Clean Energy Council submission to the SA Government consultation on the proposed remote disconnection and reconnection requirements and proposed smart meter minimum technical standards 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 papers on the proposed remote disconnection and reconnection requirements and the proposed smart meter minimum technical standards in SA. We are responding to both consultation papers in a single submission due to the significant overlap and duplication evident in the two proposals.

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.

The CEC understands the challenges presented by low minimum demand and the reasons why the SA Government and the Australian Energy Market Operator (AEMO) would want to ability to remotely curtail PV generation and load in an emergency. It is worth noting that an alternative to curtailing generation would be to increase load on the network, using options such as production of hydrogen, charging of electric vehicles and installation of community-scale batteries on the distribution network. In this submission we focus on the remote curtailment proposals using the smart meter and/or the inverter. However, we would encourage utilisation of excess zero marginal cost electricity in preference to spilling it, wherever possible.

The CEC strongly prefers a 'technology neutral' approach to achieving the capability for remote disconnection and reconnection. We oppose prescriptive solutions. For example, we oppose the mandating of multi-element smart meters for connections where there is a distributed energy resource (DER) system and an inverter that could provide a superior solution. We understand the desire for dual-element smart meter at connections that do not have an inverter, where AEMO might wish to disconnect load for an individual site rather than an entire suburb. The multi-element smart meter proposal should only be mandated for connections without DER.

It is unclear why there are two consultation papers about achieving the same end goal. We urge the SA Government to clarify in writing whether the proposed requirements for remote disconnection and reconnection of smart meters would be deemed to satisfy the requirement for remote disconnection and reconnection of distributed energy resources (DER). We also seek confirmation that any product using demand response mode zero (DRM0) would meet the product-level requirement for remote disconnection and reconnection. If both solutions are acceptable for remote curtailment of DER then for DER systems there should be an option of using either one solution or the other, but not a requirement to use both.

In addition to multi-element smart meters or DRM0, there are also other options that would work (e.g. a separate control circuit breaker that works the same as the proposed smart meter, or direct control of the inverter, rather than explicitly via DRM0). These alternatives should also be allowed.

The SA Government should not attempt to specify the method used to achieve remote disconnection and reconnection where there are alternatives. Where there is an inverter involved, the Government should only specify the required outcome and allow all suitable solutions to meet it. Use of smart meters for remote disconnection and reconnection should only be mandated where there is no inverter and no alternative way to achieve the remote disconnection and reconnection capability.

We urge the SA Government to work with industry, SA Power Networks, researchers, and others to develop a complete, technology agnostic, technical specification to achieve the government's stated goals.

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

Increasing load is the best solution to low minimum generation

The best solution to the 'problem' of too much zero marginal cost electricity is to find economically productive uses for the excess energy available. Options such as production of hydrogen, charging of electric vehicles and installation of community-scale batteries on the distribution network should always be considered in preference to curtailing PV generation. Curtailing generation should be a last resort.

The proposals appear to overlap and duplicate each other

The SA Government has proposed to mandate that there must be an ability to remotely disconnect and reconnect DER. Separately, the SA Government proposes to mandate smart meter minimum technical standards to enable remote disconnection and reconnection.

We do not understand why the SA Government published two consultation papers on achieving the same end goal.

If the proposed smart meter technical standards become mandatory it is not clear why an additional requirement for remote disconnection and reconnection is required.

We urge the SA Government to clarify in writing whether the proposed mandatory new requirements for smart meters would meet the requirement for the capability to remotely disconnect and reconnect DER, or if additional capability within the inverter will also be required.

SA Government's terminology requires clarification

The terminology used in the consultation paper implies that a physical disconnection is required. The terminology should make it clear that this could also be achieved by reducing PV output to zero.

Uncertainty whether the smart meter proposal will work

It is unclear whether the SA Government's smart meter proposal can deliver the desired outcome in an emergency. The communication to the smart meter will rely on public carrier communication networks and will not have a 'failsafe' response. It is not clear that the Metering Coordinators will be able to deliver what is needed when it is needed. It does not appear that sufficient thought has been given to the reliability of the communication system, which is required to achieve the stated purpose of the proposed smart meter dual-element configuration.

DRM0 should satisfy the remote curtailment requirement

All grid-connected inverters installed in SA the introduction of the 2015 version of AS/NZS 4777.2 have been required to be capable of remote curtailment. It is called 'demand response mode zero' (DRM0).

We call on the SA Government to confirm in writing that any product that uses DRM0 for remote disconnection and reconnection would meet the product-level requirement for remote disconnection and reconnection that is being sought.

One capability to remotely disconnect and reconnect should suffice

If the proposed new requirements for smart meters are deemed to meet the requirement for the capability to remotely disconnect and reconnect and if any product that uses DRM0 is also deemed to meet the product-level requirement for remote disconnection and reconnection of DER then for DER systems, there should be an option of using either the new smart meter arrangements or DRM0.

Dynamic export limitation should suffice and should be the end goal

Dynamic export limitation using the international standard, IEEE 2030.5, would also enable remote reduction of PV output to zero. Implementation of IEEE 2030.5 in Australia should be the end game and the SA Government should allow and support moves to enable remote curtailment in this way.

Interim technical solutions will only distract industry and SA Power Networks from the best long-term solution.

The CEC's strong preference is would be for the SA Government to commit to the implementation of IEEE 2030.5 as the pathway to achieving remote curtailment, emergency shedding and dynamic export limitation. IEEE 2030.5 is already being used by Horizon Power in its Onslow Project. The SA Government should consider the lessons learned from Western Australia before embarking on a prescriptive approach that will lock in outdated technology and create legacy issues.

Multi-element three phase smart meters are not available

We understand that multi-element three phase smart meters are not available on the Australian market. South Australia is not such an important market that you can expect metering manufacturers to develop a bespoke product to meet a new regulation. Three phase customers make up about 25 to 30 per cent of SA Power Networks customers, so the impact will be significant. Use of DRM0 should be considered as a more practical alternative to searching for a manufacturer who can develop a six-element or nine-element three phase meter.

Impact on time required for smart meter installation

South Australians have already been experiencing significant delays in the installation of smart meters. We are concerned that the new requirements will exacerbate those delays. We urge the SA Government to undertake and publish analysis regarding the capacity of the smart meter installation workforce (noting the implications of SA licensing regulations) and how delays in smart meter installation will be avoided.

Cost for SA customers

AEMO has suggested that the additional cost of requiring a dual-element smart meter will amount to $30 per customer. We think this is a gross underestimate. It fails to take account of the additional cost of installation, additional labour, requirements for current transformers and potential switchboard upgrades. Where the installation necessitates a switchboard modification, the additional cost could easily exceed $1,000. Where switchboards are remote from metering enclosures, additional costs will be very significant.

New custom meter configurations, data streams and billing system changes will be required by Metering Coordinators, retailers, and SA Power Networks so that consumption is netted off against coincident PV generation. The costs of these changes appear to have been overlooked. There should be further assessment of the costs likely to be imposed upon customers.

Exposure of generation and consumption data

We understand that even though the intention of the new smart meter arrangements is to still permit net metering and existing billing arrangements to continue, nevertheless the data from both generation and load meters will be exposed. Separating the metering of generation and load data could enable the creation of new markets in future. However, customers might not want that data to be made available. It would be worthwhile consulting Energy Consumers Australia and consumer advocacy organisations for their perspective on this matter.

Access to smart meter data

Smart meter data should be available to customers or to third parties to whom they grant right of access. We understand that Metering Coordinators can easily provide this data to third parties via an application programming interface (API) now, but there is no mechanism for consumers to authorise this other than asking their energy retailer. The energy retailer might not want third parties to have this data and might restrict the format in which data is available. We note that this issue is being addressed through the Consumer Data Right.

Incentives to address legacy systems

There might be opportunities to 'retrofit' remote curtailment capability to legacy systems, but this could not be mandated. The government could consider providing an incentive for those who can provide this capability for legacy systems e.g. via control of the inverter.

General technical comments

Several CEC members have expressed concern about the practicality of wiring, placement of current transformers and unintended consequences of the new wiring requirements. Some of the issues raised in CEC's consultation with members have included:

- Dual element meters require separate wiring of the conductor from the PV generator breaker to the meter, this is a large change from the current practice of wiring the PV generator conductor to a 'solar breaker' on the main or sub board.
- Having a separate PV connection to the meter will mean that no solar can be installed without the metering provider being present (added time/cost/complexity) as the meter is not the customer's asset and not safely accessible.
- For export-limited systems or storage systems, these sites require a net load meter to be installed (that is the fundamental control signal for export limiting or battery system operation). The proposed approach creates technical challenges in respect of installing the net load conductor, and it's not clear whether this can be done in compliance with AS 3000.
- For AC-coupled storage systems: a separate PV connection will completely disconnect solar in a blackout and prevent customers from having solar in a backup (reduce storage efficacy).
- For DC-coupled storage systems, remote disconnect of the PV will result in the system entering backup and the backup loads circuit islanding. This will result in the loss of critical load circuits when the grid is connected and PV remotely disconnected.
- Solar self-consumption will be adversely impacted as the power flow will be from the PV meter to the meter and then back to the load circuit (significantly increasing losses) as no local consumption of solar will be undertaken.
- Typically, inverters need their connected meter / current transformers to measure the net value of the PV generation and load to operate export limitation settings. The proposed smart metering wiring requirements would necessitate development and testing of a specific algorithm with specific wiring requirements to be used specifically in South Australia. This would be a poor result for South Australian customers.
- The smart meter proposal will require that the meter and switchboard must be in the same enclosure. This will be expensive for many customers.