

# Solar for Apartments

## Industry guidance

February 2025

### Overview

The Solar for Apartments program (SfA) is jointly funded by the Victorian and Commonwealth governments, providing residents of eligible apartments, units and townhouses with rebates.

SfA provides apartment residents with a great opportunity to receive the advantages of solar power where they may not have available roof space.

These installations require a higher level of design and research into installation requirements compared to a standard solar installation.

This document is published by Energy Safe (in consultation with Solar Victoria) as guidance to industry for these involved installations.

This document should be used by:

- Registered Electrical Contractor (REC)s
- Licensed Electrical Worker (LEW)s
- Licensed Electrical Inspector (LEI)s

This document aims to help identify areas of safety and non-compliance found through previous SfA installations and site assessments.

### Licensing and compliance

Currently the most common solar arrangements for SfA are called Inverter Power Sharing Devices (IPSD). All IPSD installations shall comply with:

- [Electricity Safety Act 1998](#) (the Act)
- [Electricity Safety \(General\) Regulations 2019](#)
- [Electricity Safety \(Registration and Licensing\) Regulations 2020](#)
- AS/NZS 4777.1:2024 Grid connection of energy systems via inverters
- AS/NZS 5033:2021 Installation and safety requirements for photovoltaic (PV) arrays
- AS/NZS 3000:2018 Electrical installations (known as the Australian/New Zealand Wiring Rules).

RECs and LEWs must ensure the electrical work is carried out to comply with the Act, regulations and relevant Australian Standards. All electrical installations and any alterations to electrical installations (such as the installation of solar and/or battery systems), shall be verified that it complies with the standard and does not impair the safety of the existing installation.

Solar installations may create situations where the existing consumers mains conductors are no longer provided with adequate circuit protection, creating a risk of fire. For more information, refer to the tenancy consumers mains protection section of this document.

RECs carrying out electrical installation work – such as solar installations – must ensure that only LEWs carry out electrical installation work. An electrical apprentice under an apprentice training contract is deemed to be a licensed worker where they are working under effective supervision.

Labourers and trades assistants are not to perform electrical installation work under any circumstances. A labourer or trades assistant may only carry out manual labouring tasks or mechanical installation tasks, such as:

- carrying of tools, ladders and equipment for the LEW
- installation of scaffolding, edge and fall protection if suitably trained to do so
- installation of solar system mounting feet, mounting rails and components
- fixing down of solar panel modules to the rails.

Labourers or trades assistants shall not perform any of the following electrical installation work:

- Running/installing cables.
- Assisting to pull cables.
- Securing cables and wiring systems.
- Connecting electrical connections (including d.c. connectors).
- Mounting of electrical equipment.
- Electrical installation work as defined in the [Electricity Safety Act 1998](#).

Ensure all electrical work is carried out safely. Do this by isolating the electrical supply to any area or enclosure where the work is to be carried out. Use Lock Out Tag Out (LOTO) procedures to ensure electrical isolation and safety of workers.

Energy Safe Victoria and WorkSafe Victoria randomly attend sites – carrying out safety audits throughout the SfA program. Breaches of the Act or the electricity safety regulations carry heavy penalties such as fines or prosecution.

## Testing

Ensure you complete all your mandatory verification inspection and testing in accordance with AS/NZS 3000:2018 Electrical installations, section 8.

Visually inspect the installation. Verify it has been completed to comply with the requirements of all relevant standards.

Conduct your mandatory testing, to ensure compliance to our regulations and standards and to ensure the installation is safe to put into operation.

- **Continuity of earthing system** to the installed equipment. This includes **all** solar panels, and any parts of the mounting system, metallic enclosures and cable trays required to be earthed.
- **Insulation resistance** of all installed electrical cables.
- **Correct polarity** of all conductors (for multi-occupancies, resistor blocks can assist to ensure all cables are correctly installed for the respective tenancy).
- **Correct operation of Residual Current Device (RCD)s**: if RCDs are installed, verify by test to ensure they have been correctly installed. Ensure they are of the correct type as specified by the inverter manufacturer.

Carry out additional testing as required by the Australian Standards applicable for the installation:

- AS/NZS 5033:2021 Installation and safety requirements for photovoltaic (PV) arrays, and
- AS/NZS 4777.1:2024 Grid connection of energy systems via inverters. Note that this standard has specific steps for the testing of IPSDs.

Product manufacturers may also have specific testing requirements, refer to the 'Advice for installations' section of this document.

Ensure you have the required test equipment to complete the mandatory verification testing:

- Insulation resistance and continuity test meter.
- Clamp meter to record a.c. current flow (amps).
- Voltage tester to record a.c. 230V, and d.c. for the installed voltage (recommend min 1000V d.c. rated).
- Trailing earth lead and connectors to suit.
- Resistor block set to test polarity and correct connections to multiple tenancies (optional).

**Note:** A legal declaration that the installation complies with the Act and the electricity safety regulations in all respects is made when:

- the LEW completes a Certificate of Compliance (CoC)
- the LEI certifies a Certificate of Electrical Safety (COES).

These actions also declare that both the LEW and LEI have carried out all required mandatory verification tests. This includes any additional testing specified by the manufacturer.

## Anti-islanding testing

Conduct your normal anti-islanding testing on the installed solar inverter. Ensure the system complies with the Electricity Safety (General) Regulations 2019, r.245:

- a) that the inverter energy system shall take longer than 60 seconds to connect to the distribution network after the installation's main switch is turned **on**
- b) that the inverter energy system shall disconnect from the distribution network in less than 2 seconds after the installation's main switch is turned **off**.

## Labelling

Ensure all labels are affixed to the installation in accordance with:

- AS/NZS 5033:2021 Installation and safety requirements for photovoltaic (PV) arrays
- AS/NZS 4777.1:2024 Grid connection of energy systems via inverters
- Victorian Service and Installation Rules (VSIR)
- the manufacturer's instructions.

## Advice for installations

SfA installations may contain different technologies. Eligible systems under the Solar Victoria SfA program include:

- **direct connected systems** – where multiple individual solar PV systems are connected to individual lots
- **solar sharing systems or IPSDs** – where a single solar PV system shares energy to all connected lots (such as the Allume SolShare system) or a combination of both.

Energy Safe has completed multiple SfA site attendances and installation assessments. The information in the following sections has been identified from past installations and experiences. This information will assist you, as the installer, to avoid costly revisits and rectification works.

Currently Allume SolShare is the only IPSD available and therefore the following IPSD guidance is based on that product information. When other devices become available in the market this document will be updated.

## Required research

For any electrical installation, you must carry out your research. This ensures you understand the installation requirements from both a standards perspective – and understand the manufacturer's requirements and installation instructions.

The Allume SolShare product requires additional components to comply with Australian Standards. Always research the product to ensure you understand the additional components. You must provide them to complete the installation and to meet compliance requirements.

Additional products include but are not limited to:

- contactors and maintenance isolators to achieve anti-islanding requirements
- isolation box:
  - enclosure(s) suitable for the maintenance isolators
  - contactors suitably rated for the installed environment.

Figure 1, below, is an example of what a typical Allume SolShare installation looks like. The isolation box and maintenance enclosures are circled.

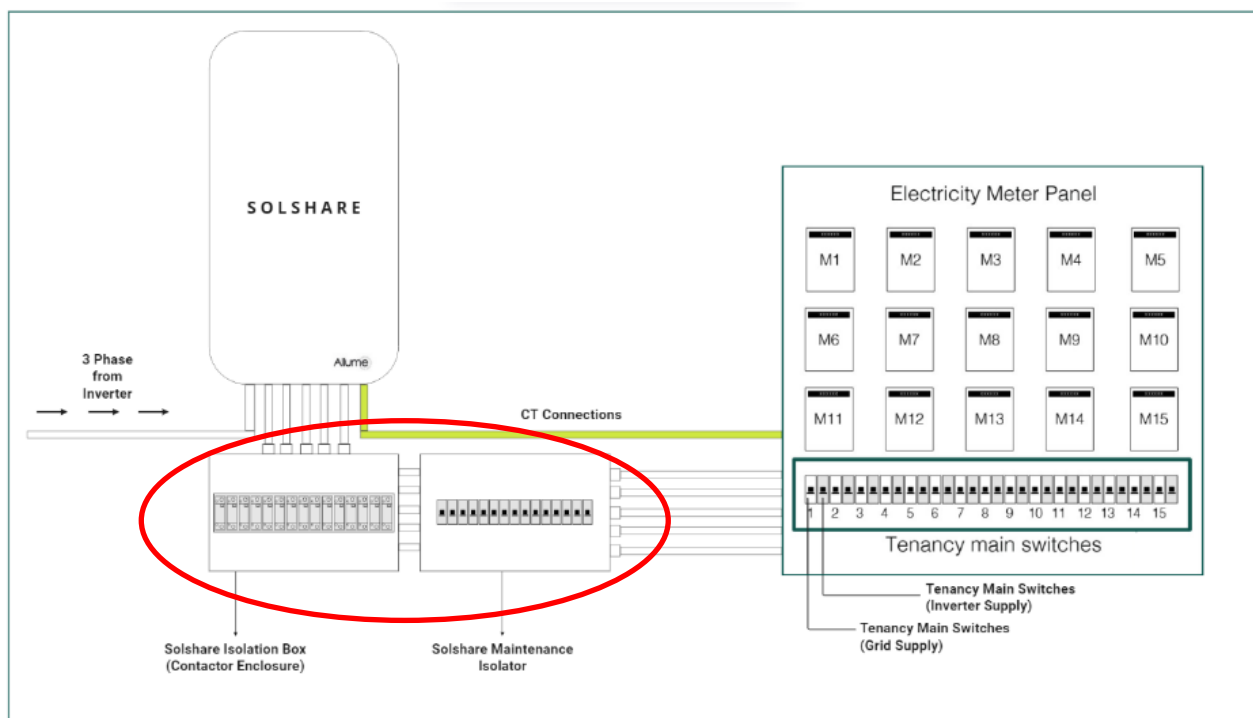


Fig 1. SolShare Installation Setup

Diagram reference: Allume SolShare commissioning and inspection tests

## Provide adequate mechanical protection

Ensure the proposed location for the solar inverter and all associated equipment is adequately protected.

Where the wiring systems or equipment is located near an entry driveway to a carpark – or anywhere a vehicle can traverse – the wiring system or equipment must be provided with additional mechanical protection in accordance with AS/NZS 3000:2018 Electrical installations, clauses 3.9.4. and 4.1.3.

Ensure the selected location protects the equipment by using:

- the existing building structure, or
- a bollard, or similar, installed to provide adequate mechanical protection.

## Earth connection lugs at the PV array

Ensure the PV array earthing arrangement has been carried out as required:

- Ensure the correct size earth conductor has been selected and installed – considering the inverter type installed and whether string fusing has been provided – in accordance with AS/NZS 5033:2021 Installation and safety requirements for photovoltaic PV arrays, clause 4.6.5.
- Earthing of all solar panel conductive frames.
- Earthing of any conductive parts of the mounting system in direct contact with PV d.c. cables.
- Ensure earth connection lugs and conductor terminations are suitably protected against corrosion.
- If catenary support wires are used to provide cable support and are in direct contact with the d.c. cables, the catenary wire is required to be earthed via a separate earth lug to the rail. Verify earth continuity to the installation by test.

## Connection of solar to tenancy circuit breaker (CB)

Ensure all connections are compliant, tight and secure.

The tenancy consumer mains conductor is commonly a 16mm<sup>2</sup> copper SDI conductor.

The solar supply cable may be a 3 phase, 6mm<sup>2</sup> orange circular cable copper conductors.

These two conductors are of considerable different cross-sectional areas. Avoid simply placing them side-by-side within the clamp terminal – the dissimilar sizes may allow the smaller cable to be insecure. This can create arcing, heat and a potential fire hazard.

CB manufacturers specify a torque setting for termination screws. Energy Safe recommends using a torque screwdriver to ensure the termination is tight and secure. Always conduct a ‘pull test’ on connections to ensure the conductors are securely terminated.

## Tenancy consumers mains protection

A common arrangement for solar sharing systems to apartments is as follows:

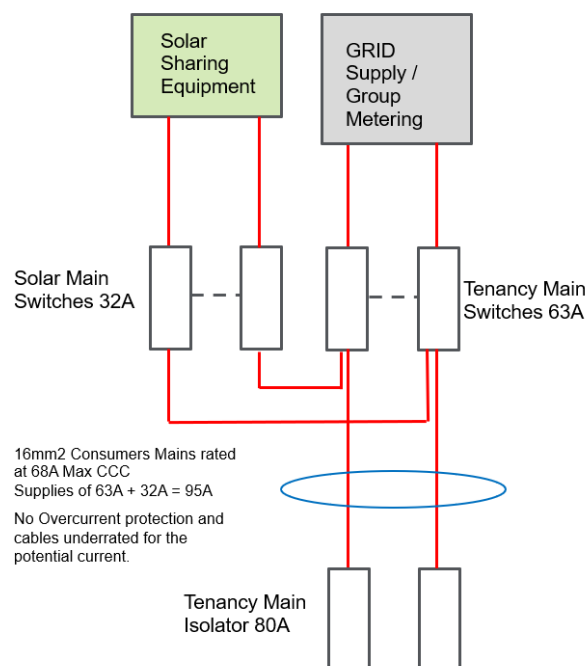


Fig 2. SFA IPSD common connection arrangement.

### Tenancy main switch (grid)

The 16mm<sup>2</sup> tenancy consumers mains, protected by a 63A circuit breaker (CB) located at the group meter switchboard.

### Tenancy main switch (inverter)

The solar sharing output conductors are often 6mm<sup>2</sup>, protected by a 32A CB at or adjacent to the group meter switchboard.

The 16mm<sup>2</sup> tenancy consumers mains are rated to approximately 68A depending on the method of installation of the cables (run through insulation, in conduit, and other factors affecting current carrying capacity of conductors).

If the switchboard in any of the tenancies contains an 80A main isolator, then there is a safety issue.

The sum of the **grid supply (63A)** and the **solar supply (32A)** is potentially **95A** that may pass through the 16mm<sup>2</sup> consumers mains. This arrangement will exceed the current carrying capacity – and overload the consumers mains conductors.

The REC/LEW must ensure adequate circuit protection is provided. Therefore, providing protection to the tenancy consumers' mains cables.

It is imperative that each apartment is checked, and if required, a correctly rated CB shall be installed to the tenancy switch/s. In this example a 63A CB should replace the 80A main isolator to provide adequate protection to the tenancy consumers mains conductors.

## Segregation of a.c. and d.c.

Ensure the installation maintains adequate segregation distances between a.c. and d.c. cabled installed within cable tray or wiring enclosures.

Ensure all cables installed within the same enclosure are:

- double insulated
- adequately rated for the highest voltage present
- segregation of a.c. and d.c. cables within the same enclosure
- given special attention for communications or current transformer (CT) cables.

## Additional testing for Allume SolShare equipment

Allume SolShare installations require additional commissioning and testing as per the manufacturer's requirements.

Energy Safe recommends allowing up to two extra hours to complete the required testing.

Coordinate with tenancies/occupants to complete these tests, as some tenancies are required to be isolated and tested under load.

Refer to the *Allume SolShare commissioning and inspection tests* technical documentation (refer to website details at the end of this document) to follow the correct testing procedures. Always refer to the latest version of the document.

## Additional anti-islanding testing for Allume SolShare equipment

In addition to the requirements of Electricity Safety (General) Regulations 2019, r.245 for Allume SolShare installations, refer to the testing procedure to complete the anti-islanding testing for this product:

- Verify correct anti-islanding by removing each of the CT blocks within the Allume SolShare device.
- Verify correct anti-islanding by switching one or more of the tenancy main switch (grid supply).

Allume provides a commissioning and inspection report sheet for the above Allume SolShare tests. You can find it at the back of the *Allume SolShare commissioning and inspection tests* technical documentation.

## Additional labelling for Allume SolShare equipment

In addition to the requirements of AS/NZS 5033:2021 and AS/NZS 4777.1:2024 for IPSDs, Allume SolShare provide detailed advice of the labelling requirements, refer to *Allume SolShare labelling advice* technical documentation. Always refer to the latest version of the document.

## Certificate of Electrical Safety (COES)

The [Electricity Safety Act 1998](#) and the [Electricity Safety \(General\) Regulations 2019](#) specify that the installation, alteration or rectification of any portion of a solar installation is **prescribed** electrical installation work. This is regardless of the technology or installation arrangement.

- A prescribed COES shall be completed – and verified – by a LEI.
- A prescribed COES shall be completed for **each individual occupier's portion** of a multiple occupancy installation.

### Example

James is installing SfA at a complex with 14 apartments. James ensures the solar supply connections have been made to the **load** side of each of the tenancy main switch or isolators. The following COESs are required:

### COES requirements for direct connected systems

**A prescribed COES shall be completed for each individual occupier's portion of the solar installation.** (Tick COES boxes: Type 1 & Type 5.)

**In this example a total of 14 prescribed COES shall be completed.**

- The address listed on each COES shall be the individual apartment/unit installation address.
- Each of the tenancy solar connection COES should provide a description of the prescribed work undertaken (**adapted to your specific installation arrangement**), including:
  - SfA direct connected solar installation supplying individual apartments
  - quantity of PV modules, brand, model, serial numbers
  - solar inverter, brand, model, serial number
  - system Voc, and Isc
  - installed 1 x 32A main switch (inverter supply) CB for tenancy # 01
  - connected 6mm<sup>2</sup> solar supply cable to the **load** side of tenancy # 01 main switch
  - tenancy main switch (normal supply) CB (confirmed as a CB) size: 63A
  - existing tenancy supply conductor size: 16mm<sup>2</sup>

### COES requirements for IPSD systems

**A prescribed COES shall be completed for the IPSD portion and each individual occupier's portion of the solar installation.** (Tick COES boxes: Type 1 & Type 5.)

**In this example a total of 15 prescribed COES shall be completed.**

**One prescribed COES completed for the IPSD system.**

- The address listed on the COES shall be the property installation address.
- The description of prescribed work undertaken should be similar (**adapted to your specific installation arrangement**) to the following:
  - installation of 30kW grid connected Allume SolShare solar system
  - quantity of PV modules, brand, model, serial numbers
  - inverter device manufacturer: brand, model, serial number
  - inverter device capacity (kVA): 30
  - number of inverters installed: 1
  - Voc: 760 V d.c. Isc: 16.5 A
  - installed Allume SolShare device type: SolShare35

- installed Allume SolShare isolation box complete with grid protection contactors.
- installed Allume SolShare maintenance enclosure, with 14 x 32A maintenance isolators (one for each tenancy).
- 6mm<sup>2</sup> PV array earthing conductor connected to the main earth bar.
- 14 x 6mm<sup>2</sup> Allume SolShare Neutral conductors connected to the main neutral bar.

**Fourteen prescribed COES completed for the solar supply connection to the load side of each tenancy isolator.** (Tick COES Type 2 & Type 5.)

- The address listed on each COES shall be the individual apartment/unit installation address.
- Each of your tenancy solar connection COES should provide a description of the prescribed work undertaken (**adapted to your specific installation arrangement**) similar to the following:
  - Allume SolShare solar installation supplying individual apartments
  - electrical installation work carried out in the tenancy portion of the group meter panel
  - installed 1 x 32A main switch (inverter supply) CB for tenancy # 01
  - connected 6mm<sup>2</sup> solar supply cable to the **load** side of tenancy # 01 main switch (normal supply)
  - tenancy isolator main switch (normal supply) CB size: 63A (located at the group meter switchboard)
  - tenancy main switch CB (confirmed as a CB) size: 63A (located at the tenancy switchboard).
  - existing tenancy supply conductor size: 16mm<sup>2</sup>.



## Who we are

At Energy Safe Victoria we work to keep Victoria energy safe.

We regulate the energy industry and sector to ensure generation, supply and usage uphold safety standards and engage with the community to raise awareness of energy safety risks.

In everything we do, we strive to deliver on our purpose to keep Victoria energy safe. Always.

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

## Need further information?

For information regarding Allume SolShare equipment, contact Allume Energy for the latest product support and installation documents:

<https://allumeenergy.com/au/>

Tech Support: (03) 7038 0686

Email: [info@allumeenergy.com.au](mailto:info@allumeenergy.com.au)

Contact Energy Safe Victoria's Renewable Energy Safety team for information and guidance on compliance to Australian Standards:

Phone: 9203 9700

Email: [info@energysafe.vic.gov.au](mailto:info@energysafe.vic.gov.au)

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