Risk Assessment
NSW PDRS BESS1
Informed by AS/NZS 5139:2019

Accredited Certificate Provider
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Installation Company
[Company name]
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Installation Details.

Installed BESS.					
System owner	Joe Bloggs	**Phone**	8765 4321	**Email**	joebloggs@email.com
Site address	1 Imaginary Drive, Wishville, VICTORIA 3123				
DVC of installation	C	**Battery chemistry**	Lithium Ion	**IP rating of BESS**	65

Risk Assessment.

(The purpose of this sample risk assessment is to provide installers of battery systems with a guide to carrying out a risk assessment for compliance with AS/NZS 5139)

Step 1				Step 2	Step 3	Step 4
#	**Hazard description**	**Potential source**	**Potential consequences**	**Inherent risk**	**Control**	**Residual risk**
1	Electrical and other hazards	• Contact with live conductors • Fault or short circuit current from the battery impacting the rest of the electrical installation	• Electrocution • Fire • Battery overheating or a rupture leading to hazards identified below	High	• Follow the relevant section of AS/NZS 5139:2019 such as: • Section 3 provides the types of hazards associated with battery energy storage systems. • Section 5 provides the installation requirements for CEC approved BS	Medium
2	Energy hazard[1]	• Arc flash from insufficient isolation or insulation • Some parts of a BS may remain energised.	• Burns to eyes and skin	High	• Installation and maintenance activities shall be done as per the manufacturer's instructions • Inspect equipment for damage before installing. • Remove exposed metal or conductive items such as jewellery, zips, watches • PPE level to be appropriate for calculated incident energy calculation in line with AS/NZS 5139:2019 Clause 3.2.4.2.1 and the resulting arc flash boundary	Medium
3	Mechanical hazards	• Crush by weight of batteries or equipment • Crushing by falling over/tipping of batteries **Battery weight** [xx] **kg** • Site-specific hazards[2] **ie. Vehicle impact**	• Crushing to body parts • Site-specific consequences[3] **ie. Fire or Explosion** • [consequence 1] • [consequence 2] • [consequence 3]	Medium	• Installation and maintenance activities shall be done as per the manufacturer's instructions • Adequate structural strength of supporting provided • Site-specific controls[4] **ie. Bollard Installation** • [control 1] • [control 2] • [control 3]	Low
4	Fire, chemicals and biological hazards *NOTE: NA in relation to the hazard classification Table 3.1 of AS/NZS 5139:2019*[5]	• Excessively high or low temperatures • Over and under-voltage • Overcharged or over-discharged • Puncturing or failure of the battery casing • Thermal runaway • Internal short circuit	• Burns to eyes and skin	Medium	• CEC approved BS are not expected to create fire, chemicals and biological hazards. • Installation of smoke alarms • See Table 3.1 of AS/NZS 5139	Low

5	Explosive gas hazards	• Explosive gas generated by batteries • Inadvertent ignition of flammable gas	• Burns to eyes and skin • Secondary injuries as a result of explosions	High	• Follow manufacturers advice on Installation and maintenance activities • Inspect equipment for damage before installing	Low
6	Toxic fumes hazards	• Consult manufacturer for advice on Toxic fumes generated from different types of batteries in: • Normal operation • Fault conditions	• Consult manufacturer for advice on: • Poisoning • Asphyxiation • Burns to airway tissues (e.g. from corrosive gases) • Other consequences	High	• Follow manufacturers advice on installation and maintenance activities • Inspect equipment for damage before installing. • CEC approved BS are not expected to create toxic fumes hazards. • See Table 3.1 of AS/NZS 5139	Low
7	Environmental Hazards	• Installation location • Earthing • Ingress protection to live parts • Exceeding thermal product range	• Electrocution • Fire • Battery overheating or a rupture leading to further hazards	High	• Ensure products are installed as per the manufacturer's guidance • Ensure products are appropriately IP rated for their environment • Install UV protection where required	Low
8						
9						
10						

[1] This hazard should be considered for all CEC approved BSs, and additionally for CEC approved pre-assembled integrated battery energy storage systems (BESS) where the installer is required to make connections on the DC side of the system (e.g. connecting equipment that is delivered to site as two or more modules). should be considered for each individual situation.
[2] Site specific sources of hazards (e.g. impact from vehicles), should be considered for each individual situation. should be considered for each individual situation.
[3] Site specific sources of consequences (e.g. damage to battery system, creating toxic fumes or other hazards) should be considered for each individual situation.
[4] Site specific sources of controls (e.g. bollards) should be considered for each individual situation.
[5] Material Safety Data Sheets shall be provided at the completion of installation. (Refer to AS/NZS 5139:2019 Clause 6.4.1)

Form Columns.

Hazard description: as described in AS/NZS 5139:2019.
Potential source: any or reasonably foreseeable abnormal conditions or reasonably foreseeable misuse
Potential consequences: the most likely outcome
Inherent risk: cross-referencing the consequence against the likelihood of it occurring in the risk matrix (before the controls are implemented) Controls: should consider the hierarchy of control methods described in the relevant OHS/WHS Regulations and AS/NZS 5139:2019 Residual risk: cross-referencing the consequence against the likelihood of it occurring in the risk matrix (after the controls are implemented)

Risk Assessment.

- The focus of this risk assessment is on the risk control measures necessary to minimise risks from exposure to the hazards associated with the installation, operation and maintenance of the battery systems.
- AS/NZS 5139:2019, Appendix G provides guidance in the hazard identification, risk assessment and risk control and evaluation process.
- The principles of hazard management are hazard identification, risk assessment and application of appropriate risk control measures to eliminate the hazard or if this is not reasonably practicable, to minimise the risks as far as is reasonably practicable.

1.1 Hazard Identification
Hazard identification is the process of identifying all situations or events that could give rise to the potential of injury or illness. The use of a CEC approved pre- assembled battery system (BS) ensures that the risk of injury from the BS equipment is minimised as far as is reasonably practicable. Site-specific hazards must be identified for each installation.
1.2 Risk Assessment
Risk assessment is the process of determining whether there are any risks associated with the hazards identified and the level of risks involved. This generally involves:
- Consequence or Severity of the injury or illness if the hazard occurs
- Likelihood of it occurring

AS/NZS 5139:2019, Appendix G, Table 3 - Risk Matrix Table may be used for risk assessment.
When determining the level of severity or consequence, consider the amount of energy or damage it can cause as if there are no controls in place. When determining the likelihood of a hazard occurring, the assessment considers the adequacy of current risk controls in place for existing BS.
1.3 Risk Control & Evaluation
The hierarchy of risk control methods (involving Elimination, Substitution, Engineering, Administration and Personal Protective Equipment) must be taken into consideration together with reasonably practicable considerations when implementing risk controls.

For warranty or installation support, please contact the Installation Company (refer to top of page)
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