



Clean Energy Council submission to the SA Government consultation on the proposed new low voltage ride-through requirements for smart inverters in SA

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback on the Government of South Australia (SA) Department for Energy and Mining consultation on the proposed new low voltage ride-through requirements for smart inverters in SA.

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

As noted in our previous submission to the Australian Energy Market Operator (AEMO) (which we have attached), the CEC supports the intent of the AEMO proposal for a new Test Procedure for short duration under voltage ride through. However, we are very concerned that by forcing a premature commencement date for the new requirement, the SA Government threatens to undermine the good work being undertaken by AEMO and its collaboration with industry.

The September 2020 timetable suggested by the SA Department for Energy and Mining appears to be oblivious to the practical limitations of the test laboratories that will be required to undertake the testing required. We strongly urge the SA Government to delay the mandatory commencement date until early 2021 if it chooses to stick with a hard commencement date.

A superior approach to setting a hard commencement date would be for the SA Government to monitor the number of inverters that demonstrate compliance with AEMO's new Testing Procedure and commence mandatory requirements when the number of compliant inverters meets a published threshold. This approach would enable commencement as soon as is practicable without the government having to predict availability and progress by testing labs.

If the SA Government insists on an impractical commencement date for the new inverter requirements it will cause significant disruption of the industry and jobs will be lost as a result. We urge the Department for Energy and Mining to consider whether it is worth putting the livelihoods of South Australians at risk by insisting on an impractical timetable for reforms that would otherwise have the support of industry.

We would be happy to discuss these issues in further detail with representatives of the SA Government.

The SA Government is proposing an impractical timeframe for testing

It is unreasonable to demand that all inverters must be retested by September to continue connecting to the SA Power Networks grid. This is simply impractical. September is less than eight weeks away.

AEMO had originally proposed a November timeline for compliance with the new disturbance ride-through requirements. Even the November timeframe would be very challenging for industry to meet. In general, the timeframes for testing through a local JAS-ANZ facility and listing with the CEC is a minimum of 6 months. This includes internal approvals, testing and work with the CEC to check off on all documentation.

September 2020 is unrealistic. We estimate the likely time required for testing, certification and relisting at 13 to 17 weeks in the best case scenario where the inverter is already compliant, the additional testing workload for the one Australian test lab capable of undertaking the work extends its waiting period from the current 8 weeks to no more than 12 weeks and the COVID-19 lockdown in Victoria has no impact whatsoever. These are optimistic assumptions. Refer to Attachment 1 for details of the likely steps involved and time required.

Early 2021 would be a more achievable implementation date. Alternatively, the SA Government could monitor the number of inverters that demonstrate compliance with AEMO's new Testing Procedure and commence mandatory requirements when the number of compliant inverters meets an agreed threshold.

AEMO has not yet published the final version of its proposed new Testing Procedure. Questions regarding the details of the proposed Test Procedure have arisen in CEC's consultation with industry, and they are outlined in the attached submission to AEMO. Testing cannot commence until AEMO finalises its new testing requirements.

AEMO has not yet published a list of all the test labs from which it is willing to accept test certificates. It has published a partial list. Many CEC members are waiting for confirmation as to whether the test lab with which they have an established relationship will be accepted by AEMO.

AEMO has not yet confirmed whether it will require certification of a 'family' of inverters or if every model and power rating will need to be tested separately.

AEMO has stated, "Manufacturers will need to undertake testing of their inverters by a testing laboratory that has already been certified against AS/NZS 4777.2 through the JAS-ANZ accredited certifying bodies or from state electrical regulators." There are two test labs in Australia accredited to AS/NZS 4777.2. They are Austest and TUV Rheinland.

The Australian test lab for TUV Rheinland is not able to provide the testing service at this stage due to a malfunction of its grid simulator and delays to the repairs being made in a US factory due to COVID-19. According to TUV Rheinland the equipment in its Australian test lab might be operational again by August or September 2020.

Austest has performed a trial run and has confirmed their equipment can perform the test. They already had a waiting list of two months before the SA Government announced its September deadline.

Remote firmware updates should be utilised

Remote firmware updates should be utilised where possible to address issues with the installed fleet and to enable manufacturers who do not meet the new testing requirements to continue installation provided there is demonstrated capability and commitment to upgrade their fleet to the new undervoltage ride through requirements.

The timeframe is unreasonable for product redesign

The proposed new undervoltage ride through requirements are outside of the current requirements for AS/NZS 4777.2 and many products will require redesign or firmware upgrades. This will require time and money. AEMO has also indicated that where firmware upgrades are required, inverters will need to be fully retested to AS/NZS 4777.2, which will create additional delays and expenses.

AEMO's proposal for the new inverter requirements were only published in June 2020. Insisting on mandatory implementation by September will exclude many suppliers from the SA market and this will very likely lead to job losses. Considering that SA has high and rising unemployment and went out of its way to attract battery manufacturing to the state, it is hard to understand why government officials would be so cavalier with the livelihoods of South Australians employed in the renewable energy industry.

Interaction with the Home Battery Scheme

We note the implementation of proposed new undervoltage ride through requirement may cause issues for batteries that have already been approved under the Home Battery Scheme. This requirement should not apply to batteries already approved under the Home Battery Scheme or to installations that have not yet been approved by SA Power Networks. This would reduce issues with customers who have already committed to purchase certain products.

Attachment 1 - New SA inverter Undervoltage Disturbance Ride Through requirement - typical timeline for compliance

A. Start

- Manufacturer to contact test labs, book testing, deliver samples - 4 weeks
- Lead time for testing – 8 to 12 weeks (Could be more or less, depending upon lab's workload and equipment availability)
- Test lab to run Undervoltage Disturbance Ride Through (UVDRT) testing only, and prepare report - 1 week

Go to either step (B) or (C) depending upon results...

B. Inverter passes UVDRT test

- Manufacturer sends test report to CEC
- CEC to verify that report meets all requirements and update approved product database - allow 1 week
- Inverter compliant – FINISH

C. Inverter doesn't pass UVDRT test

- Manufacturer to determine reason for failing UVDRT response - allow 2-4 weeks
- Implement solution - could be via software or hardware

Go to either step (D) for software or step (E) for hardware

D. Software Solution

- Software development - say 8 weeks (wild guess)
- Contact test lab, book re-testing, deliver samples - 1 week
- Lead time for testing - 6-12 weeks (Could be more or less depending upon lab's workload and equipment availability)
- Test lab to run tests and write report - allow 2-3 weeks. See Note 1 below re 4777.2 compliance.
- Manufacturer sends test reports to CEC
- CEC to verify report and update database - allow 1 week
- Manufacturer to update firmware of all inverter stock currently in Australian warehouses or in transit - allow 2-3 weeks (concurrent with CEC verification step)
- Inverter compliant – FINISH

E. Hardware Solution (or hardware + software)

- Hardware development - say 6-12 weeks
- Contact test lab, book re-testing, deliver samples - 1 week
- Lead time for testing - 8-12 weeks (Could be more or less depending upon lab's workload and equipment availability)
- Test lab to run tests and write report - allow 4-5 weeks. See Note 2.
- Manufacturer sends test reports to CEC, CEC to update database - allow 1 week
- Manufacturing of inverters with modification - allow 8 weeks or more
- Shipping of new inverter stocks & distribution to wholesalers - allow 4-5 weeks. See Note 3
- Process finishes with delivery of new compliant inverters.

Notes:

1. For a grid connected inverter, critical safety and performance functions depend on its computer controller, eg. active and passive anti-islanding, Volt-watt power limiting. Hence any revision of the firmware triggers the need to review and sometimes re-certify its compliance with AS4777.2.

Generally, when this happens, the test lab that did previous testing can carry out a reduced set of tests for only the clauses that may be affected by software and issue a revised test report.

2. Test process will require verification of compliance with some or all AS/NZS 4777.2 requirements, as hardware and maybe firmware has been changed. Again, the original test lab and/or certifier can assess and advise.
3. Transport time by sea, e.g. from Shanghai to Melbourne is usually 15-21 days depending upon conditions.