Clean Energy Council submission to the Australasian Fire and Emergency Service Authorities Council Draft Guidelines for Incidents Involving PV Array and Battery Energy Storage Systems

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback on the Australasian Fire and Emergency Services Authorities Council (AFAC) draft Guidelines for Incidents involving PV Array and Battery Energy Storage Systems.

The Clean Energy Council is the peak body for the clean energy industry in Australia. We represent and work with Australia's leading renewable energy and energy storage businesses, as well as rooftop solar installers, to further the development of clean energy in Australia. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

The CEC appreciates the need and supports the process to develop guidance to assist risk assessment based on the situation and the characteristics of the individual system under consideration.

We support AFAC's proposal to obtain access to the data on PV arrays and battery energy storage systems which is available through the centralised DER Register managed by the Australian Energy Market Operator (AEMO).

We note that the proposed approach appears to be based on a 'worst case scenario' that assumes that all PV systems include a lithium chemistry battery and that all lithium chemistry batteries could start a thermal runaway process leading to explosion and release of toxic, explosive gases such as Hydrogen Fluoride, Hydrochloric acid, and Hydrogen Cyanide. This would be a highly conservative assumption. Risks could be better assessed using the DER register to identify which buildings contain lithium-based batteries. By coupling the data available from Safety Data Sheets and other manufacturers' advice with the data in the DER Register, it should be possible to develop a more targeted approach to the assessment of risks that emergency responders should consider when attending sites with PV arrays and/or battery energy storage systems.

The CEC and our members have been working with the South Australia (SA) Metropolitan Fire Service to assist with the collection of information required for managing emergency situations involving battery energy storage systems. We would welcome the opportunity to extend that approach to AFAC.

We would be very happy to discuss these issues in further detail with representatives of AFAC. We have also included some more detailed responses to issues arising from the draft Guidelines in the remainder of this submission. We look forward to contributing further to this important area of risk management.

Standards and best practice guides for battery safety

The guideline refers to AS/NZS 5033 *Installation and Safety Requirements for Photovoltaic (PV) Arrays*. There are other standards and Best Practice Guides used to improve the safety of battery products and installation in Australia and it would be worthwhile for AFAC to be aware of them. Other relevant standards and Best Practice Guides in use in Australia include:

- AS/NZS 5139 - Electrical installations - Safety of battery systems for use with power conversion equipment
- AS/IEC 62619 - Safety requirements for lithium cells and batteries
- UL 1973 - Standard for batteries for use in stationary, vehicle auxiliary power and light electric rail
- The Battery Best Practice Guide – A best practice guide for safety of lithium-based battery storage equipment, which draws upon AS/IEC 62619, UL 1973 and other Australian and international standards
- CEC Approved Product List – A publicly available list of battery systems and battery energy storage systems (BESSs) that have demonstrated compliance with the Battery Best Practice Guide

The CEC would be happy arrange a workshop or other opportunity for AFAC representatives to review these standards and Best Practice Guides and how they are used to manage the risks associated with lithium batteries.

Shutdown procedure for battery systems

The proposed shutdown procedure does not allow for any backup or essential load circuits. The CEC would be pleased to arrange an opportunity for additional consultation between representatives of AFAC and battery system manufacturers. This issue could also be identified in the training section of the guidelines.