs perhaps $200-225 A 10 yearly strip down for an EWP is anywhere from $17-25,000	Current personnel continue – would have to become or join inspection bodies	Additional costs for inspection body accreditation – passed on to client.

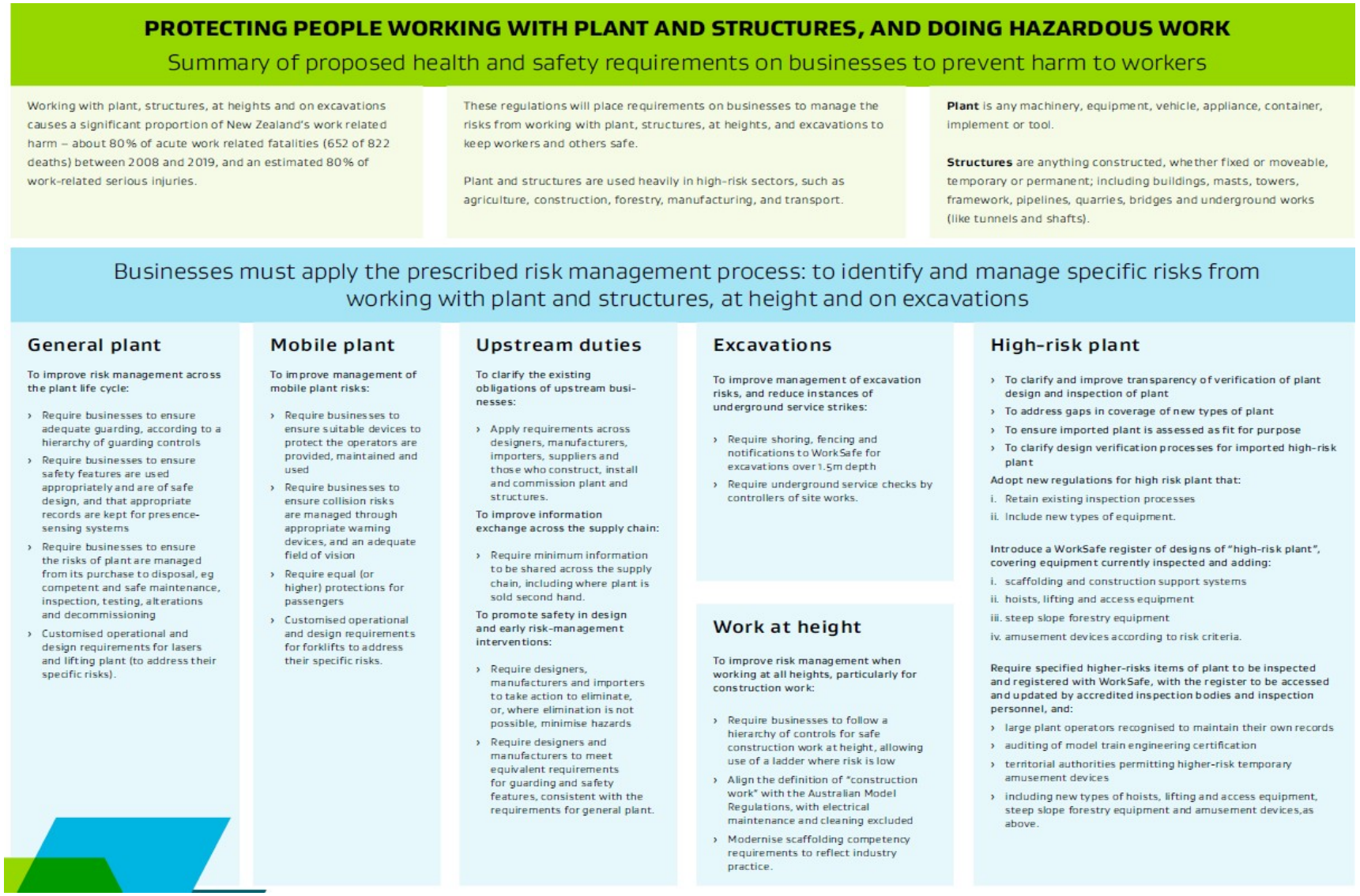
Type of equipment	*Who inspects?*	*Current inspection costs*	*Impact of new regulations*	*Additional costs expected*
Category 3: Inspection not currently widespread				
Telehandlers		Similar cost to EWPs: $150-200 (with most current inspections tied into servicing visits)	WorkSafe expect existing inspectors and inspection bodies (eg crane inspectors) could diversify into this new market. If so - see costs for PECPR inspection bodies above.	New inspection costs those PCBUs not currently getting equipment inspected. Additional costs of training and certifying any new personnel needed to meet new demand – passed on to client.
Mast climbers	Some of these are owned by crane companies who use crane inspectors	?	WorkSafe expect existing inspectors and inspection bodies (eg crane inspectors) could diversify into this new market. If so - see costs for PECPR inspection bodies above.	New inspection costs on PCBUs not currently getting their stuff inspected. Additional costs of training and certifying any new personnel needed to meet new demand – passed on to client ie higher inspection costs.
Concrete placing booms		WorkSafe guidance recommends these be inspected annually by a competent person such as a CPEng. Established engineering practitioner estimates similar costs to those incurred for a hauler.	WorkSafe expect existing inspectors and inspection bodies (eg crane inspectors) to diversify into this new market. If so - see costs for PECPR inspection bodies above.	New inspection costs on PCBUs not currently getting their stuff inspected. Additional costs of training and certifying any new personnel needed to meet new demand – passed on to client ie higher inspection costs.
Garage hoists (not proposed for inclusion)	An unknown number of these are inspected by suppliers/maintenance personnel.	Vehicle hoists $125-150	Item registration not proposed for vehicle hoists Design registration only required.	If introduced there would be new inspection costs on PCBUs not currently getting equipment inspected. Additional costs of training and certifying any new personnel needed to meet new demand – passed on to client ie higher inspection costs. Design registration costs will be incurred by suppliers.

Inspection body accreditation costs vary – approximately $8-10k for a small operation (1-2 equipment inspectors) up to $45k for larger multi-site inspection body. Renewal costs are less.

Personnel certification through CBIP:

- Pressure equipment inspector: $5,100. The 10 yearly renewal costs $850.
- Crane inspector: $4,250-5,320. The 10-yearly renewal costs $850.
- EWP inspector: $3,400-4,470.

Appendix 3 – Summary of recommended changes



Stage 1 Cost Recovery Impact Statement

We are seeking policy agreement in principle to cost recover the costs of providing the following authorisations under the proposed new regulations for plant and structures:

A. High risk plant registration - items of high risk plant (including design registration)

B. Recognition of operators of certain high risk plant to maintain their own registers

C. Recognition of operators of certain high-risk plant to maintain risk based inspection programmes or as inspection bodies

D. Territorial authority fees for amusement device permits (revision of current fees)

E. Fees for licences to erect scaffolding (revision of current fees only)

F. Fees payable to WorkSafe for recognition as inspection body.

All but one of the fees relate to the private good of owners or operators of high risk plant[81]. The other relates to the private good of inspection bodies authorised to provide inspection services required by the proposed regulations.

Each fee involves the provision of a service by WorkSafe, or in some cases, a recognised organisation, that is required by the proposed regulations.

Each of the authorisations support the safe operation of the plant and is a public good because it avoids the potential negative externalities resulting from unsafe operation, incidents, and injuries.

Because of the wide range of equipment, workplace types and industries involved, we do not consider a supplementary levy (separate to the existing HSW Act levy) suitable. Instead we propose fees to recover the specific costs of providing services to those owners and operators of plant receiving the private good that results from their being able to use it in their businesses.

[81] Plant which is deemed to involve a distinct level of increased risk, due to the plant's innate features. Specific examples include industrial boilers, pressure piping, cranes, passenger ropeways and certain types of amusement devices eg roller coasters and mechanically operated bungy equipment.

A. High risk plant registration- items of high risk plant (including design registration)

Status quo

- High risk plant is currently regulated under the Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations 1999 (the PECPR Regulations) and the Amusement Devices Regulations 1978.
- There is a central register of amusement devices maintained by WorkSafe under the 1978 regulations. A registration fee is charged to operators of amusement devices.
- The PECPR Regulations contain extensive inspection and recordkeeping requirements for inspectors and controllers of plant, but do not require central registration of items of plant or plant designs. Authorised inspection bodies charge for inspection services rendered, including record keeping in many cases, but there is no registration fee.
- It is proposed to repeal the current two sets of regulations and replace them with a new single set of regulations concerning plant and structures and new regulations for hazardous work that will include working at height and on excavations. (Both sets of regulations will involve registration requirements, with consistent fees and processes where possible.)
- It is also proposed that the new regulations will cover a range of new types of lifting and access equipment, and some new types of amusement devices not covered by the current regulations. Most of these types of plant were less common when the regulations were developed.
- Two central registers are proposed:
    - a register of designs (ie fundamental specifications of the plant, and its engineered control measures) of specified types of high risk plant; and
    - a register of individual items of high-risk plant.
- The central registration proposals respond to three main issues with the current regulations:
    - gaps in coverage of new types of plant
    - difficulties for businesses determining whether equipment is of approved design and quality
    - a lack of transparency and consistency of compliance with inspection and maintenance requirement for smaller businesses in particular.
- The proposals will address each of these problems. For larger operators of complex “bespoke” pressure equipment currently covered by the PECPR Regulations we are proposing an alternative means for record keeping that will be subject to auditing and allow better oversight by WorkSafe (see proposal B below).
- The rationale for government intervention:
    - a single central registration process provides ease of access to compliance information for WorkSafe and relevant industries;

- consistent standards will be applied and maintained to the recording of design verification and inspection of high risk plant
- government is impartial and accountable and will protect intellectual property and commercially sensitive information
- WorkSafe enforce and provide technical support and engineering expertise for the regulations to maintain consistent standards for high-risk plant itself and the registration process.

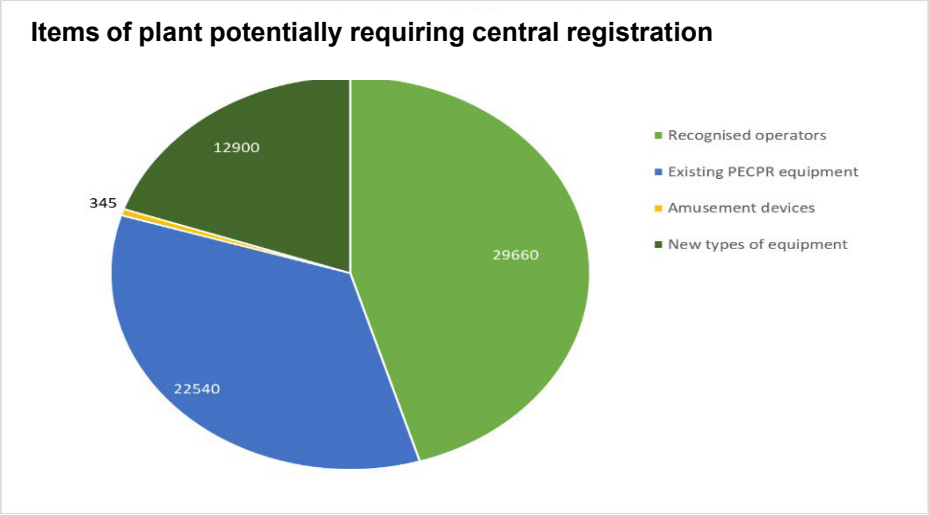
- We're seeking policy decisions for the registers, and agreement in principle to charge to recover the costs of maintaining them.
- Regulation making powers and fees for recovering costs are provided by the Health and Safety at Work Act 2015:
  - Section 211 (f) provides for the making of regulations concerning plant and structures.
  - Section 211(k)(xiii) provides for the making of regulations setting fees for the grant, issue, renewal, variation, or audit of authorisations
  - Section 211(k) (xiv) provides for the making of regulations for the keeping of registers of authorisations and for access to registers
  - Section 211(w) allows for regulations prescribing fees or charges for doing any act or providing any service for the purposes of the Act or regulations, including ways that they may be refunded, waived or reduced, and means by which they may be recovered.
- We are proposing new registration fees for equipment currently covered by the PECPR regulations and for the proposed new types of equipment requiring design registration or registration of items of plant. It is an amended fee for the registration of individual amusement devices currently covered by the Amusement Device Regulations and a new fee for the registration of designs of amusement devices that are subject to the regulations[82]. All fees are in addition to the charges already imposed on industry for inspection/ compliance certification under current regulations, which is expected to remain the same (or slightly increase) with the implementation of the new regulations.

Policy Rationale: Why a user charge? And what type is most appropriate?

- Cost recovery is appropriate for the owners/controllers of high risk plant that use the registers. There is a private good for owners of plant that are authorised to use it in their businesses and workplaces, usually for gain or reward. The plant presents risks to workers and others that use it or are in the vicinity. Plant owners are required to manage these risks by operating the plant safely and also by having it designed, inspected and maintained to ensure safety. It is reasonable that WorkSafe's costs of record keeping and registration in connection with this are recoverable from plant controllers.
- Government's involvement in the process is justified because of the positive externalities that occur for workers and the public as a result of these activities.

[82]Refer to Annex 2 in the discussion paper.

- For the design register the service provided by WorkSafe involves registration after design verification has been completed by an accredited design verifier[83].
- Design verification is already undertaken for all equipment under both sets of regulations but there is no central register, inhibiting transparency for the regulator. Design verification documents will be provided to the registrar, who checks the validity of the documents and issues a design registration number to the applicant for the particular item or class of equipment. WorkSafe will complete audits and reviews of process to maintain the integrity of the registration system, and the costs of these will be included in the design registration fee.
- For the register of items of plant the service provided by WorkSafe (or a delegated agency) involves assessing applications with the following components:
    - a design registration certificate, or registration number for the equivalent class of equipment
    - a current inspection certificate for the item from an inspection body
    - identifying information for the particular item of plant
    - a description of the applicant /controller of the plant
    - the prescribed fee.
- Registration will be for 5 years, with current inspection certificates required to maintain registration. When an inspection body issues an inspection certificate it will be able to record it against the registration. There will be associated audits and reviews of process to maintain the integrity of the registration system.
- A fee will be payable on application to enter both registers. We propose full recovery of the costs of maintaining both registers (including associated audit costs).
- In calculating the levels because of the large number of items expected to be registered, and the interdependency of the two registers (approx. 36,000 items), we propose the same fee is payable on application for entry (or re-entry) to both registers. The fee would be based on the transactional costs, with the inclusion of the costs of maintaining some auditing and review functions necessary to maintain the integrity of both registers.



[83]Refer to the RIS for a description of changes proposed to design verification accreditation.

- Design registration will be a single charge for the life of the design, but with design verification required for alterations to a design that could affect the health and safety of its operation. There will be associated fees for reissuance of certificates and re-registration after alterations.
- We are unable to accurately estimate the number of design registrations to be required. This is for a number of reasons, including that a single design registration may be applied to multiple items of plant, that design verification will not always be achievable for legacy plant, and it is unclear the extent to which "bespoke" plant that is not subject to central registration will impact on registration numbers. However, we have assumed that when the register is fully implemented there is likely to be between 15 and 30 percent of the total number of item of plant registrations.
- The essential task of design registration is transactional only. Because the associated auditing and checking of designs requires WorkSafe to access the same engineering expertise as for item registration, we do not consider the cost to WorkSafe will be high. This consistent with Australian jurisdictions' experience with operating the registers.

High level cost recovery model (the level of the proposed fee and its cost components)

- As discussed above, we propose the same charge for applications/admission to both registers. The table below shows charges based on the full recovery of all costs of operating the register, divided equally by the total number of items of plant required to be centrally registered.
- The table shows two figures, one for a five year registration fee based on the first five year's costs in establishing and operating the registers only. The second, lower figure is for costs of a five year registration with the costs of operating the registers averaged over the first ten years of operation. We consider this a more accurate and equitable basis for charging because the costs of the register are evenly spread over a substantial part of the expected lifespan of the types of equipment involved.
- These approximate cost projections were calculated by estimating implementation costs and spreading them out over the expected numbers of plant. We will do more detailed fee analysis for the second stage of the CRIS.
- WorkSafe will have high initial costs to set up the scheme, and lower costs over time. The initial costs for WorkSafe are being covered by reprioritisation.
- Because the charges expected for design registration are difficult to estimate and will vary according to the transitional provisions, we have not included design registrations in the figure, but estimate that if included, it could reduce the per item fee by between 10 and 20 percent.
- Additional fees will be required for the issuance of replacement certificates of registration and for amending design registrations. We consider these should be at a level equal to or below the figures in the table.
- We are proposing the exclusion of large scale "bespoke" pressure equipment in large industrial/ petrochemical plants, with operators/controllers granted recognition to maintain their own records of equipment. For comparison, the fee per item if this pressure equipment were required to be registered centrally is provided in the last row of the table.

Indicative 5-yearly registration fees[84]

	Number of items	*Per item fee if based on average cost over first 5 years (range 15% over and under best estimates of costs divided by projected numbers of registrations)*	*Fee per item if based on average cost over first 10 years (range) (recommended option)*
New items for inclusion	12,900		
Current PECPR equipment not held by recognised operators	22,540		
Amusement devices	345		
Total new and existing items of plant requiring central registration	35,785	$230 to $310 (excl. GST)	$215 to $295 (excl. GST)
Excludes:			
Items held by currently recognised operators (ie not requiring central registration)	29,660		
Total number of items covered by the regulations	65,445	$140 to $185[i] (excl. GST) *See footnote*	$130 to $180 (excl. GST) *See footnote*

- The above table shows the different fee levels depending on whether or not all items of plant, including large "bespoke" installations of pressure equipment, are included.
- The following table shows the main cost components of operating the registers. They have been prepared by WorkSafe and include the development of software and computer hosting, and administrative systems and staffing. At this stage they do not include an auditing component or the provision of engineering/technical support for the assessment of registration applications. The costs are indicative only and will be further refined and considered in the development of stage 2 proposals. Further work will be needed to

84 These fees have been calculated based on staffing levels for the proposed 36,000 items of plant and an estimated 6,000 designs being registered. For the comparative costings for including the "bespoke" items of pressure equipment and associated design registrations, the same capital and establishment costs were assumed, but an additional $200,000 pa for additional staffing levels to meet the increased number of registrations and associated functions.

determine if these additional costs should be met by additional design registration fees not included in the estimate, additional fee levels, or as more appropriately funded through the Working Safer Levy by which WorkSafe is funded generally.

Indicative costs of establishing and maintaining registers years 1-10[85]

WorkSafe establishment and operational costs years 0-5	
Year 0 Software development (calculated recovered as depreciation over period, but term may vary in final estimates)	Confidential advice to Government
All out years hosting costs etc. Confidential advice to Government	
Development of admin systems etc. (ie not software or capex): Years 1 and 2 -- Confidential advice to Government pa	
Ongoing operation: All out years Confidential advice to Government pa	
Total costs years 0-5	
WorkSafe operational costs years 6-10 (second period of registration)	
All out years hosting costs etc. Confidential advice to Government pa	
Ongoing operation: All out years Confidential advice to Government pa	
Total costs years 6-10	
Total costs over first 10 years (if used as a basis for averaging)	

[85] Based on staffing levels for the proposed 36,000 items of plant and an estimated 6,000 designs being registered. All costs exclusive of GST.

[86] Details on this indicative cost are as below.

Confidential advice to Government

Registration fees in Australian states

State	Registration of design fee (once only)	Item of plant registration	Duration of item registration
Queensland	114.10	85.50 to 1,860	1 year
New South Wales	278.00	70.00 (2.00 per additional item at same time)	1 year
Victoria	284.00	--	--
South Australia	121.00	350.00	5 years
Tasmania	83.74	83.74 (15.80 renewal)	5 years
Western Australia	375.00	108.00	ongoing

Consultation

- Full public consultation on the proposed central registers for high risk plant was conducted over a 12 week period up to October 2019. There was a high level of support for the registers across those sectors most affected, particularly construction and manufacturing, and also from specialist groups organised around particular types of plant.
- There was very clear support in submissions for retaining existing PECPR inspection processes and accreditations, but with a high level of acceptance that the scope of the scheme needed to be extended to new types of equipment, and that approved guidance and other supporting documents for the regulations need updating.
- A group of fewer than ten operators of large scale pressure equipment was the main source of objection to the central registers. The amended proposals to allow recognition of these operators (B and C following) have resulted from targeted engagement with these operators and professional groups. A fee for consideration of recognitions was discussed and generally agreed to in principle during this subsequent consultation.
- When we have policy decisions to allow the establishment of the registers and the granting of recognitions we will carry out more detailed costing analysis and consult further with these groups on more detailed proposals for fees.

B. Recognition of operators of certain high risk plant to maintain their own registers

Operators of large scale pressure equipment, such as petrochemical, pulp and paper and other significant processing plants, will be able to apply to WorkSafe for recognition to maintain their own records to meet the regulations, but without use of the central register.

Currently there are 15 such plants recognised to follow particular inspection practices under the PECPR regulations, either as inspection bodies for their own equipment, or able to operate risk-based inspection regimes to best effect with the large and complex production systems that they operate.

We consider that extending these recognitions to allow operators to maintain their own record keeping will not undermine the operation of the central registers because the equivalent recordkeeping will be maintained by recognised operators, audited for conformity with the regulations, and available to WorkSafe on request.

The registers will continue to operate effectively for serially produced equipment dispersed throughout the economy and for operators of smaller to medium-sized bespoke pressure equipment systems.

Status quo

- Under the PECPR Regulations, all controllers of plant are required to maintain full design verification, inspection and other records for each item of pressure equipment they operate. For larger operators this may involve significant inventory and inspection management systems and processes.
- Some of these larger operators have objected to additional fees and documentation costs that they would incur if their equipment (which may range from several hundred to 10,000 or more items in number) is required to be centrally registered. These larger operators are also concerned about the need to further document intellectual property and other commercially sensitive information to comply with central registration requirements.
- It is proposed that the regulations allow for such operators to maintain their own records, while meeting new audit and quality management requirements, to ensure the same standards of recordkeeping and disclosure are maintained as if they used a central register.
- Government intervention (ie granting recognition vs a complete exemption) is proposed to ensure that operators exempted from registration requirements still maintain expected standards. The preferred mechanism is for operators that meet the criteria to apply for recognition to maintain their own records of plant instead of the public registers.
- This is a new fee. Until now processing of similar applications under the PECPR Regulations has not been charged for and has therefore been funded from the Working Safer levy on all employers.
- As noted in the discussion of the fee for the registers discussed above, there is authority under the HSW Act to charge a fee for such services.

Policy Rationale: Why a user charge? And what type is most appropriate?

- Recognised operators will receive the private good of being able to operate their plant (as do operators of plant required to be registered). They receive this benefit without the cost of registration, documentation etc. The regulator also needs assurance that record keeping of compliance, and compliance itself is being carried out. It is therefore appropriate for WorkSafe to recover the costs of approving and maintaining oversight of recognitions.
- Full cost recovery is proposed. (In addition there is scope to add an additional charge for some of the costs of maintaining a central register for other operators, discussed below).
- Because each recognition will be based on detailed information provided by the controller/ operator and the complexity and size of the overall systems and processes (and requested information) will vary, we propose that the fee used to recover costs involved should be variable. We will do further work to determine whether this would best take the form of an hourly rate charged to process applications and audit operators, or a tiered fee structure.
- The costs will be met by operators themselves. We expect the number of recognitions to be fewer than 20 in total. Currently there are about 15 operations with recognitions for either self inspection of plant or to use risk-based inspection cycles to make the most efficient use of plant shut downs for maintenance. These are all larger organisations that will have the choice of using the central registers and meeting the associated fees and costs, or applying to WorkSafe for recognition to maintain their own records.

High level cost recovery model

- Operators of plant will not be required to register items of plant centrally if they meet the following criteria for a particular operation:
    - a minimum size threshold for the operation(s)
    - there is an audited Quality Management System that covers maintenance and operation of plant and equipment, and has a current certification to a recognised industry standard (eg ISO 9001).
- Recognition will be for five years. The applicant will supply with the application, and annually after that, documentation to demonstrate compliance with the regulations:
    - A schedule of equipment covered and a description of plant operations, and any processes relevant to its safe operation.
    - evidence that the equipment has been inspected in accordance with regulations, and which inspection body was used.
- Recognition is conditional on records being available on request to WorkSafe at any time. WorkSafe will also periodically check compliance on site.
- WorkSafe will need to be able to revoke, at any time, the approval for the PCBU to manage their own record keeping if the PCBU is not complying with the requirements (eg. if the PCBU could not supply evidence that equipment was being inspected as required).
- Applications will be processed by WorkSafe staff that operate the register and will be recorded on the register. A base charge may be required to recover a percentage of overhead costs for the register. This could include capital expenditure costs for its establishment. This is discussed below.

- Additional technical support will be required and we expect this to be the larger part of costs for individual applications. This may include initial assessments and one more thorough audit of inspection records during the five-year period of the recognition. This will vary according to the size of the operation.

Because the standard hourly rate for engineers is upwards of $170, and the work involved in reviewing the recordkeeping and auditing larger operation is likely to take several days, we would expect the assessment component of a fee for larger operations would be several thousand dollars or more. For operators with items of plant numbering in the hundreds rather than the thousands, we would expect fees for approving recognitions to be lower.

Consultation

- When we have policy decisions to establish the registers and to recognise certain operators we will consult further with operators of high-risk plant and others, including operators of large scale pressure equipment, on more detailed proposals for fees, including the above aspects.

C. Recognition of operators of certain high risk plant to maintain risk-based inspection programmes

These recognitions will apply to the same group of large scale operators of pressure equipment as discussed in B above.

Status quo

- Several large scale operators of pressure equipment are recognised under regulation 23 of the current PECPR Regulations to use risk-based inspection processes. (A subset of these operators are also recognised as inspection bodies to inspect their own equipment under the regulations.) These recognitions allow controllers to vary from the regulations and the approved code of practice for pressure equipment to operate risk-based inspection regimes to best effect as part of the large and complex production systems that they operate. They are permitted under the regulations when arrangements can be made to ensure any potential conflicts of interest are avoided.
- We intend to carry over these recognitions into new regulations.
- This is a form of permissioning that is necessary to maintain workplace and public safety, and which requires regulator involvement.
- Currently no fee for the assessment and granting of recognitions is able to be charged under the regulations.
- We are seeking a policy decision to allow WorkSafe to charge a fee for the consideration and approval of applications for recognition.

Policy Rationale: Why a user charge? And what type is most appropriate?

- Recognised operators are able to operate at variance from other operators to achieve a range of production and other efficiencies (a private good). To enable the variations in practice requested and ensure health and safety standards are maintained, the regulator must apply technical expertise to assess applications.
- Currently no fee is able to be charged under the regulations, meaning resources and expertise must be funded from the Working Safer Levy at the expense of WorkSafe's other programmes and services.
- We propose a new fee for equity reasons and to better support WorkSafe's case for better funding of engineering expertise to administer new plant and structures regulations.
- Full cost recovery is proposed on the same basis and at the same level as the assessment component of fees proposed for B above.

D. Territorial authority fees for amusement device permits (review of existing fees)

- Territorial authorities are required to permit all amusement device installations under the current Amusement Devices Regulations. Fees have not increased since the regulations were passed in 1978 and providing the service requires cross subsidisation by territorial authorities. There are varied practices and levels of engagement with the function among the different authorities.
- It is proposed that regulations retain a requirement for territorial authority permitting, but are revised to only require a permit for temporarily installed amusements that present a higher level risk – a "vertical bungy" or other larger device for example, but not a mini-merry-go round, or mini-trikes.
- We propose to revise fees payable to territorial authorities for permitting amusement devices under the new regulations.

Status quo

- The current Amusement Devices Regulations[87] require operators to register amusements with WorkSafe and for them to be regularly inspected by a qualified engineer, usually two-yearly, to maintain the mechanical safety of the equipment. Registration includes design verification requirements, and this will be strengthened through new, separate registration of designs.
- In addition, the Amusement Devices Regulations require that every time an amusement device is set up to be opened to the public, it must be permitted by the territorial authority with jurisdiction, and regulation 11 describes a process for granting a permit.
- Applications for a permit must be in a prescribed form and accompanied by a current certificate of registration.
- Before issuing a permit the territorial authority must "cause the site and device to be inspected by the local authority engineer or some other competent person".
- The inspection must have regard to whether the device is:

  (a) on ground that is capable of supporting it without risk of subsidence

  (b) positioned with sufficient clearance between it and any other objects in the vicinity to prevent injury to any person when it is in operation

  (c) enclosed by suitable protective fences or barriers

  (d) erected and operated in compliance with the applicable bylaws.
- The inspection is focused on public safety of customers and others in the vicinity. The rationale for government intervention is that independent assessment of a competent authority with knowledge of the site and community contributes to this.
- This was the original rationale for permitting when the regulations were passed. Recent consultation confirmed that territorial authority involvement is still justified, but only for temporarily installed devices that involve higher potential risks. Territorial authorities and amusement device operators also asked for more clarity on what is required for

[87] By reference to section 21A of the former Machinery Act 1950, which remains in force until the Amusement Devices Regulations 1978 are revoked.

inspections and the standards applicable, and it is proposed that new regulations allow the development of safe work instruments to provide this detail.

- The current fee to accompany an application for a permit was set in 1978. It is:
    - for 1 device, for the first 7 days of proposed operation, $10
    - for each additional device operated by the same owner, for the first 7 days, $2
    - for each device, $1 for each further period of 7 days.
- The statutory authority for prescribing a fee is set out in A, above.
- This is a revised fee. The revision will have regard to the level of service required by amended regulations and any relevant changes in territorial authority roles and structures that may impact their ability to provide the service.

Policy Rationale: Why a user charge? And what type is most appropriate?

- Cost recovery is appropriate for the activity. Operators of amusement devices receive private benefits from being able to sell rides to the public. The public's use of the rides is in turn premised on their being safe through regulations being met and their being regularly inspected.
- Full cost recovery is proposed. Territorial authorities consulted all referred emphatically to current fees not being adequate to cover services provided. Different authorities referred to different policies regarding cost recovery, and some were willing to subsidise services provided because of the importance of public safety at events, often on council land and/or that were part of their communities' focus and identity.
- We propose a single flat charge based on the average time required for a competent person to attend and inspect an amusement device installation. We propose keeping the current scalable basis of fees for multiple amusements and varying duration, but with an adjustment for current costs. This encourages the organisers of events to organise permitting and inspection as a whole, which improves logistics and accountabilities for territorial authorities, event organisers and operators.
- Fees will be met by amusement device operators and recovered from the public through the price they pay to ride on amusements. Currently there are 345 registered amusement devices nationally, and territorial authorities are required to inspect all of these. The number requiring action by territorial authorities is likely to decrease by up to 80 percent, with only temporarily installed higher risk category devices requiring territorial authority permitting.

Assumptions

- We have developed this proposal for fees on the assumption that it is necessary for them to be set in regulations because the regulations impose mandatory obligations/costs on amusement device operators and territorial authorities.
- We have assumed that with the obligation on territorial authorities to receive applications for a permit and to inspect devices in place, there is a need for the regulations to specify that a fee may be collected by the permitting authority.
- We have also assumed, that although territorial authorities usually issue consents for events where amusement devices are installed, and may charge fees for that role under

bylaws, the role required by the regulations under the Health and Safety at Work Act is distinct and, arguably, beyond the scope of fees that may be set under bylaws.

- There is, however is a question concerning whether the amount of the fees should be specified in the regulations. If they were not, there are two approaches that could be taken:
    - not referring to the amount in regulations
    - enabling territorial authorities to set fees in specific bylaws or by way of another process.
- A decision to use either of these approaches needs to be weighed against the above arguments of consistency, transparency and efficiency that apply to a single set of fees being applied for all territorial authorities.
- It is also important to note the distinction between the proposal and regulations that do not set fees because they rely on a competitive market of service providers to maintain efficiencies and ensure pricing is consistent with the costs incurred by providers. Clear examples here are:
    - motor vehicle inspection for warrants of fitness
    - test certifiers under the Health and Safety at Work (Hazardous Substances) Regulations 2017
    - inspection bodies under the PECPR Regulations.
- MBIE's view is that consistent fees set in regulations is the preferred option, because of the consistency it offers to operators and the public. It is possible because the inspection function for territorial authorities is clearly defined by the regulations and supporting guidance. We propose to test these assumptions and conclusions with further consultation on fees to accompany the exposure draft of the regulations.

High level cost recovery model (the level of the proposed fee and its cost components)

- We propose keeping the current scalable basis of fees for multiple amusements and varying duration, but with an adjustment for current costs.
- The recoverable costs are comprised of a combination of labour/consultancy costs and transport costs. If the 1978 fee were adjusted on the basis of wage index changes over the 42-year period, then the base rate would move from $10 to $90, and the $2 and $1 additional charges in the current fees would become $18 and $9 respectively. All fees are currently ex GST.
- Because of increases in wages, transport and other costs and changing costs in engineering consultancy and local authority practices, we consider these figures to be approximate only and likely to be lower than territorial authorities would suggest. However, we consider them a reasonable basis for further consultation, noting that there is also scope for varying the "discount" at which additional devices are charged, and the charges for additional duration.
- The fee would be based on the assumption that no provision is made for recovering overheads of councils in providing the service, and that building inspectors and engineering officers (ie those with vocational qualifications rather than being chartered professional engineers) are able to complete the inspections. However, notwithstanding

this issue, we consider the base fee is unlikely to vary by more than 50 percent up or down.

- There is another question concerning whether permits should be:
    - centrally recorded,
    - recorded in the log book to be kept with each item, or
    - recorded by individual authorities only.
- If it were practical, recording centrally, against the item register, could provide useful information and support compliance for WorkSafe and territorial authorities.

Consultation

- When we have policy decisions to repeal the Amusement Devices Regulations and replace them with the proposed new requirements we will consult further with territorial authorities and the amusement device sector on more detailed proposals for fees, including the above aspects.

E. Fees for licences to erect scaffolding (review of existing fees)

We are seeking agreement in principle to introduce five classes of licence for scaffolding workers:

- Basic scaffolder
- Intermediate scaffolder
- Advanced scaffolder
- Suspended scaffolding installation
- Scaffold inspection (basic and intermediate)

The licences will replace and supplement three certificates of competence currently issued under the Health and Safety in Employment Regulations 1995 – basic, intermediate and advanced.

Approval in principle is also sought to charge a fee for these licences, to consult further to determine who the issuing agency/agencies should be, and determine fee levels.

Status quo

Scaffolding

- Scaffolders are currently required to hold a certificate of competence issued under the Health and Safety in Employment Regulations 1995[88]. There are three classes of certificate according to the degree of complexity of the scaffolding being erected.
- The regulations allow WorkSafe to recognise other organisations to issue certificates of competence. Scaffolding certificates are issued by Scaffolding Access and Rigging NZ Inc. (SARNZ). SARNZ issues the three classes of scaffolding certificates to applicants that:
    - have achieved the appropriate unit standards towards the NZ Certificate of Scaffolding,
    - provide evidence of being physically and mentally able to perform the work, and
    - are of good character and reputation.
- There are 2500 certificates of competence that are current and recorded on the (publicly available) SARNZ register. Certificates must be renewed every four years.
- The 1995 regulations provide limited detail on the requirements for and the issue and renewal of certificates of competence. It is proposed that certificates of competence are replaced by a licence issued in the manner of other high-risk work licences, with further consultation on the level of fees and the use of a recognised organisation.
- Approval in principle is sought for there to be five classes of licence for scaffolding workers:
    - Basic scaffolder

[88] The 1995 regulations repeated provisions in the Construction Regulations 1961.

- Intermediate scaffolder
- Advanced scaffolder
- Suspended scaffolding installation
- Scaffold inspection (basic and intermediate)

- This is a reorganisation of three existing categories of scaffolding certificate, with the "suspended scaffolding" licence separated from the current "advanced" qualification and a new licence to inspect scaffolding only, ie not erect.
- Approval in principle is also sought to prescribe a fee for issuing licences, and to consult further to determine fee levels. Any consideration of the recognition of SARNZ or another organisation is an administrative matter that would be considered after regulations are made.
- Statutory authority to charge is described in part A of this statement.
- SARNZ have always charged fees for the issue of certificates of competence. Fees are set out in schedule 2 of the 1995 regulations.

Policy Rationale: Why a user charge? And what type is most appropriate?

- Cost recovery is appropriate for the activity because businesses and workers receive private benefits in being able to provide scaffolding services with the assurance that the worker is adequately trained so that the work is more likely to be completed safely and the scaffolding is erected properly.
- The new categories of licence will align the regulations with current practice in the sector and allow better enforcement of the requirement for scaffolding work to be carried out by competent workers. The new licence for inspectors of scaffolding is intended to provide a lower level qualification than for scaffolders. Instead it will provide a means for larger construction companies and sites, or those in isolated locations to ensure scaffolding is inspected by a competent person on a regular basis and without the expense or inconvenience of a licensed scaffolder having to travel to inspect an installed structure.
- Full cost recovery is proposed, with the prescribed fee payable to the issuing organisation. A single charge is proposed for all licence applications and renewal, and another lower fee for the reissue of a licence.
- Charges will be met by businesses, and in some cases, the workers themselves.
- Recognised organisations are likely to be dependent on fees to recover their costs, with limited ability to cross subsidise the costs of providing the service. This would require fees contained in regulations to be reviewed regularly.
- In addition to inflation adjustments, fees would also need to be periodically reviewed in light of changes in service provision, costs, demand levels, or other factors that may affect the ability of WorkSafe or recognised organisations to provide the service.

Assumptions

- The assumptions described in D above apply equally here.

High level cost recovery model (the level of the proposed fee and its cost components)

- Fees are for three classes of certificate of competence are prescribed in schedule 2 of the 1995 regulations. Current fees charged by SARNZ are (incl. GST):
    - Issue of new certificate (all classes) $112.00 ($92.00 certificate with $20 administration charge)
    - Renewal of certificate (all classes) $77.50
    - Replacement card/certificate $20.00
- Subject to further consultation we would expect the fees to remain about the same.
- The main cost drivers of the activity are labour and overhead costs for maintaining the register. These will stay low for individual applications if it can be assumed that qualifications issued by recognised providers meet the required standard. This will make the auditing and moderation processes important. They will be overseen by WorkSafe, as part of its monitoring function for the operation of the licensing system, but funded from the Safe Work Levy, and not fees.
- WorkSafe will also have an ongoing monitoring role to ensure that licences are fit for purpose and the requirement to hold a licence is maintained in workplaces. Where unit standards are involved New Zealand Qualifications Authority will be responsible for auditing and accrediting training providers.

Consultation

- Broad public consultation was completed in late 2019 with the general proposals for revised plant and structures regulations. Consultation focused on the height of scaffolding work for which a competency requirement should apply and the classes of work that should be licensed or otherwise “ticketed”.
- After policy decisions are taken to replace the certificates of competence under the 1995 regulations with the proposed 5 classes of scaffolding work licence, we propose to consult further on fees.
- This will initially be completed as part of a discussion document accompanying and explaining an exposure draft of the plant and structures regulations. Determination of who the issuing agency/agencies should be will follow.

F. Fees payable to WorkSafe for recognition as inspection body

We are proposing the introduction of fees for recognition of inspection bodies under the regulations.

Status quo

- Part 4 of the current PECPR Regulations contains administrative arrangements for the operation of the regulations. These focus on the regulator (ie WorkSafe) recognising various documents, and also organisations to perform the functions required for the operation of the regulations. The regulations create a regulated market for engineering services in relation to high-risk plant, although new providers are able to seek recognition to enter the market at any time.
- The key functions which organisations are recognised to perform are:
    - inspection bodies, within or beyond New Zealand, that are able to issue inspection certificates for equipment (approximately 35 in total under current regulations)
    - granting certificates of competence for individuals to inspect equipment on behalf of inspection bodies (70-100 in number)
    - granting certificates of competence for individuals to complete design verification on behalf of inspection bodies.
- Organisations recognised to perform the latter two categories are described in the regulations as “qualification issuing agencies”. These are not for profit bodies charged with performing such a role and/or others and we are not proposing a fee for the recognition of these bodies.
- WorkSafe recognises inspection bodies that have been accredited by International Accreditation New Zealand (IANZ) or its Australian or another overseas equivalent, and which meet specified criteria. Inspection bodies are authorised to perform all or any of the functions listed in regulation 25.
- We are proposing charging a fee for recognition of inspection bodies. This would be a new fee for services which are currently performed by WorkSafe without cost recovery.

Policy Rationale: Why a user charge? And what type is most appropriate?

- Because recognised inspection bodies receive a private good, ie they are able to engage inspection personnel and to offer their inspection services to plant operators, it is appropriate for WorkSafe to charge for the processing and assessment of applications for recognition as an inspection body.
- Full cost recovery is proposed.
- Current PECPR Regulation 25 provides that WorkSafe may recognise an organisation as an inspection body if satisfied that:

    (a) it is currently accredited, to a recognised industry standard, by International Accreditation New Zealand on behalf of the Accreditation Council or by the National Association of Testing Authorities, Australia; and

(b) it operates in Australia or New Zealand; and

(c) it has a procedure in place to ensure that every person employed or engaged by it as a design verifier or an equipment inspector is the holder of a relevant certificate of competence; and

(d) it has a procedure in place to ensure that every person employed or engaged by it as a trainee design verifier or a trainee equipment inspector is appropriately qualified, is a fit and proper person, and is effectively supervised; and

(e) it has a procedure in place to ensure that design verification is carried out only by a design verifier holding an appropriate qualification; and

(f) it has a procedure in place to ensure that equipment inspection is carried out only by an equipment inspector holding an appropriate qualification; and

(g) it has afforded an employee of the department, nominated by WorkSafe, an opportunity of participating in assessments of the organisation's management system by, in New Zealand, International Accreditation New Zealand on behalf of the Accreditation Council or, in Australia, the National Association of Testing Authorities, Australia; and

(h) it is likely to carry out its inspection work in an objective fashion that promotes safety and the public interest; and

(i) there is no reasonably foreseeable conflict of interest between its design verification work, its inspection work, and any other work it does or is likely to do.

- Alternatively, WorkSafe may recognise an inspection body that:
    - does not operate in Australia or New Zealand that has been accredited to an accepted standard by an organisation recognised by IANZ, and
    - has a status equal to an inspection body under the law of the country in which it is headquartered.
- This allows New Zealand firms to be able to meet the regulations more efficiently by allowing design verification, fabrication inspection and other functions to be conducted by recognised bodies abroad. We are not proposing fees for recognition of these organisations as inspection bodies.
- Each of the underlined clauses above involves the examination of documentary or other records by WorkSafe to assess applications. Because recognition will involve organisations of varying size and complexity (from a single engineer to larger international engineering consultancies) and will be based on detailed information provided by the controller/ operator and the complexity and size of the overall systems and processes will vary, we propose that the fee used to recover costs involved should be variable. We will conduct further work to determine whether this would best take the form of an hourly rate charged to process applications and audit operators, or a tiered fee structure.
- The period of recognition is not currently prescribed in regulations. A period and any other conditions must be specified by WorkSafe in granting the recognition. We propose the regulations specify a maximum period of five years, conditional on maintaining accreditation during that period.

High level cost recovery model

- Full cost recovery is proposed on the same basis and at the same level as the assessment component of fees proposed for B above.
- With approval in principle to charge a fee, we will prepare more detailed proposals for fees and consult with industry. This would include discussion of whether to use an hourly rate alone, a tiered structure or a combination of a base rate and an hourly rate for technical expertise engaged in assessing proposals.
- There could also be consultation on maximum fees that might apply to any one class of application