Government of South Australia
Department for Energy and Mining

Controlled Load Profile and Sample Meters

Consultation Paper

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Acknowledgement of Country
As guests here on Kaurna land, we acknowledge everything this department does impacts on Aboriginal country, the sea, the sky, its people and their spiritual and cultural connection which have existed since the first sunrise. Our responsibility is to share our collective knowledge, recognise a difficult history, respect the relationships made over time, and create a stronger future. We are ready to walk, learn and work together.

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Summary of Proposal

The Department for Energy and Mining is consulting on the proposal to discontinue the requirements for controlled load profiles and sample meters in South Australia.

Currently, the Australian Energy Market Operator (AEMO) is required to prepare controlled load profiles using data sourced from sample meters maintained by SA Power Networks.

The need for controlled load profiles is diminishing as more premises are equipped with smart meters. At the same time, maintaining sample meters is becoming increasingly difficult for SA Power Networks.

Under the proposed changes, South Australia would seek amendment of AEMO's *Metrology Procedure* to:

- remove the requirement for AEMO to prepare controlled load profiles (CLPs) for South Australia
- remove the obligation on SA Power Networks to maintain the sample meters.

Amending South Australia's requirements in the *Metrology Procedure* requires the agreement of the Energy and Climate Ministerial Council and consultation by AEMO.

If the proposal is supported, the intent is for the changes to be made and take effect by 1 July 2025, when SA Power Networks' next regulatory period commences. This is also the date when the proposed acceleration of smart metering rule change is expected to commence.

Background

In South Australia, AEMO is required to produce a profile estimate of the energy used by controlled loads on basic meters (known as a 'controlled load profile'). AEMO does this using data from sample meters that South Australia's distribution network service provider (DNSP), SA Power Networks, is required to install and maintain specifically for this purpose.

- *Basic meters* measure total electricity use only, and do not record the dates and times when the electricity flows occur.[1] Basic meters are also known as accumulation meters or Type 6 meters and require manual reading. Basic meters are no longer being installed following the introduction of metering contestability in December 2017.
- *Interval meters* record interval energy data.[2] They are usually remotely read using a communications network but also can be manually read. Interval meters are also referred to as 'smart meters' or Type 1-4 meters. All new and replacement meters must be interval meters.
- A *controlled load* is an electricity load on a dedicated circuit that is metered separately from other load at the same connection point. Typically, the dedicated

[1] AEMO Retail Electricity Market Procedures – Glossary and Framework v4.0 (p17)
[2] AEMO Retail Electricity Market Procedures – Glossary and Framework v4.0 (p22)

circuit is for high energy use appliances such as electric hot water heating systems or pool pumps, which can be supplied electricity during off-peak times at a lower tariff.

- A *sample meter* is a separate metering device installed on a customer's meter board, where that customer has a manually-read accumulation meter and at least one controlled load (eg, electric hot water system or pool pump). While the customer's meter is an accumulation meter, the sample meter must be a Type 4 interval meter.

Controlled load profiles are developed using data collected from sample meters, which are installed at premises where the small customer has both an accumulation meter and a controlled load. The data is used to compile a representative usage profile of the controlled load for small customers with accumulation meters.

Controlled load profiles are used to support AEMO's settlement process with retailers and were introduced in 2002, when most customers had accumulation meters. The settlement process ensures market generators are paid for the energy they provide to the National Electricity Market, and market customers (retailers) pay for the energy they use, in accordance with the market rules.

The settlement process requires AEMO to reconcile the energy usage of each retailer's customers with the prevailing electricity spot price for each trading interval across the day. For customers with accumulation meters, AEMO cannot determine directly how much energy a customer has used at a certain time. Load profiling enables data taken from accumulation meters over an extended period to be allocated to each trading interval within that period. Profiling is not required for interval metering installations as they record and provide data that already is separated into each trading interval.

To reconcile the energy used by customers who have accumulation meters, AEMO builds an estimated pattern of the energy use of these customers. Two profiles are created, one to account for the energy used by controlled loads only (a controlled load profile) and one to account for all other energy usage, called a Net System Load Profile (NSLP).

Billing arrangements between retailers and customers are based on meter readings of energy usage, regardless of the customer's type of metering, and are not affected by the controlled load profile, or its removal.

The controlled load profile and sample meter requirements are contained in AEMO's *Metrology Procedure* and *MSATS Procedures* and are referred to as 'jurisdictional metrology material'. These procedures contain similar requirements for New South Wales and Queensland, while other states, such as Victoria and Tasmania, do not require controlled load profiles.

Current context

Under metering rules that commenced in 2017, all accumulation meters are being replaced with interval meters, or 'smart meters'.[3] In 2024, approximately 40 per cent of customers connected to SA Power Networks now have interval meters.

[3] The AEMC's Competition in Metering Rule Change determination required advanced meters to be deployed where new and replacement meters are required. The rule commenced on 1 December 2017.

In South Australia, on average, around 50,000 basic meters were being replaced yearly, but more than 160,000 meters were replaced over the last two years.[4] At this rate, it is expected that most basic meters would be replaced by the early 2030s.

In 2023, the Australian Energy Market Commission (AEMC) completed a review of metering services, making recommendations for the rollout of smart meters to be complete by 2030.[5] To meet this target, DNSPs would be required to develop plans for remaining basic meters to be replaced over the five-year period to June 2030, and retailers would be required to implement those plans by arranging the meter replacements.

Rule changes are required to implement the accelerated roll-out recommendations and are anticipated to be made in July 2024.[6] If the rule changes are made as expected, this would mean that the requirements for controlled load profiles and sample meters would become redundant sooner than South Australia's current meter replacement trajectory indicates.

New South Wales has determined the requirements are no longer required in that state. In late 2021, the NSW government sought stakeholder views on the benefits of controlled load profile requirements, whether to consider alternative approaches or whether to abolish the requirements.[7] Most stakeholders, including retailers, who commented on the proposal supported removal of the requirements.

Since then, the NSW Government has determined to initiate the process to have the requirements removed.[8] In May 2024, AEMO concluded consultation on changes to remove New South Wales' jurisdictional metrology material from their *Metrology Procedure* and other associated procedures.[9]

Given that AEMO supported action to remove the requirements for New South Wales, the Department for Energy and Mining considers retaining the requirements in South Australia is no longer warranted.

Issues

The requirement for the development of a controlled load profile for South Australia has limited ongoing value and will become redundant in coming years.

The number of customer connections that needs to be included in the controlled load profile settlement process is reducing over time as basic accumulation meters are replaced with smart meters. By the end of the decade, very few accumulation meters are expected to still be in service, and a small portion of those would also be associated with a controlled load.

[4] AER Retail Energy Market Performance Reporting, Australian Energy Regulator.
[5] AEMC (2023), Review of the Regulatory Framework for Metering Services, Australian Energy Market Commission.
[6] On 4 April 2024, the AEMC published its draft determination and draft rule for *ERC0378 Accelerating Smart Meter Deployment* rule change requested by Intellihub, SA Power Networks and Alinta Energy.
[7] NSW Government, Promoting innovation for NSW energy customers consultation paper and stakeholder submissions, accessed 24 April 2024.
[8] NSW Government, Position Paper: Sample metering and Controlled Load Profiles, accessed 24 April 2024.
[9] These changes will take effect from 1 September 2024. Consultation on removal of NSW controlled load profile.

SA Power Networks forecasts that, in 2030, fewer than 10 per cent of accumulation meters will remain. Of those, approximately 25 per cent would have controlled load, equating to less than one per cent of the total energy used in South Australia.

Notably, AEMO considers that, in the foreseeable future, the requirements will no longer be relevant to market conditions or arrangements due to the progressive deployment of interval metering.[10] AEMO said as the number of customers who have both controlled loads and manually read metering installations decreases, there will be a point in time where there are insufficient manually read metering installations from which sample metering 'representative candidates' can be sourced and, similarly, few to which the resulting controlled load profile would need to be applied in market settlement.

AEMO also highlighted that profiling in settlement has not been designed to be applied for small volume of metering installations and, in particular, controlled load profiles are unsuited for such an arrangement. AEMO further noted that their prolonged use could negatively impact market settlement as any data used to calculate the controlled load profile is likely to be increasingly unrepresentative of actual consumption.

Controlled load profiles are not required in Victoria, Tasmania or the ACT and the settlement process is understood to function effectively in those states. Controlled load profiles will soon be removed in New South Wales, leaving only South Australia and Queensland where these requirements apply. Removing the requirement for a controlled load profile in South Australia would make settlement more consistent across jurisdictions, removing complexity for retailers operating across multiple states and for AEMO.

Sample meters

AEMO's *Metrology Procedure* requires SA Power Networks to maintain at least 200 sample meters at representative residential small customer premises to collect energy usage data on controlled load.[11]

This obligation is increasingly challenging for SA Power Networks to fulfil for several reasons.

- Smart meter roll-out: Premises hosting a sample meter may have their basic meter replaced with a smart meter, rendering those premises no longer suitable for hosting sample meters. These sample meters are frequently removed by Metering Providers without any engagement with SA Power Networks. This means the DNSP needs to regularly monitor the basic meters at these premises in case of replacement, identify a suitable replacement host site and install a new sample meter. This displacement of sample meters, which sometimes occurs without SA Power Networks' knowledge, adds to the cost of complying with the requirement. Like other DNSPs, it also means SA Power Networks maintains a fleet size greater than 200 meters to offset sample meter losses.

- Representative sites: the roll-out of smart meters reduces the remaining pool of accumulation metered-premises from which to source potential representative sample meter candidates. Premises hosting sample meters are meant to be

[10] AEMO (2022), submission to Promoting innovation for NSW energy customers, accessed 24 April 2024
[11] AEMO Metrology Procedure Part B v7.5

representative of the customer connections across the profile area, which is the area covered by SA Power Networks. As accumulation meters are expected to be largely replaced by 2030, the challenges of maintaining a representative sample meter fleet will only increase over the next five years. As the number of candidate sites reduces, the risk of sites not being appropriately 'representative' increases.

- Metering responsibilities: in 2017, when competition in metering was introduced, metering responsibilities changed from DNSPs to metering providers. While SA Power Networks retains responsibility for legacy accumulation meters, this metering fleet will continue to reduce over time as they are no longer installing or replacing meters. This means meeting the sample meter obligation, especially in regional areas of South Australia, comes at a higher cost per customer over time.

Maintaining the sample meters across the state is increasingly costly for diminishing value.

Proposed changes

The Department for Energy and Mining is proposing to remove the requirement to use controlled load profiles in South Australia.

This will mean amending South Australia's jurisdictional metrology material to:

- remove the requirement for AEMO to prepare a controlled load profile for the South Australia region of the NEM; and,

- remove the obligation on SA Power Networks to maintain sample meters.

The energy usage of controlled loads will still need to be accounted for in the market settlement process. Currently, the total energy usage of customers with accumulation meters currently is reflected in two profiles: the controlled load profile and the NSLP. Removing the controlled load profile means the total energy use can be incorporated into a single load profile, as is used already in Victoria, Tasmania, and the ACT and soon will be in New South Wales.

Importantly, removing the requirements has no impact on the availability of controlled load tariffs, which SA Power Networks will continue to provide, or on the way customers are billed by retailers.

SA Power Networks supports the removal of the requirements, for the reasons outlined in this paper. Public consultation in New South Wales showed most stakeholders, including retailers and AEMO, broadly supported action being taken to remove the requirements in that jurisdiction, and no stakeholders indicated opposition to action being taken. Most stakeholders considered controlled load profiles were either already no longer valuable, or soon would not be.

Alternative options

The Department for Energy and Mining considered the following alternatives to removing the requirement for controlled load profiles. These options are not practical or not preferred for the reasons outlined below.

No Change

This option would retain the current requirements unchanged. However, as controlled load profiles will become redundant when smart meters are widely deployed, this option simply defers the necessary amendments to a future date. In the meantime, the costs of maintaining sample meters will continue to be borne, while the accuracy and value of the controlled load profiles will continue to diminish.

Smart meter data

This option would maintain the requirement for sample meter sites and the obligation on AEMO to prepare controlled load profiles but allow the use of data from smart meters instead of accumulation meters. To implement this option would require:

- amending the current obligation on SA Power Networks to install sample meters at accumulation-metered sites to an obligation to identify suitable sites with controlled load from which to source smart meter data; and,
- require SA Power Networks to procure meter data from the relevant retailers/meter data providers for each of those sample sites.

While using smart meter data would address the issues raised by smart meter roll-out and assignment of metering responsibilities, it would entail new costs for SA Power Networks to establish and operate.

SA Power Networks does not currently produce interval metering data for Type 4 meters as they cannot perform the meter data provider (MDP) role following the introduction of metering contestability. System capability would need to be introduced to allow the utilisation of other MDP's interval metering data onto the controlled load profile national meter identifiers (NMIs), including establishment and ongoing operational costs to support this solution.

A further consideration is how representative the smart meter data would be of customer energy usage at premises without smart meters. This is because there may be other new technologies, such smart appliances or EV charging, in use at the smart-metered premises that affect the consumption profile and would not be representative of consumption of controlled load customers with accumulation meters. This has the potential to jeopardise the accuracy of the resulting controlled profile.

This option would still require amendment of the AEMO procedures to implement and would not avoid the need for future amendment also, when controlled load profiles are no longer required. This option would increase the administrative burden, cost, and complexity for very little benefit.

Historical data

This option would rely on historical sample meter data and require AEMO to produce the controlled load profile using that historical data. The obligation on SA Power Networks to install and maintain sample meters would be removed, along with the requirement to furnish AEMO with sample meter data (beyond the initial provision of historical data).

This option would relieve SA Power Networks of the ongoing costs associated with installing sample meters and maintaining the sample meter fleet.

Over time, the representativeness of the historical data is likely to diminish, reducing the accuracy of the controlled load profile relative to actual consumption.

As with the smart meter data option, this option also would require two rounds of amendment of the *Metrology Procedure* to implement, now and again in a few years' time. This option would increase the administrative burden for very little benefit.

Implementation

To implement the proposed changes, South Australia would need to seek the agreement of Energy Ministers. Subject to Ministers' agreement, AEMO would then be requested to consult on amendments to the Metrology Procedure.

Existing NMIs associated with the controlled load profile must be moved to an alternate profile before sample meters may be removed. In its consultation on changes to remove the NSW controlled load profile requirements, AEMO allowed a three-month period during which this transition process would occur. This timeframe allows the profile change to coincide with the usual quarterly read cycle for these NMIs. The process would use existing market systems and processes, avoiding any system changes to implement the proposal. Once these NMIs are moved to the alternate profile, SA Power Networks would be able to remove the sample meters.

The intent is for the profile changes in South Australia to be completed by 1 July 2025.

Making a submission

The Department for Energy and Mining invites submissions on the proposal to discontinue South Australia's controlled load profiles and sample meter requirements.

Interested parties should make their submission by 5pm (ACST) on 21 August 2024.

Stakeholders can provide written submissions by emailing dem.consultation@sa.gov.au with the subject line "SA Controlled Load Profiles".

Please include your name and organisation (if applicable) and contact details.

Under the *Freedom of Information Act 1991*, the state government may be required by law to release your submission to a third party. If a request is made under the Act, you will be contacted prior to the release of any material.

Further information

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