Battery Audit Checklist (version 1.6)

Auditors for the Solar Homes Program use this checklist when they conduct audit inspections of battery installations.



[solar.vic.gov.au](http://www.solar.vic.gov.au)



We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria’s land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom   
has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria’s Aboriginal community to progress their aspirations.

The Mirring artwork is reproduced with the permission of the Artist, Thomas Day of Gunditjmara, Yorta Yorta and Wemba Wemba Country.

© The State of Victoria Department of Energy, Environment and Climate Action, January 2025.

Creative Commons

This work is licensed under a Creative Commons Attribution 4.0 International licence, visit the [Creative Commons website](http://creativecommons.org/licenses/by/4.0/) (<http://creativecommons.org/licenses/by/4.0/>).

You are free to re-use the work under that licence, on the condition that you credit the State of Victoria as author. The licence does not apply to any images, photographs or branding, including the Victorian Coat of Arms, and the Victorian Government and Department logos.

**ISBN** 978-1-76176-051-8 **(MS word)**

Disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Accessibility

To receive this publication in an alternative format, please contact Solar Victoria at [comms@team.solar.vic.gov.au](mailto:comms@team.solar.vic.gov.au). This document is also available on the internet at   
[solar.vic.gov.au](http://www.solar.vic.gov.au).

Acknowledgements

Solar Victoria collaborated with Energy Safe Victoria and TechSafe Australia to develop this audit checklist.

For more information about Solar Victoria’s commitment to safety and quality, including our audit program and requirements for participation in the Solar Homes Program, visit:

[solar.vic.gov.au/industry](https://www.solar.vic.gov.au/industry)

Contents

[1. Understanding this audit checklist 1](#_Toc187909680)

[1.1 What do auditors look at when they conduct inspections? 1](#_Toc187909681)

[1.2 What do these ratings mean? 1](#_Toc187909682)

[1.3 Changes to this audit checklist 1](#_Toc187909683)

[2. Battery Audit Checklist items 2](#_Toc187909684)

[2.1 Switchboard and Labelling 2](#_Toc187909685)

[2.2 Existing Solar 4](#_Toc187909686)

[2.3 Battery General 4](#_Toc187909687)

[2.4 BESS (Sect. 4 of 5139) 5](#_Toc187909688)

[2.5 BS (Sect. 4 of 5139) 11](#_Toc187909689)

# Understanding this audit checklist

Auditors for the Solar Homes Program use this checklist when they conduct audit inspections of battery installations.

This battery audit checklist:

* 1. is specific to the Solar Homes Program solar battery stream
  2. comprises the questions for the audit of Solar Homes Program solar battery installations nominally performed within six months of the solar battery installation date – focusing on safety and standards
  3. is NOT and should not be regarded as an audit checklist for solar battery installations more broadly
  4. is NOT a checklist for installing a solar battery system.

## What do auditors look at when they conduct inspections?

Auditors will assess the following components of an installed battery system:

* 1. Switchboard and Labelling.
  2. Existing Solar.
  3. Battery General.
  4. BESS (Sect. 4 of 5139).
  5. BS (Sect. 4 of 5139).

## What do these ratings mean?

|  |  |
| --- | --- |
| Rating | Explanation |
| Unsafe | This means there is a safety hazard which poses an imminent risk of damage to property or persons and that the system will be shut down until rendered safe. |
| Needs Rectification | This means the system does not meet key safety and quality clauses in the standards/guidelines for installation. The installation does not pose an imminent safety risk but may be at risk of becoming unsafe in the future. The system requires priority rectification by the retailer and installer. |
| Improvements Identified (For Information) | This means the system does not pose a safety risk but was found to not comply with all standards and guidelines. |
| Adequate | This means no evidence of material non-compliance with standards or guidelines was identified and that the system was installed satisfactorily. |

## Changes to this audit checklist

Checklist items updated in version 1.6 are highlighted for information purposes only:

* Orange fill checklist items indicate new questions
* Grey fill checklist items indicate changes to ratings or wordings

Updates to version 1.6 of this checklist reflect the new AS/NZ 4777.1:2024, which focuses on inverters. Most are minor wording changes to reflect the terminology of the new standard. Two new questions were added to reflect new detail covered by the standard, and three obsolete questions were removed.

# Battery Audit Checklist items

## Switchboard and Labelling

|  |  |  |  |
| --- | --- | --- | --- |
| Checklist Item | Question | Applicable Rating | Relevant Standards/ References |
| **Safety Warning Labelling 1** | Is signage, consisting of circular, green reflector of at least 100mm in diameter, with the letters "ES", installed immediately on or adjacent to the meter box and switchboard, and is readily available to be seen by approaching emergency workers? | Needs Rectification | AS/NZS 5139:2019 CL7.3, Appendix B CLB2 |
| **Label 3** | Is the United Nations number for the primary chemistry installed below the "ES" lettering, e.g. UN3480? | Improvements Identified | AS/NZ S5139:2019 CL7.3, Appendix B CLB1 |
| **Label 4** | If the Battery Energy Storage System is not easily located, is there a plan or drawing showing the location of the Battery Energy Storage System located at the main switchboard which includes the location of shutdown procedures? | Improvements Identified | AS/NZS 5139:2019 CL7.4, Appendix B example Figure B.2 |
| **Label 6** | If the Battery Energy Storage System is located adjacent (i.e. next to or adjoining without obstruction and within arm’s reach) to the switchboard and if multiple battery systems or BESS are installed, is there a sign for each that provides an identifiable number together with the total number of systems installed? For example, BESS 1 of 3? | Improvements Identified | AS/NZS5139:2019 CL7.6 |
| **Label 8** | Is there a Safety Data Sheet (hard copy, not digital) installed within a document holder at the main switchboard or meter box? | Improvements Identified | AS/NZS5139:2019 CL7.7 |
| **Label 9** | If battery/inverter system is connected to the main switchboard has the grid supply main switch been labelled "MAIN SWITCH (GRID)” or similar, alternatively if the battery/inverter system has been connected to a distribution board has a sign containing the words "MAIN ISOLATOR (GRID)” or similar been placed adjacent to the isolator for the normal supply to the distribution switchboard. | Improvements Identified | AS/NZS 4777.1:2024 Clause 6.3 (b) and (c) |
| **Switchboard 1** | What is the size of circuit breaker controlling "MAIN SWITCH (GRID)?" | Information Only | Size refers to Label 9 |
| **Label 10** | Have supplementary supplies been labelled as “MAIN SWITCH (INVERTER)" at the switchboard to which they are directly connected? | Improvements Identified | AS/NZS 4777.1:2024 Clause 6.3 (a) |
| **Switchboard 2** | What is the size of circuit breaker controlling 'Main Switch Inverter Supply' or "Main Switch Battery supply"? | Information Only | Size refers to Label 10 |
| **Switchboard 3** | Is the AC circuit breaker suitably sized to protect the cable supplying the Battery Energy Storage System/Inverter? | Needs Rectification | AS/NZS 4777.1:2024 Clause 3.4.2; AS/NZS 3000:2018 Cl 2.5.3.1 |
| **Safety Warning Labelling 2** | Have battery/inverter systems utilizing an alternative supply been supplied with an alternative supply main switch in the switchboard they are supplying? and has it been labelled “MAIN SWITCH (ALTERNATIVE)”. | Needs Rectification | AS/NZS 4777.1:2024 clause 5.3.6.2 and 6.3 (d) |
| **Switchboard 6** | Is there an alternative supply from the BESS/inverter? | Information Only | N/A |
| **Switchboard 7** | Do the alternative supply circuits have appropriate RCD protection? | Needs Rectification | AS/NZS 4777.1:2024 Clause 5.3.6.4; AS/NZS 3000:2018 amendment 2 Clause 2.6.3.2.5 (a) |
| **Switchboard 8** | Are there any parallel earth-neutral (secondary MEN) connections present in the battery system/inverter or associated wiring? | Needs Rectification | AS/NZS 4777.1:2024 Clause 8.3.3.2.2 and 8.3.3.3.2.; AS/NZS 3000:2018 Clause 8.3.7.2 (f) |
| **Switchboard 9** | Is neutral continuity maintained for all circuits provided and operating on an alternative supply? | Unsafe | AS/NZS 4777.1:2024 Clause 5.3.2.2 and 8.3.4.4.2 |
| **Safety Warning Labelling 3** | Has a warning label been installed at the main switchboard and all intermediate distribution boards to indicate a multimode inverter with alternative supply has been installed and to follow the shutdown procedure for safe isolation? Additionally, is the text "Neutral and earth circuits may be live under fault conditions" included on this sign? | Needs Rectification | AS/NZS 4777.1:2024 Clause 6.8 |
| **Safety Warning Labelling 4** | Does the switchboard contain the label "Multiple Supplies Isolate all Supplies before Working on this Switchboard”? | Needs Rectification | AS/NZS 4777.1:2024 Clause 6.3 (g) |
| **Label 14** | Are circuits that are backed up when the grid is not available grouped and appropriately labelled? | Improvements Identified | AS/NZS 3000 Clause 2.10.5.2; AS/NZS 4777.1:2024 Clause 5.3.6.1 |
| **Label 15** | Are all required labels associated with the PV installation that are relevant to the BS present? Add notes in comments section below | Improvements Identified | N/A |
| **Switchboard 10**  *New item* | Are the inverter/battery supplementary supply cable and associated overcurrent protection device, rated higher than the summation of battery system charging current plus alternative supply overcurrent protection device rating or maximum demand of the alternative supply? | Improvements Identified | AS/NZS 4777.1:2024 Clause 3.4.1 and 5.3.4 |
| **Switchboard 11**  *New item* | After turning on the "MAIN SWITCH(INVERTER)" does it take greater than 60 seconds for current to be shown on the supplementary supply active conductor? | Needs Rectification | AS/NZS 4777.1:2024 Clause 8.4.1 (a); ESGR regulation 245 (a) |
| **Switchboard 12**  *New item* | After turning off the "MAIN SWITCH(INVERTER)" does it take less than 2 seconds for current to dissipate from the supplementary supply active conductor? | Needs Rectification | AS/NZS 4777.1:2024 Clause 8.4.1 (b); ESGR regulation 245 (b) |

## Existing Solar

|  |  |  |  |
| --- | --- | --- | --- |
| **Checklist Item** | **Question** | **Applicable Rating** | **Relevant Standards/ References** |
| **PV 1** | Is the solar PV system operational at commencement of the audit? | Information Only | N/A |
| **PV 3** | Inverter Nominal AC Power rating | Information Only | N/A |

## Battery General

|  |  |  |  |
| --- | --- | --- | --- |
| **Checklist Item** | **Question** | **Applicable Rating** | **Relevant Standards/ References** |
| BG 1 | Is the Battery Energy Storage operational at commencement of the audit? | Information Only | AS/NZS 5139:2019 |
| BG 3 | Classification- Pre-assembled Integrated BESS/Pre-assembled BS/Other | Information Only | N/A |
| BG 4 | If response to BG3 is Pre-Assembled Integrated BESS, complete the following Section: BESS (Sect. 4 of 5139)  If response to BG 3 is Pre-Assembled BS, complete the following Section: BS (Sect. 5 of 5139)  If response to BG3 is Other, the Battery does not meet Solar Victoria’s requirements (e.g. Recalled). | Information Only | N/A |
| BG 5 | What is the serial number of the inverter? | Information Only | N/A |

## BESS (Sect. 4 of 5139)

|  |  |  |  |
| --- | --- | --- | --- |
| **Checklist Item** | **Question** | **Applicable Rating** | **Relevant Standards/ References** |
| Integrated 1 | This section applies to installations of lithium-ion pre-assembled integrated Battery Energy Storage System (BESS) as defined in AS/NZS 5139:2019 CL 4.1 | Information Only | AS/NZS 5139:2019 CL 4.1 |
| Integrated 2 | Are there any signs of alterations or additions that would result in the lithium-ion pre-assembled integrated BESS no longer conforming to the [Best Practice Guide: Battery Storage Equipment- Electrical Safety Requirements](https://cleanenergycouncil.org.au/industry-programs/products-program/batteries)? | Needs Rectification | AS/NZS 5139:2019 CL 4.4.2.3 |
| Integrated 10 | If yes to Integrated 2, are the signs of alterations or additions that make the lithium-ion pre-assembled integrated BESS no longer conforming such that it is unsafe? | Unsafe | AS/NZS 5139:2019 CL 4.4.2.3 |
| Integrated 3 | Where is the lithium-ion pre-assembled integrated BESS installed? What location is it installed in (internal or external)? | Information Only | N/A |
| Integrated 4 | What is the make of the lithium-ion pre-assembled integrated BESS? | Information Only | N/A |
| Integrated 5 | What is the model of the lithium-ion pre-assembled integrated BESS? | Information Only | N/A |
| Integrated 57 | What is the serial number of the lithium-ion pre-assembled integrated BESS? | Information Only | N/A |
| Integrated 6 | What is the total battery storage capacity in KWh? | Information Only | N/A |
| Integrated 7 | Does the battery appear operational (e.g., no warning lights)? | Information Only | N/A |
| Integrated 8 | What is the nominal AC output rating of the lithium-ion pre-assembled integrated BESS? | Information Only | N/A |
| Integrated 9 | What is the peak AC output rating of the lithium-ion pre-assembled integrated BESS? | Information Only | N/A |
| Integrated 51 | Was the lithium-ion integrated BESS an approved product on the [Solar Victoria battery product list](https://www.solar.vic.gov.au/product-lists#solar-batteries) at the time of installation? | Needs Rectification | N/A |
| Integrated 52 | Was the lithium-ion integrated BESS an approved product on the [Clean Energy Council’s "Approved battery list"](https://cleanenergycouncil.org.au/industry-programs/products-program/batteries) at the time of installation? | Needs Rectification | N/A |
| Integrated 53 | Has the lithium-ion integrated BESS been recalled by the manufacturer or regulator? | Needs Rectification | N/A |
| Label 1 | Is there a sign adjacent to the lithium-ion pre-assembled integrated BESS that states:   * 1. Battery System or Battery Energy Storage System   2. The correct short-circuit current (specifying current in amperes)   3. The correct maximum dace voltage (specifying voltage in volts)   For systems over DVC-A, the sign should also state "Hazardous d.c. voltage". | Improvements Identified | AS/NZS 5139:2019 CL 7.6 |
| Safety Warning Labelling 5 | Is there a site-specific shutdown procedure that details the sequential steps to safely shutdown the BESS? The shutdown procedure shall be:   * 1. installed adjacent to the PCE to which the battery system is connected; and   2. placed adjacent to and visible from the equipment to be operated in the event of a shutdown.   The shutdown procedure shall also state that isolation of the battery system by isolation and shutting down the PCE may not de-energize the battery system and further action may be required. The shutdown procedure should also include emergency contact information for manufacturer or supplier. Where the PCE (and all other listed equipment to be operated in the event of a shutdown) is not adjacent to the switchboard it is directly connected to, the shutdown procedure should also be placed within the switchboard. | Needs Rectification | AS/NZS 5139:2019 CL 7.16 |
| Safety Warning Labelling 6 | Is the "Danger, Risk of Battery Explosion" installed in a prominent position approaching the battery system? | Needs Rectification | AS/NZS 5139:2019 Table 3.1  AS/NZS 5139:2019 CL 7.8 |
| Safety Warning Labelling 7 | Is the "Danger, toxic fumes" sign installed adjacent to the enclosure or on all doors to the room where the battery system is located detailing the specific fault conditions (e.g. fire) under which the fumes will be present? This sign should also include PPE requirements for entering the room/working with the battery system. | Needs Rectification | AS/NZS 5139:2019 CL 7.9 |
| Safety Warning Labelling 8 | If the battery chemistry is categorised with a chemical hazard, is there a sign specifying what to do if the skin, eyes or other body parts are exposed to the chemical? This sign shall be installed either adjacent to the enclosure or on all doors to the room where the battery system is located. | Needs Rectification | AS/NZS 5139:2019 Table 3.1  AS/NZS 5139:2019 CL 7.10 |
| Safety Warning Labelling 9 | If the battery chemistry is categorised as having an arc flash hazard above "minor" (see Table 6.1), is there a sign specifying the dangers of the arc flash? This sign shall be installed either adjacent to the enclosure or on all doors to the room where the battery system is located. | Needs Rectification | N/A |
| Integrated 12 | Has the lithium-ion pre-assembled integrated BESS been installed in accordance with manufacturers installation requirements, including reference to the relevant SDS? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.1 |
| Integrated 58 | If the battery/inverter is not adjacent to the switchboard it is connected to, has an AC isolation device/s, that is able to be secured in the open position, been provided adjacent to the battery/inverter to isolate both supplementary and alternative supplies if applicable? | Needs Rectification | AS/NZS 4777.1:2024 Clause 3.4.3.2 and 5.3.3 |
| Integrated 13 | Is the a.c. interconnection of the lithium-ion pre-assembled integrated BESS to the switchboard or distribution board in accordance with AS/NZS 3000? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.1  AS/NZS 5139:2019 CL 4.3.1.1 |
| Integrated 49 | If the a.c. interconnection of the lithium-ion pre-assembled integrated BESS to the switchboard or distribution board is not in accordance with AS/NZS 3000, is it such that it constitutes a safety hazard which poses an imminent risk? | Unsafe | AS/NZS 5139:2019 CL 4.2.1  AS/NZS 5139:2019 CL 4.3.1.1 |
| Integrated 14 | Has the pre-assembled BESS been installed in a location where it is protected from mechanical damage? This also includes inappropriate or poorly installed infrastructure aimed at protecting it from mechanical damage. Such as a Bollard to prevent damage by impact. | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.1 |
| Integrated 17 | If installed indoors does the location of the lithium-ion pre-assembled integrated BESS allow access to the connections and any serviceable equipment, doors and panels that are required to be accessed for installation and maintenance. | Improvements Identified | AS/NZS 5139:2019 CL 4.2.2.1 (a)  AS/NZS 5139:2019 CL 4.2.5 - 600mm min, 900mm if accessing 230V |
| Integrated 19 | Does the location of the lithium-ion pre-assembled integrated BESS conform to the requirements for damp situations defined by AS/NZS 3000:2018 Section 6? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.1  AS/NZS 3000:2018 Section 6 |
| Integrated 20 | If installed in a corridor, hallway or lobby does the lithium-ion pre-assembled integrated BESS have at least 1 metre of clearance to allow for safe egress? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.1 |
| Integrated 21 | Is the location for the installation of the lithium-ion pre-assembled integrated BESS not within the Restricted locations listed under AS/NZS 5139:2019 CL 4.2.2.2? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.2 |
| Integrated 22 | Is the lithium-ion pre-assembled integrated BESS installed in a habitable room? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.2 |
| Integrated 23 | Is any equipment not associated with the lithium-ion pre-assembled integrated BESS not installed within the restricted zones shown in AS/NZS 5139:2019 Figure 4.1? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.2 |
| Integrated 24 | If the lithium-ion pre-assembled integrated BESS installed does not conform to AS/NZS 60079.14, is the installation not in a location defined to be a hazardous area in AS/NZS 3000:2018 Section 7? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.2  AS/NZS 60079.14  AS/NZS 3000:2018 Section 7 |
| Integrated 25 | Is the lithium-ion pre-assembled integrated BESS installed away from hazardous areas for gas cylinders containing heavier-than-air gasses and gas relief vent terminals as defined in AS/NZS 3000:2018 Section 4? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.2.2  AS/NZS 3000:2018 Section 4 |
| Integrated 27 | Is the lithium-ion pre-assembled integrated BESS installed in a location that will not expose it to temperatures lower than the minimum or greater than the maximum temperatures as specified by the manufacturer? | Improvements Identified | AS/NZS 5139:2019 CL 4.2.3  AS/NZS 5139:2019 CL 4.2.3.2 |
| Integrated 28 | Is the lithium-ion pre-assembled integrated BESS installed in a location where it can be protected against damage that might reasonably be expected from the presence of water, high humidity, dust, vermin or direct sunlight? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.3  AS/NZS 5139:2019 CL 4.2.3.2 |
| Integrated 29 | Is the lithium-ion pre-assembled integrated BESS installed in a location that will not expose it to localised or general heat sources? Such as direct sunlight, generators, stream pipes, hot water systems, air conditioners or space heaters. There should also be no direct airflow from any appliance directed at it. | Needs Rectification | AS/NZS 5139:2019 CL 4.2.3  AS/NZS 5139:2019 CL 4.2.3.2 |
| Integrated 32 | Is the lithium-ion pre-assembled integrated BESS located on, or placed against the wall, or mounted on the floor within 300mm of the wall or structure separating it from a habitable room, and where the surface of the wall is not made of a suitably non-combustible material, has a suitably non-combustible barrier been placed between the pre-assembled integrated BESS and the surface of the wall or structure to the required dimensions shown in AS/NZS 5139:2019 Figure 4.2? | Needs Rectification | AS/NZS 5139:2019 CL 4.2.4.2  AS/NZS 5139:2019 Figure 4.2 |
| Integrated 50 | Have all penetrations larger than 5mm through non-combustible material within restricted zones been filled with a fire-retardant material. | Needs Rectification | AS/NZS 5139:2019 CL 4.2.4.2 |
| Integrated 34 | Do all grid connections of the pre-assembled BESS meet the requirements of AS/NZS 4777.1? | Improvements Identified | AS/NZS 5139:2019 CL 4.3.1.2  AS/NZS 4777.1:2024 |
| Integrated 35 | Has the earthing of the lithium-ion pre-assembled integrated BESS been installed to manufactures requirements and meet the earthing requirements in AS/NZS 3000? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.1.3.1  AS/NZS 3000 |
| Integrated 36 | If required by the manufacturer of the pre-assembled BESS, has an earth fault alarm been installed? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.1.3.2 |
| Integrated 37 | Has the pre-assembled BESS been installed in accordance with manufacturer's instructions to limit the exposure to an arc flash hazard during installation and for maintenance? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.2 |
| Integrated 38 | If mounted on the ground, does the ground appear to be suitable to support the weight of the BESS? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.3(a) |
| Integrated 39 | If mounted on a wall or structure, does the wall or structure appear to have the structural integrity to withstand the weight of the BESS? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.3(b) |
| Integrated 40 | If the lithium-ion pre-assembled integrated BESS is installed in a room, has a smoke alarm been installed? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.4 |
| Integrated 41 | Where the lithium-ion pre-assembled integrated BESS is categorized as having an explosive gas hazard in AS/NZS 5139:2019 Table 3.1, is the installation in accordance with the instructions of the manufacturer? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.5  AS/NZS 5139:2019 Table 3.1 |
| Integrated 42 | Where the lithium-ion pre-assembled integrated BESS is categorized as having an explosive gas hazard in AS/NZS 5139:2019 Table 3.1, is the installation in accordance with the instructions of the manufacturer including any venting and containment requirements? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.6  AS/NZS 5139:2019 Table 3.1 |
| Integrated 43 | Where the lithium-ion pre-assembled integrated BESS is categorized as having a toxic fume hazard in AS/NZS 5139:2019 Table 3.1, is the installation in accordance with the instructions of the manufacturer? | Needs Rectification | AS/NZS 5139:2019 CL 4.3.7  AS/NZS 5139:2019 Table 3.1 |
| Integrated 44 | Does the lithium-ion pre-assembled integrated BESS have an alarm system provided that will cause an action to be initiated to correct the fault? This could be audible, visual or via an electronic communication. | Improvements Identified | AS/NZS 5139:2019 CL 4.3.8 |
| Integrated 45 | Is there a full system manual readily available for the lithium-ion pre-assembled integrated BESS containing the key system information as required? | Improvements Identified | AS/NZS 5139:2019 CL 4.4.1.1 |
| Integrated 46 | Is there access to any exposed live parts? | Unsafe | AS/NZS 3000 |
| Integrated 47 | Has all electrical work associated with the installation of the lithium-ion pre-assembled integrated BESS been installed in line with Australian standards? | Needs Rectification | AS/NZS 3000:2018 |
| Integrated 48 | Has any electrical work associated with the installation of the lithium-ion pre-assembled integrated BESS not been installed in line with Australian standards such that it constitutes a safety hazard which poses an imminent risk? | Unsafe | AS/NZS 3000:2018 |
| Integrated 55 | Are there any loose connections in integrated BESS and associated wiring with no signs of heat? | Needs Rectification | AS/NZS 3001 |
| Integrated 56 | Are there any loose connections in integrated BESS and associated wiring with signs of heat? | Unsafe | AS/NZS 3002 |

## BS (Sect. 4 of 5139)

|  |  |  |  |
| --- | --- | --- | --- |
| **Checklist Item** | **Question** | **Applicable Rating** | **Relevant Standards/ References** |
| **Pre-assembled 1** | This section applies to installations of a lithium-ion pre-assembled Battery System (BS) as defined in AS/NZS 5139:2019 CL 5.1 | Information Only | AS/NZS 5139:2019 CL 5.1 |
| **Pre-assembled 2** | Are there any signs of alterations or additions that would result in the lithium-ion pre-assembled BS no longer conforming to the [Best Practice Guide: Battery Storage Equipment - Electrical Safety Requirements](https://cleanenergycouncil.org.au/industry-programs/products-program/batteries)? | Unsafe | AS/NZS 5139:2019 CL 5.4.2.3 |
| **Pre-assembled 104** | If yes to pre-assembled 2, are the signs of alterations or additions that make the lithium-ion pre-assembled BS no longer conforming such that it is unsafe? | Needs Rectification | AS/NZS 5139:2019 CL 5.4.2.3 |
| **Pre-assembled 3** | Where is the lithium-ion pre-assembled BS installed? | Information Only | N/A |
| **Pre-assembled 4** | What is the make of the lithium-ion pre-assembled BS? | Information Only | N/A |
| **Pre-assembled 5** | What is the model of the lithium-ion pre-assembled BS? | Information Only | N/A |
| **Pre-assembled 106** | What is the serial number of the lithium-ion pre-assembled BS? | Information Only | N/A |
| **Pre-assembled 6** | What is the total battery storage capacity in kWh? | Information Only | N/A |
| **Pre-assembled 7** | What is the Decisive Voltage Classification (DVC) of the lithium-ion pre-assembled BS?  DVC-A <60 Volts DC  DVC-B <120 Volts DC  DVC-C >120 Volts DC | Information Only | AS/NZS 5139:2019 CL 1.3.29(Definition)  AS/NZS 5139:2019 CL 3.2.3.2  AS/NZS 5139:2019 Table 3.2  AS/NZS 5139:2019 Appendix A |
| **Pre-assembled 11** | Is there a sign adjacent (i.e. next to or adjoining without obstruction and within arm’s reach) to the lithium-ion pre-assembled BS that states:   * 1. Battery System or Battery Energy Storage System   2. The correct Short-circuit current (specifying current in amperes)   3. The correct Maximum d.c. voltage (specifying voltage in volts)   For systems over DVC-A, the sign should also state "Hazardous d.c. voltage" | Improvements Identified | AS/NZS 5139:2019 CL 7.6 |
| **Safety Warning Labelling 10** | Is there a site-specific shutdown procedure that details the sequential steps to safely shutdown the BS? The shutdown procedure shall be:   * 1. installed adjacent to the PCE to which the battery system is connected; and   2. placed adjacent to and visible from the equipment to be operated in the event of a shutdown.   The shut down procedure shall also state that isolation of the battery system by isolation and shutting down the PCE may not de-energize the battery system and further action may be required. The shutdown procedure should also include emergency contact information for manufacturer or supplier. Where the PCE (and all other listed equipment to be operated in the event of a shutdown) is not adjacent to the switchboard it is directly connected to, the shutdown procedure should also be placed within the switchboard | Needs Rectification | AS/NZS 5139:2019 CL 7.16 |
| **Pre-assembled 110** | If the battery/inverter is not adjacent to the switchboard it is connected to, has an AC isolation device/s, that is able to be secured in the open position, been provided adjacent to the battery/inverter to isolate both supplementary and alternative supplies if applicable? | Needs Rectification | AS/NZS 4777.1:2024 Clause 3.4.3.2 and 5.3.3 |
| **Label 23** | Where multiple energy sources (e.g. solar and battery) are connected to the one inverter, has a warning sign been installed to indicate all energy sources be turned off to achieve complete isolation? | Improvements Identified | AZ/NZS 4777.1:2024 Clause 6.11.1 |
| **Safety Warning Labelling 11** | If required, is the "Danger, Risk of Battery Explosion" installed in a prominent position approaching the battery system? | Needs Rectification | AS/NZS 5139:2019 Table 3.1  AS/NZS 5139:2019 CL 7.8 |
| **Safety Warning Labelling 12** | Is the “Danger, toxic fumes” sign installed adjacent to the enclosure or on all doors to the room where the battery system is located, and does it detail the specific fault conditions (e.g. fire) under which the fumes will be present? This sign should also include PPE requirements for entering the room/working with the battery system. | Needs Rectification | AS/NZS 5139:2019 CL 7.9 |
| **Safety Warning Labelling 13** | If the battery chemistry is categorised with a chemical hazard, is there a sign specifying what to do if the skin, eyes or other body parts are exposed to the chemical? This sign shall be installed either adjacent to the enclosure or on all doors to the room where the battery system is located. | Needs Rectification | AS/NZS 5139:2019 Table 3.1  AS/NZS 5139:2019 CL 7.10 |
| **Safety Warning Labelling 14** | If the battery chemistry is categorised as having an arc flash hazard above "minor" (see Table 6.1), is there a sign specifying the dangers of the arc flash? This sign shall be installed either adjacent to the enclosure or on all doors to the room where the battery system is located. | Needs Rectification | N/A |
| **Pre-assembled 17** | Was the lithium-ion pre-assembled BS an approved product on the [Solar Victoria battery product list](https://www.solar.vic.gov.au/product-lists#solar-batteries) at the time of installation? | Needs Rectification | N/A |
| **Pre-assembled 18** | Was the lithium-ion pre-assembled BS an approved product on the Clean Energy Council’s [Approved battery list](https://cleanenergycouncil.org.au/industry-programs/products-program/batteries) at the time of installation? | Needs Rectification | N/A |
| **Integrated 10.1** | Has the lithium-ion pre-assembled BS pre-assembled BESS been recalled by the manufacturer or regulator. | Needs Rectification | AS/NZS 5139:2019 CL 5.4 |
| **Pre-assembled 19** | Is there a full system manual, as required in AS/NZS 5139:2019 CL 5.4 readily available at the time of inspection? | Improvements Identified | AS/NZS 5139:2019 CL 5.4 |
| **Pre-assembled 20** | Has the lithium-ion pre-assembled BS been installed in accordance with manufacturers installation requirements, including reference to the relevant SDS? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.1 |
| **Pre-assembled 21** | Has the lithium-ion pre-assembled BS been installed in a location where it is protected from mechanical damage? This also includes inappropriate or poorly installed infrastructure aimed at protecting it from mechanical damage. | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.1 |
| **Pre-assembled 24** | If installed indoors does the location of the lithium-ion pre-assembled integrated BESS allow access to the connections and any serviceable equipment, doors and panels that are required to be accessed for installation and maintenance. | Improvements Identified | AS/NZS 5139:2019 CL 5.2.2.1 (a)  AS/NZS 5139:2019 CL 5.2.5  See line 49 |
| **Pre-assembled 26** | Does the location of the lithium-ion pre-assembled BS conform to the requirements for damp situations defined by AS/NZS 3000:2018 Section 6? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.1  AS/NZS 3000:2018 Section 6 |
| **Pre-assembled 27** | If installed in a corridor, hallway or lobby does the lithium-ion pre-assembled BS have at least 1 metre of clearance to allow for safe egress? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.1 |
| **Pre-assembled 28** | Is the location for the installation of the lithium-ion pre-assembled BS not within the Restricted locations listed under AS/NZS 5139:2019 CL 5.2.2.2? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.2 |
| **Pre-assembled 29** | Is the lithium-ion pre-assembled BS installed in a habitable room? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.2 |
| **Pre-assembled 30** | Is equipment not associated with the lithium-ion pre-assembled BS not installed within the restricted zones shown in AS/NZS 5139:2019 Figure 5.1? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.2  AS/NZS 5139:2019 Figure 5.1 |
| **Pre-assembled 31** | If the lithium-ion pre-assembled BS installed does not conform to AS/NZS 60079.14, is the installation away from a location defined to be a hazardous area in AS/NZS 3000:2018 Section 7? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.2  AS/NZS 60079.14  AS/NZS 3000:2018 Section 7 |
| **Pre-assembled 32** | Is the lithium-ion pre-assembled BS installed away from hazardous areas for gas cylinders containing heavier-than-air gasses and gas relief vent terminals as defined in AS/NZS 3000:2018 Section 4? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.2.2  AS/NZS 3000:2018 Section 4 |
| **Pre-assembled 33** | Is the lithium-ion pre-assembled BS installed near combustible materials? | Needs Rectification | AS/NZS 5139:2019 5.2.3 |
| **Pre-assembled 35** | Is the lithium-ion pre-assembled BS installed in a location that will not expose it to temperatures lower than the minimum or greater than the maximum temperatures as specified by the manufacturer? | Improvements Identified | AS/NZS 5139:2019 CL 5.2.3  AS/NZS 5139:2019 CL 5.2.3.2 |
| **Pre-assembled 36** | Is the lithium-ion pre-assembled BS installed in a location where it can be protected against damage that might reasonably be expected from the presence of water, high humidity, dust, vermin or direct sunlight? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.3  AS/NZS 5139:2019 CL 5.2.3.2 |
| **Pre-assembled 37** | Is the lithium-ion pre-assembled BS installed in a location that will not expose it to localized or general heat sources? This may include direct sunlight, generators, stream pipes, hot water systems, air conditioners or space heaters. There should also be no direct airflow from any appliance directed at it. | Needs Rectification | AS/NZS 5139:2019 CL 5.2.3  AS/NZS 5139:2019 CL 5.2.3.2 |
| **Pre-assembled 40** | If the lithium-ion pre-assembled BS is located on, or placed against the wall, or mounted on the floor within 300mm of the wall or structure separating it from a habitable room, and the surface of the wall is not made of a suitably non-combustible material, has a suitable non-combustible barrier has been placed between the pre-assemble integrated BESS and the surface of the wall or structure to the required dimensions shown in AS/NZS 5139:2019 Figure 4.2? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.4.2  AS/NZS 5139:2019 Figure 5.2 |
| **Pre-assembled 105** | Have all penetrations larger than 5mm through non-combustible material within restricted zones been filled with a fire-retardant material? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.4.2  AS/NZS 5139:2019 Figure 5.2 |
| **Pre-assembled 41** | If the lithium-ion pre-assembled BS is located in a room, is it located so that access to the battery system is not obstructed by the structure of the building, fixtures and fittings within the room? | Improvements Identified | AS/NZS 5139:2019 CL 5.2.5 |
| **Pre-assembled 42** | If the lithium-ion pre-assembled BS is located in a room, is the room clean, dry and ventilated? | Improvements Identified | AS/NZS 5139:2019 CL 5.2.5 |
| **Pre-assembled 43** | If the lithium-ion pre-assembled BS is located in a room, does the room provide and maintain protection against detrimental environmental conditions and other external factors? | Needs Rectification | AS/NZS 5139:2019 CL 5.2.5 |
| **Pre-assembled 44** | If the lithium-ion pre-assembled BS is located in a room, is the room suitable to minimize the likelihood of a build-up insect or vermin infestation or other materials on or around the lithium-ion pre-assembled BS? | Improvements Identified | AS/NZS 5139:2019 CL 5.2.5 |
| **Pre-assembled 45** | If the lithium-ion pre-assembled BS is located in a room, does the size of the room allow for sufficient clearance around the lithium-ion pre-assembled BS to provide safe handling and access for installation, removal and maintenance?  The minimum unimpeded access shall be:   * 1. 900 mm with the doors open   2. 600 mm with the doors open for battery systems that have      1. voltage no greater than DVC-A; and      2. a calculated arc flash energy at the output terminals of the battery system not greater than 4.0 cal/cm²; or      3. the clearance specified by the manual | Improvements Identified | AS/NZS 5139:2019 CL 5.2.5 |
| **Pre-assembled 47** | If the lithium-ion pre-assembled BS has a voltage of DVC-A, is it connected to an inverter that has at least simple separation between the battery system d.c port and the a.c port or grid port of the inverter? | Needs Rectification | AS/NZS5139:2019 CL 5.3.11 |
| **Pre-assembled 48** | If the lithium-ion pre-assembled BS has a voltage greater than DVC-A, does all cabling and installation requirements meet the requirements for DVC-C if a non-separated PCE other than an inverter is installed? (e.g., solar charge controller)? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.1 |
| **Pre-assembled 49** | Is overcurrent protection installed in all live conductors? Excluding control and monitoring circuits. | Needs Rectification | AS/NZS5139:2019 CL 5.3.1.2.1 |
| **Pre-assembled 50** | Is the overcurrent protection device installed adjacent to the battery system?   * 1. of a non-polarized type   2. d.c. rated   3. have a voltage rating greater than the battery system's maximum voltage under all normal and abnormal conditions   4. meet the requirements of AS/NZS 3000:2018 Section 2; and   5. have a current rating to protect the cabling from the pre-assembled battery system. | Needs Rectification | AS/NZS5139:2019 CL 5.3.1.2.1 |
| **Pre-assembled 51** | Where the overcurrent protective device is not integrated into the lithium-ion pre-assembled BS, are the either a HRC fuse or miniature circuit breaker that meet the requirements of AS/NZS 5139:2019 CL 5.3.1.2.1? | Needs Rectification | AS/NZS5139:2019 CL 5.3.1.2.1 |
| **Pre-assembled 52** | If the overcurrent protection device is a circuit breaker, does it meet the requirements of AS/NZS 5139:2019 CL 5.3.1.2.2? | Needs Rectification | AS/NZS5139:2019 CL 5.3.1.2.1  AS/NZS5139:2019 CL 5.3.1.2.2 |
| **Pre-assembled 53** | If the overcurrent protection device is a HRC fuse, does it meet the requirements of AS/NZS 5139:2019 CL 5.3.1.2.3? | Needs Rectification | AS/NZS5139:2019 CL 5.3.1.2.1  AS/NZS5139:2019 CL 5.3.1.2.3 |
| **Pre-assembled 54** | Where the overcurrent protective device is integrated into the lithium-ion pre-assembled BS, does it meet the requirements of AS/NZS 5139:2019 CL 5.3.1.2.4? | Needs Rectification | AS/NZS5139:2019 CL 5.3.1.2.1  AS/NZS5139:2019 CL 5.3.1.2.4 |
| **Pre-assembled 55** | If the overcurrent protection device is external, is it installed as close as practical to the output terminals of the battery system and no greater than 2m away? | Needs rectification | AS/NZS5139:2019 CL 5.3.1.2.5 |
| **Pre-assembled 56** | Has a means of disconnection been installed to isolate the pre-assembled BS from the PCE and vice versa, to allow for maintenance, repair, fault finding and inspection tasks to be carried out safely? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.1 |
| **Pre-assembled 57** | Is it possible to isolate the PCE from all poles of the pre-assembled BS using one of the following load breaking disconnection methods installed?   * 1. An adjacent and physically separate disconnection device.   2. A disconnection device integrated into the PCE.   3. A disconnection device integrated into the pre-assembled BS. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.2 |
| **Pre-assembled 58** | If a switch-disconnector has been used as the load breaking disconnection device, does it meet the following requirements:   * 1. conform to AS 60947.3   2. be of the non-polarized type   3. be d.c rated   4. have a voltage rating than the battery system's maximum voltage under all operating conditions   5. be rated to withstand the maximum short-circuit current   6. have a current rating greater than the maximum d.c current for the BESS   7. be rated to interrupt for full load   8. meet the requirements of AS/NZS 3000:2018 Section 2 for isolating device selection   9. be rated for independent manual operation   10. have a minimum pollution degree 3 classification   11. be able to be secured in the open position and only secured when the main contacts are in the open position   12. conform to requirements for isolation including marking requirements for an isolation device; and   13. have a utilization category of at least DC21B. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.3 |
| **Pre-assembled 59** | If an adjacent or physically separated disconnection device is installed indoors, is the disconnection device mounted in an enclosure that has a minimum IP 23 rating? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.4 |
| **Pre-assembled 60** | If an adjacent or physically separated disconnection device is installed outdoors, is the disconnection device mounted in an enclosure that has a minimum IP 56NW when tested under the conditions of AS 60947.3:2018 Clause D.8.3.13.4, D.8.13.3.5, D.8.3.13.6, D.8.3.13.7 and D.8.3.13.8 (in Australian variations Appendix ZZ)? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.4 |
| **Pre-assembled 61** | Are the switch-disconnectors for outdoor use suitably rated for an ambient temperature of 40 degrees C? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.4 |
| **Pre-assembled 62** | If the disconnection device is integrated in the PCE, does it meet one of the following additional requirements:   * 1. An isolation device that is mechanically interlocked with a replaceable module of the PCE, and allows the module to be removed from the section containing the isolation device without risk of electric hazards; or   2. An isolation device is located in the same enclosure as the other components of the PCE. With the isolation device in the off position there shall be no risk of electric hazard when any PCE external enclosure cover is removed for repair or replacement of other components of the PCE. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.5 |
| **Pre-assembled 63** | If the pre-assembled BS includes an internal isolation device operation in all live conductors, is it readily accessible and does it provide the same functions as for an adjacent external isolation device? No additional adjacent external isolation device is required. | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.3.6 |
| **Pre-assembled 64** | Is the isolation device readily accessible? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.7 |
| **Pre-assembled 65** | Where the cables connecting the pre-assembled BS and PCEs are less than 2m in length, is the isolation device(s) installed adjacent to either the pre-assembled battery system or the PCE? | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.3.7 |
| **Pre-assembled 66** | Where the cables connecting the pre-assembled BS and PCE are greater than 2m in length, is the isolation device installed at both the pre-assembled battery system and PCE? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.3.7 |
| **Pre-assembled 67** | If there are multiple PCEs (e.g. a solar charge controller and an inverter; or multiple inverters), have separate isolation devices been installed? | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.3.8 |
| **Pre-assembled 68** | If there are two or more lithium-ion pre-assembled battery systems connected in parallel, does each one have a separate isolation device? | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.3.9 |
| **Pre-assembled 69** | Are the battery system cables flexible cables in accordance with (?):   * 1. AS/NZS 5000.2 (450/750 V insulation) for battery systems with a maximum operating voltage less than 450 V d.c;   2. AS/NZS 5000.1 (0.6/1kV insulation) for battery systems with a maximum operation voltage less than 600 V d.c ; or   3. IEC 62930 for battery systems with a maximum operating voltage less than 1500 V d.c | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.2 |
| **Pre-assembled 70** | Do the cables between the battery system and the PCE meet the requirements of AS/NZS 3000 for selection and installation of wiring systems? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.2 |
| **Pre-assembled 107** | If the d.c interconnection of the lithium-ion pre-assembled BS to the PCE is not in accordance with AS/NZS 3000, is it such that it constitutes a safety hazard which poses an imminent risk? | Unsafe | AS/NZS 5139 CL 5.3.1.4.2 |
| **Pre-assembled 71** | Are the cables from the battery system to the PCE:   * 1. double insulated if the battery system's maximum voltage exceeds DVC-A; and   2. double insulated for DVC-A battery systems connected to a non-separated PCE (e.g., solar charge controller) and where the non-battery side of the PCE is greater than DCV-A? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.2 |
| **Pre-assembled 72** | For all battery systems operation at DVC-A, are all cables between the battery system, the overcurrent protection device and the PCE double insulated? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.2 |
| **Pre-assembled 73** | Are all cables that exit the pre-assembled BS without internal overcurrent protection mechanically protected by at least medium duty conduit or equivalent protection up to the over current device? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.3 |
| **Pre-assembled 74** | For battery systems operating at DVC-B or DVC-C, do the cables between the overcurrent protection device and the PCE have mechanical protection. (Refer to AS/NZS 3000:2018 Cl H4) | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.4.3 |
| **Pre-assembled 75** | Is the voltage drop between the battery system and the PCE no more than 2% based on the rated d.c battery port current of the PCE and no more than 5% under any operating conditions? | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.4.4 |
| **Pre-assembled 76** | Is the current-carrying capacity of the pre-assembled battery's system's cable to the overcurrent protection rated to:   * 1. the maximum current rating of the pre-assembled BS; and   2. the short-circuit current and duration from the pre-assembled BS. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.5 |
| **Pre-assembled 77** | Is the current-carrying capacity of the pre-assembled BS cables to the PCE greater than the rating of the overcurrent protection device installed? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.5 |
| **Pre-assembled 78** | Is the minimum cable sizes for the pre-assembled BS based on the current-carrying capacity of flexible cables as specified in:   * 1. AS/NZS 3008>1 series; or   2. as specified by the manufacture of the cable. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.5 |
| **Pre-assembled 79** | If the BESS consists of two or more pre-assembled BS connected in parallel (that do not have a BMS or similar device that provides a managed voltage and current charge/discharge for each separate system), does the output cable from each battery system come to a point where the parallel battery system connects (e.g. PCE or Junction box) have equal cable resistance? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.6 |
| **Pre-assembled 80** | Has overcurrent protection been installed on the pre-assembled BS's d.c port of the PCE if (?):   * 1. the PCE charging current or load current under fault conditions is greater than the current-carrying capacity of the conductor between the PCE and the pre-assembled BS; and   2. the length of the cable between the PCE and the pre-assembled BS overcurrent device is greater than 3m. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.4.7 |
| **Pre-assembled 81** | Does the installation meet the requirements for segregations for a.c and d.c circuits within enclosures from AS/NZS 3000:2018 Section 3? | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.5  AS/NZS 3000:2018 Section 3 |
| **Pre-assembled 82** | There are four categories relating to the earthing arrangements for battery systems connected to PCEs and each has specific requirements; Please select the appropriate category and inspect to the relevant clause. | Information Only | AS/NZS 5139:2019 CL 5.3.1.6.1 |
| **Pre-assembled 84** | If system is direct earthed, is there a conductor connected to the installation earthing system. The pre-assembled battery system earthing conductor shall be rated to withstand the prospective earth fault current of the battery system for a time at least equal to the operating time of the associated overcurrent protective device. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.6.3 |
| **Pre-assembled 85** | If system is resistively earthed, is one conductor of the battery system connected to the installation earthing system via a resistor. The pre-assembled battery system earthing conductor shall be rated to withstand the prospective earth fault current of the battery system continuously. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.6.4 |
| **Pre-assembled 86** | If system is connected to a non-separated PCE, does it conform with the requirements of AS/NZS 5.3.1.6.5. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.6.5 |
| **Pre-assembled 87** | Is the pre-assembled BS earthed to according to manufacturer’s instructions? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.7.1 |
| **Pre-assembled 88** | Where the BS is not earthed and the installation comprises a single BESS with a voltage grater then DVC-A, are all metallic equipment enclosures associated with the BESS installation bonded together to the earthing system of the electrical installation using a minimum bonding conductor size of 6mm2? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.7.3 and AS/NZS 5139:2019 CL 5.3.1.7.4 |
| **Pre-assembled 89** | If the pre-assembled BS is directly earthed with voltages greater than DVC-A, are all metallic equipment enclosures associated with the BESS installation bonded together to the earthing system of the electrical installation using a minimum bonding conductor size of 6mm2 or equivalent to the earth conductor size, whichever is the greater? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.7.3 |
| **Pre-assembled 90** | If the pre-assembled BS is resistively earthed with voltages greater than DVC-A, are all metallic equipment enclosures associated with the BESS installation bonded together to the earthing system of the electrical installation using a minimum bonding conductor size of 6mm2 or equivalent to the earth conductor size, whichever is the greater? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.1.7.4 |
| **Pre-assembled 91** | Does the lithium-ion pre-assembled BS separated from earth have an alarm system provided that will cause an action to be initiated to correct the fault? This could be audible, visual or via an electronic communication. | Improvements Identified | AS/NZS 5139:2019 CL 5.3.1.8 |
| **Pre-assembled 92** | Has the lithium-ion pre-assembled BS been installed in accordance with manufacturer's instructions to limit the exposure to an arc flash hazard during installation and for maintenance? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.2 |
| **Pre-assembled 93** | If mounted on the ground, does the ground appear to be suitable to support the weight of the BESS? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.3(a) |
| **Pre-assembled 94** | If mounted on a wall or structure, does the wall or structure appear to have the structural integrity to withstand the weight of the BESS? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.3(b) |
| **Pre-assembled 95** | If the lithium-ion pre-assembled BS is installed in a room, has a smoke alarm been installed? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.4 |
| **Pre-assembled 96** | Where the lithium-ion pre-assembled BS is categorized as having a explosive gas hazard in AS/NZS 5139:2019 Table 3.1, is the installation in accordance with the instructions of the manufacturer? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.5  AS/NZS 5139:2019 Table 3.1 |
| **Pre-assembled 97** | Where the lithium-ion pre-assembled BS is categorized as having an explosive gas hazard in AS/NZS 5139:2019 Table 3.1, is the installation in accordance with the instructions of the manufacturer including any venting and containment requirements? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.6  AS/NZS 5139:2019 Table 3.1 |
| **Pre-assembled 98** | Where the lithium-ion pre-assembled BS is categorized as having a toxic fume hazard in AS/NZS 5139:2019 Table 3.1, is the installation in accordance with the instructions of the manufacturer? | Needs Rectification | AS/NZS 5139:2019 CL 5.3.7  AS/NZS 5139:2019 Table 3.2 |
| **Pre-assembled 99** | Does the lithium-ion pre-assembled BS have an alarm system provided that will cause an action to be initiated to correct the fault? This could be audible, visual or via an electronic communication. | Needs Rectification | AS/NZS 5139:2019 CL 5.3.8 |
| **Pre-assembled 101** | Are there any accessible live parts?  Allowing direct contact with any equipment, component, terminals or connection, tested to be LIVE and accessible by 1 action to be touched. | Unsafe | AS/NZS 3000 |
| **Pre-assembled 112** | Are there connectors, couplings, covers or components able to be removed without the use of a tool which provide access to live parts? | Needs Rectification | AS/NZS 3000 |
| **Pre-assembled 102** | Has all electrical work associated with the installation of the lithium-ion pre-assembled BS been installed in line with Australian standards? | Needs Rectification | AS/NZS 3000:2018, AS/NZS 5139:2019,  AS/NZS 5033:2021, AS/NZS 4777.1:2024 |
| **Pre-assembled 103** | Has any electrical work associated with the installation of the lithium-ion pre-assembled BS not been installed in line with Australian standards such that it constitutes a safety hazard which poses an imminent risk? | Unsafe | AS/NZS 3000:2018, AS/NZS 5139:2019,  AS/NZS 5033:2021, AS/NZS 4777.1:2024 |
| **Pre-assembled 108** | Are there any loose connections in pre-assembled bs and associated wiring with NO signs of heat. | Needs Rectification | AS/NZS 5139 5.4.2.2 |
| **Pre-assembled 109** | Are there any loose connections in pre-assembled bs and associated wiring WITH signs of heat. | Unsafe | AS/NZS 5139 5.4.2.2 |
| **Pre-assembled 113**  *New item* | Has d.c. battery system cabling or enclosures containing battery system cabling between the battery system and inverter been labelled with the word "BATTERY" at intervals not exceeding 2m? | Improvements Identified | AS/NZS 5139:2019 CL 7.14 |

[**solar.vic.gov.au**](http://www.solar.vic.gov.au)