Government of South Australia
Department for Energy and Mining

ENERGY AND TECHNICAL REGULATION
OFFICE OF THE TECHNICAL REGULATOR

Allume

SolShare Design & Installation Requirements for South Australia

Endorsed by Office of the Technical Regulator (OTR)

Version A.1

MANDATORY DESIGN TRAINING

Allume Energy offers free online design training to all SolShare Installation Partners. All system designers in South Australia should complete the SolShare Technical Basics, System and SLD Design courses. Details on this training can be found at https://allumeenergy.com/wp-content/uploads/2022/08/SolShare-Training-Flyer.pdf.

SWITCHBOARD REQUIREMENTS

GENERAL

SolShare Installation Partners are required to engage with the relevant switchboard manufacturer when making modifications to the meter position/switchboard to accommodate all additional switchgear and wiring, to ensure compliance with the relevant switchgear assembly standards i.e. AS/NZS 61439 *Low-voltage switchgear and control gear assemblies* Series.

SOLSHARE CURRENT TRANSFORMERS (CT)

Allume Energy approved CTs shall only be installed, one of the following two CT arrangements shall be used:

1. Split core type with tamper proof cable tie placed around the CT core and the clasp, to prevent the CT clamp from being readily opened; or
2. Split core type with additional securing pin feature, that locks the CT clamp in the closed position.

OVERCURRENT PROTECTION

Where the SolShare connection occurs after the submain circuit breaker, overload / load limiting protection must be provided at the remote end of the submain in the occupancy distribution board. See Clause 2.5.3.3 of AS/NZS 3000:2018 (A1+A2) *Wiring Rules*.

In older installations where the meter isolator is not a circuit breaker / overcurrent device and the SolShare connection occurs prior to the submain breaker, adequate overcurrent protection shall be provided for the SolShare wiring in accordance with the *Wiring Rules*.

ISOLATION & WIRING ARRANGEMENTS

There are 4 wiring arrangements options as specified below that are intended to provide clear and consistent isolation points for each SolShare connection associated with the electrical installation. The 'preferred' wiring arrangements for single-phase and three-phase connections should be followed where possible.

The revenue metering device, associated meter isolator and SolShare isolation device are to be located within the same switchboard enclosure / behind same switchboard door. If this arrangement cannot be achieved the installer is required to notify OTR and SA Power Networks.

These isolation arrangements are to ensure safety to all electrical workers, meter installers and distribution network operators who may work on the switchboard or part of the electrical installation. The intent is to ensure that the correct isolation switches are operated / locked out, and that inverter anti-islanding protection is not relied upon. For example, a meter installer can readily and effectively isolate the grid and solar supply isolation switches associated with a tenancy and minimise disruption to other customers when replacing a metering device.

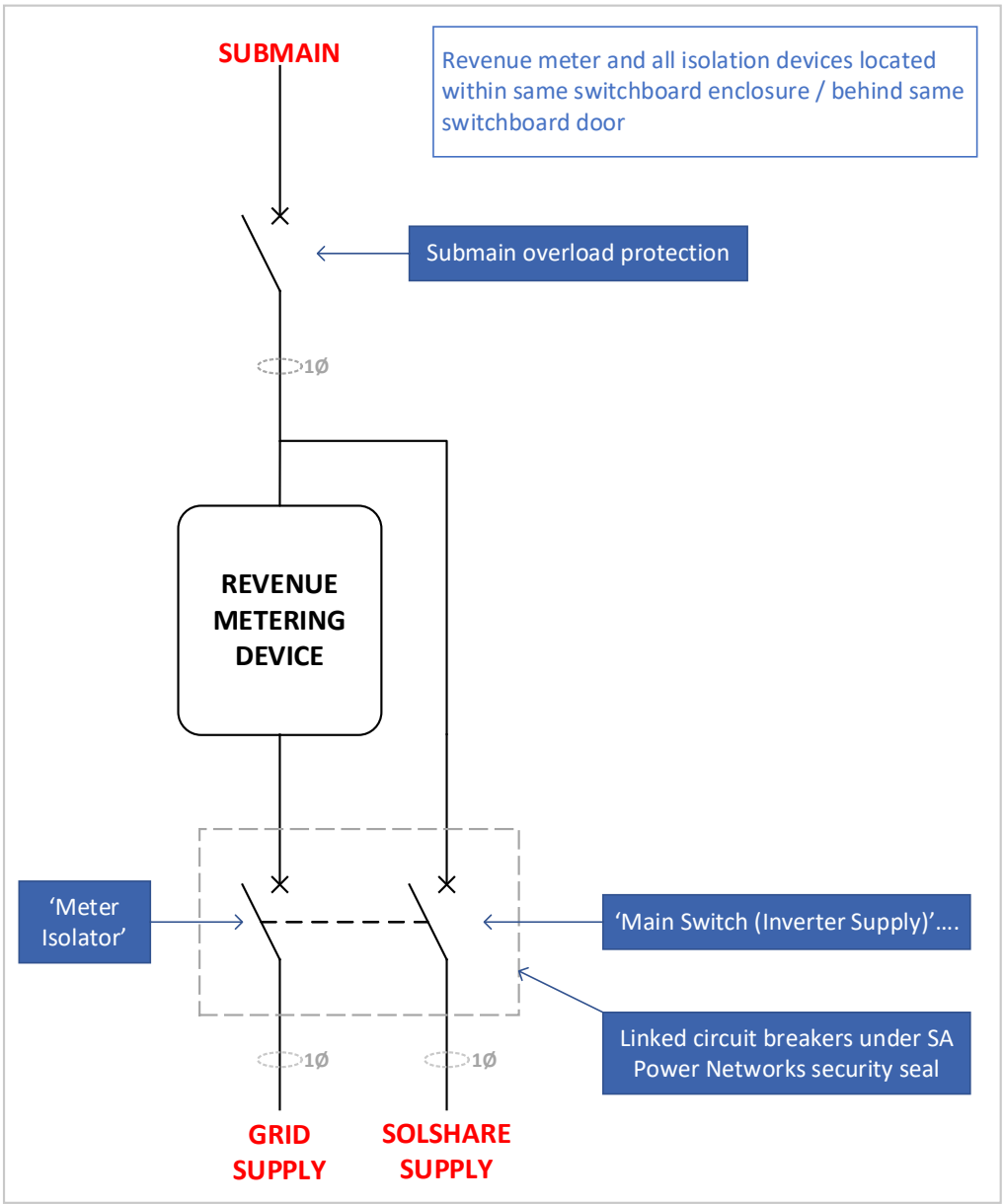
SINGLE-PHASE INSTALLATIONS

For single-phase wiring arrangements (i.e. where apartment electricity supplies are single-phase) there are two options for connection, a ‘preferred’ option and an 'alternative’ option. SolShare Installation Partners must use the Preferred option where possible.

‘Preferred’ option for single-phase wiring arrangements *(formerly OPTION 2)*

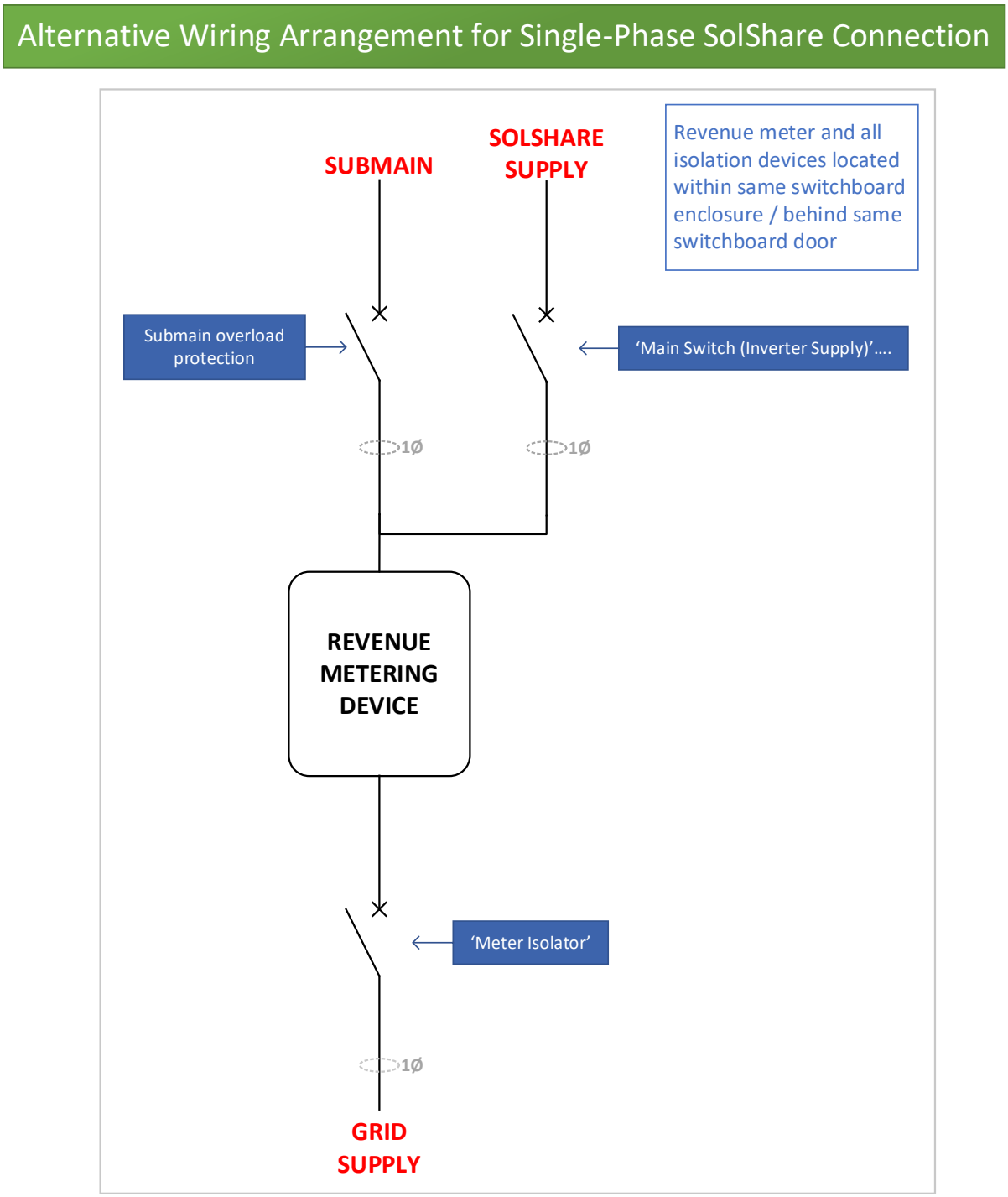
‘Main Switch (Inverter Supply)’ directly linked to Meter Isolator i.e. under security seal:

Preferred Wiring Arrangement for Single-Phase SolShare Connection



'Alternative' option for single-phase wiring arrangements *(formerly OPTION 1)*

'Main Switch (Inverter Supply)' located within same enclosure/meter panel or behind same switchboard door as the respective revenue metering device and Meter Isolator:

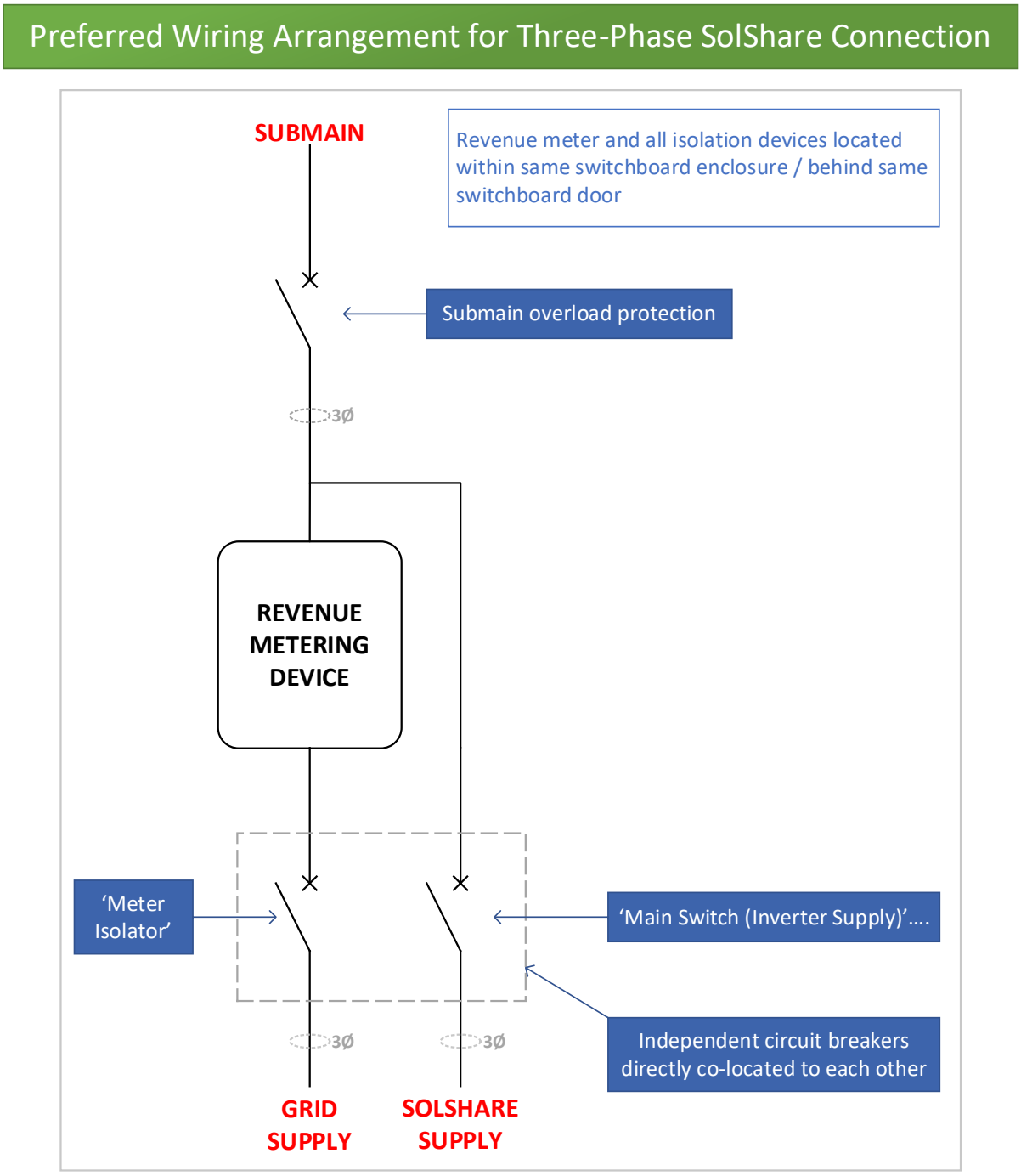


THREE-PHASE INSTALLATIONS

For three-phase arrangements (i.e. where apartment electricity supplies are three-phase) there are two options for connection, a 'preferred' option and an 'alternative' option. SolShare Installation Partners must use the Preferred option where possible.

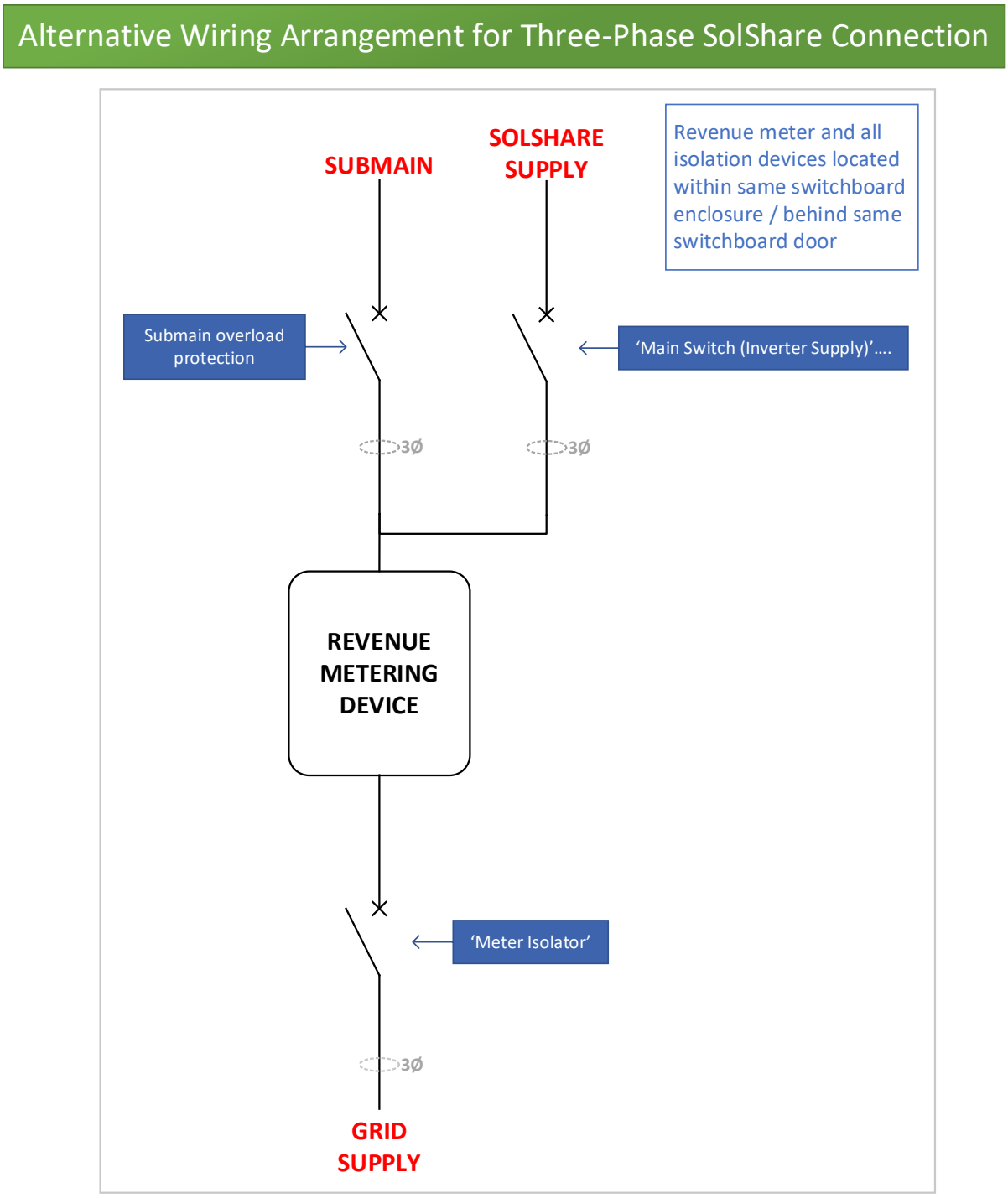
'Preferred' option for three-phase wiring arrangements *(formerly OPTION 4)*

'Main Switch (Inverter Supply)' directly co-located next to respective Meter Isolator:



‘**Alternative’ option for three-phase wiring arrangements** *(formerly OPTION 3)*

‘Main Switch (Inverter Supply)’ located within same enclosure/meter panel or behind same switchboard door as the respective revenue metering device and Meter Isolator:



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LABELLING / SIGNAGE REQUIREMENTS

GENERAL

You must ensure that the meter position/switchboard is labelled in accordance with AS/NZS 3000, 4777, 5033 and 5139 (as relevant) and the SA Power Networks *Service & Installation Rules*:

www.sapowernetworks.com.au/industry/service-installation-rules/

Labelling requirements are to be read in conjunction with the SolShare Labelling Advice available from https://allumeenergy.com/document-library/

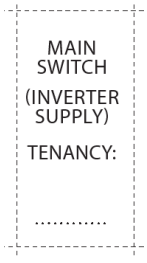
LABEL TYPE

All labels mentioned below are to be the 'Traffolyte' type – See Section 6 and Appendix A in AS/NZS 4777.1:2016 for guidance on label size, colour, durability, format.

ADDITIONAL UNIQUE LABELS & SIGNAGE

In addition to the labelling requirements of the above-mentioned standards, the following additional unique labels & signage is required:

a. A single line diagram or schematic document of the entire SolShare arrangement associated with the electrical installation. It must be minimum of A3 size footprint or equivalent and laminated. It must be fixed or held permanently within in the meter position/switchboard enclosure and readily visible when the enclosure door is opened.
b. Each occupancy meter isolator circuit breaker shall be labelled METER ISOLATOR (GRID SUPPLY).
c. Where Safety Services don't exist, the incoming single Main Switch/Panel Isolator/Load Control Circuit Breaker, shall be labelled as the MAIN SWITCH (GRID SUPPLY). Where Safety Services exist, the MAIN SWITCH (GRID SUPPLY) label shall be applied to the next relevant device/s downstream in accordance with AS/NZS 3000 and SA Power Networks *Service & Installation Rules*. See clause 7.2.4.4 and figure 7.2 (A) in AS/NZS 3000:2018 (A1+A2).
d. Each occupancy SolShare circuit breaker at the meter position shall be marked 'MAIN SWITCH (INVERTER SUPPLY)'…. followed by the respective occupancy number and/or name.



e. Each metering panel that has a SolShare circuit connected on the 'load' side of the revenue meter shall have the following label 'WARNING MULTIPLE SUPPLIES ISOLATE ALL SUPPLIES BEFORE WORKING ON REVENUE METER, SWITCHBOARD OR CIRCUIT' – make the label format, colour etc similar to Figure A1 in AS/NZS 4777.1:2016:

f. In addition to point e. above, there needs to be a clear revenue meter isolation procedure document or Traffolyte sign in each metering compartment, that clearly refers to the isolation devices in points b. and d. above. If a document is provided, it must be minimum of A4 size and laminated. It must be fixed or held permanently within in the meter position/switchboard enclosure and readily visible when the enclosure door is opened.
g. If overload/load limiting protection is provided for an occupancy submain at the remote end of the submain in the occupancy distribution board (not shown in the 4 wiring arrangement options), the load limiting circuit breaker shall be labelled 'CURRENT LIMITING DEVICE, DO NOT REMOVE'.
h. Each SolShare circuit cable behind the escutcheon, meter panel etc. shall have a 'tie-on cable label' attached close to the circuit breaker connection; the label shall have the following words: 'SOLSHARE INVERTER SUPPLY'. This is not required where the respective inverter supply main switch and submain circuit breakers are co-located behind the same escutcheon panel and the wiring between these devices is easily/visually traceable.
i. The escutcheon panel where the SolShare CTs are located behind shall have a warning label with the following words: "WARNING: DO NOT REMOVE SOLSHARE CURRENT TRANSFORMERS". The label size shall be equivalent to that specified in AS/NZS 4777.1. The label shall be yellow with black font.
j. Ensure all MAIN SWITCH labels (grid and inverter) are clearly different from all other labels in the same switchboard; See clause 2.3.3.5 in AS/NZS 3000:2018 (A1+A2) for further guidance.

ANTI-ISLANDING PROTECTION

The PV inverter's anti-islanding protection (e.g. inverter integrated and/or Network Protection Unit (NPU)) must operate with 2 seconds under the following conditions:

1. Where any meter isolator associated with a SolShare connection is operated i.e. turned off; and
2. Where any submain breaker is operated, where a SolShare connection occurs after the submain circuit breaker, i.e. 'load' side.

Where the 'Preferred' option for single-phase wiring arrangements has been deployed (i.e. linked meter isolator & main switch inverter supply circuit breakers), the above need not apply in accordance with Allume Energy's requirements.

TESTING REQUIREMENTS

In addition to SA Power Networks Testing and Commissioning requirements for Embedded Generation connections, an additional 2 tests are required by the Office of the Technical Regulator (OTR); Refer to *SolShare additional OTR tests* document 2022D099152.