

Queensland Government
Office of Industrial Relations

Submitted via email: WHSActReview@oir.qld.gov.au.

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2022 Review of the Work Health and Safety Act 2011 (QLD)

The Australian Energy Council ('AEC') welcomes the opportunity to make a submission to the 2022 Review of the *Work Health and Safety Act 2011 (QLD)* (the 'Act').

The Australian Energy Council is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. AEC members generate and sell energy to over 10 million homes and businesses and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 per cent emissions reduction target by 2035 and is committed to delivering the energy transition for the benefit of consumers.

The AEC has provided some comments below on how the Act can be improved, specifically in relation to notifiable events.

Notifiable Event

There is a lack of clarity over how to determine whether an event constitutes a Notifiable Event under the Act. This lack of clarity has led to different responses from the WHS Queensland Regulator at times. When members have contacted the Regulator to seek clarity about when an event is considered Notifiable, they have received inconsistent advice. For example, members have been advised that an event is not Notifiable since no person was exposed in the area (regardless of whether the item fell inside or outside the barricaded area), and on other similar occasions have been advised that it was considered Notifiable (even if the item fell outside the barricaded area).

Example 1: Fall or Release from Heights

There are three key elements for determining whether a fall or release from a height of any plant, substance or thing is notifiable under the Act:

- an object must have fallen from height;
- there must be 'serious risk'; and
- there must be 'immediate or imminent exposure'.

There is no clear guidance (in the legislation or otherwise) as to what is a 'serious risk' or what is an 'immediate or imminent exposure' in the context of a dropped object under the Act.

The degree of the risk from any particular drop is often complex and depends on a variety of factors. Reasonable minds may differ and for this reason, to enable AEC members to fully comply with their legal obligations in relation to notifiable incidents, members have researched industry guidance, journal articles and academic material to develop their own understanding. This is provided below.

Determination of 'serious risk'

The Australian Institute of Health and Safety [OHS Body of Knowledge \(2019\) Chapter 27: Gravitational Hazards](#), outlines that understanding gravitational hazards requires an understanding of the technical factors, including the 'physics of falls, in the causation and likely severity of injury of slips, trips and falls'. This includes understanding the magnitude of energy (in joules).

The mathematics outlined in Section 4.1 of Chapter 27 of the OHS Body of Knowledge has been used in a joules calculator to calculate the kinetic energy (in joules) of the object based on its starting height, mass, and acceleration due to gravity.

To determine the seriousness of the potential injury, two sources of information have been reviewed:

- The [Lethality Criteria for Debris Generated from Accidental Explosions \(2010\)](#) published by the UK Ministry for Defence, which identifies an impact of 103 joules to the head is required for a fragment to have a 50 percent probability of causing a fatal incident.
- The [Lethality of Unprotected Persons Due to Debris and Fragments \(1982\)](#), published by Ernst Basler & Partners Consulting Engineers and Planners in Switzerland, which outlines the impact of debris on different body regions.

Based on these two sources and the 50 percent probability of causing a fatal incident to the head region, a conservative approach of 100 Joules has been utilised as the basis of the decision making for seriousness of an incident.

If an incident is determined to be between 100-150 Joules, at this point further consideration is given to incident factors (i.e. dropped object shape, size and PPE worn (helmet)). Reference to the following two sources assist in refining the joules that dictate serious risk:

- [AS/NZS 1801:1997 \(1.10\)](#) – Section 4.6 and 4.7 outlines that a helmet shall provide 50+-1 Joule of shock absorption and resistance to penetration respectively from an impact.
- [EN397:2012](#) – National Standards Authority of Ireland (NSAI) for industrial safety helmets demonstrate through testing that a helmet can provide 49 Joules of shock absorption from a round metal object and 29 Joules of resistance to penetration from a sharp-edged object.

Generally, if an incident has resulted in over 150 Joules, it is considered to be a serious risk.

Determination of 'immediate and imminent exposure'

A summary of the methodology adopted by some members to determine the immediate and imminent exposure associated with a dropped object (and also whether it is a notifiable incident under the Act) is as follows:

To determine the immediate and imminent exposure, two sources of information regarding drop zones were reviewed:

- The [Guideline Note for Drop Zone Management within the Victorian Electricity Supply Industry \(2016\)](#) published by Victorian Electricity Supply Industry, which identifies a drop zone radius based on angles from 14.6 degrees to 18.2 degrees.
- The [Recommended Practice DNV-RP-F107 – Risk Assessment of Pipeline Protection \(2010\)](#) published by Det Norske Veritas, which identifies a drop zone radius based on angles from 2 degrees to 15 degrees.

Based on a combination of industry guidance and members own assessments, a 15 degree drop zone radius has been utilised as the basis of the determination of immediate and imminent exposure to a worker.

Then, in general, the following analysis is applied based on the above drop zone calculations:

- When an object falls and a person **IS** standing in the direct impact point (the direct impact point would be affected by the size of the object) they would be struck and the result would probably be defined by the fatality or serious injury outcomes. This would be notifiable.
- When an object falls and a person **WAS** standing in the direct impact point and **IS** within the drop zone then it would be considered immediate exposure and would therefore be notifiable.
- When an object falls and a person **WAS NOT** in the direct impact point but **IS** within the drop zone then it would be considered imminent exposure and would therefore be notifiable.
- When an object falls and a person **WAS NOT** in the direct impact point and **WAS NOT** within the drop zone then it would be considered that there was no immediate exposure or imminent exposure. In this case, it is not notifiable.

To be clear, whether an incident is notified to the regulator does not determine the response AEC members take to ensure that the incident does not occur again. Members take every incident and near miss very seriously and comprehensively review the causes and contributing factors for all dropped object matters and put control measures in place to prevent re-occurrence.

Example 2: Steam Leak

The same problems arise as explained in example 1 but for instances where the sites experience a steam leak. The risks associated with a steam leak can vary (for example, the risks associated with a steam leak on a pipe that is located 20 metres above the ground is quite different to a leak that is at ground level).

Under the Act, there are key elements required for an incident to be deemed notifiable as a Dangerous Event: These are that:

- an uncontrolled escape of gas or steam;
- there must be 'serious risk'; and
- there must be 'immediate or imminent exposure'.

There is no clear guidance (in the legislation or otherwise) as to what is a 'serious risk' or what is an 'immediate or imminent exposure' in the context of a steam leak under the Act.

The AEC would welcome the opportunity to explore these matters further through hosting a knowledge-sharing workshop with the regulator and/or other key stakeholders.

Any questions about this submission should be addressed to Rhys Thomas, by email Rhys.Thomas@energycouncil.com.au or mobile on 0450 150 794.

Yours sincerely,

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