



Mr Ben Noone  
Australian Energy Market Commission  
201 Elizabeth Street  
Sydney NSW 2000

18 May 2017

Dear Mr Noone

### **Five Minute Settlement**

CitiPower and Powercor welcome the opportunity to respond to the Australian Energy Market Commission's (AEMC) Five Minute Settlement directions paper.

The AEMC has outlined the market benefits that could arise from adopting a five minute settlement period. We recognise the potential for this rule change to drive a more responsive wholesale market and consider it could deliver further network support by encouraging network connected storage. The AEMC's paper has also recognised that costs would arise from changes to IT systems, metering and financial contracting arrangements.

The AEMC's preference is to use metering data rather than supervisory control and data acquisition (SCADA) data to implement five minute settlements. This is a change from the original rule change request and one that means distributors' costs will need to be taken into account in the analysis. Therefore distributors will need to more closely engage in this process.

In this submission we have outlined the capabilities and costs of capturing five minute consumption data from our metering and IT infrastructure to inform the AEMC's analysis. We have not commented on the overall merits of five minute settlements because the costs and benefits are much wider than those affecting distributors.

The information provided in this submission is preliminary. We will need to undertake a comprehensive review of our systems and engage with our metering and IT infrastructure vendors before understanding the full consequences of the rule change or accurately estimating costs. We would like to engage closely with the AEMC and understand their interest and the level of detail / accuracy it would be seeking from such analysis.

### **Meter make-up**

We play two distinct roles in Victoria's metering market, we are:

- the meter provider of around 1.2 million remotely read interval meters (classified as type 5) installed as part of the Victorian Government's Advanced Meter Infrastructure (AMI) program (and a small volume of residual manually read type 5 meters and type 6 accumulation meters); and
- a Local Network Service Provider (LNSP) for those 1.2 million remotely read interval meters and around 15,000 contestable type 1-4 remotely read interval meters. We are not the responsible party for the type 1-4 meters.

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As a meter provider, our AMI meters and communication network are well placed to accommodate five minute settlement. However, reinforcement works to support 6 times more data from these 1.2 million meters would be required to enable this functionality. Despite the metering contestability rule change, we expect to be a metering provider for an extended period of time given the Victorian Government's intended Order in Council on contestability and the time it would take for other metering providers to be appointed.

As an LNSP, our systems will need to process and store 6 times more data from the AMI meters and type 1-4 meters.

### **System changes**

To date we have identified the following necessary changes to effect five minute settlement:

- a firmware upgrade to AMI interval meters. This would need to be sourced from the meter vendors;
- additional access points and relays – data on the AMI network is communicated via mesh radio to 3G access points. The AMI network was developed with some headroom to accommodate higher data volumes, but not by 6 times which would be needed. To prevent system backlogs and crashes, we would need to install additional access points throughout the network. More backhaul capacity will also be needed;
- changes to supporting IT metering systems to manage higher quantities of data;
  - AMI network management system – this system controls the reading of meters, collects and then sends daily data to the meter data management system for processing, and stores 12 months of data to use in managing metering faults and other metering issues. The capacity of this system will need to be increased;
  - meter data management system – validates metering data, creates data substitutions and stores 7 years of data as required by the National Electricity Rules (**NER**). In addition to processing and storing more data, this system will need to be modified to aggregate 5 minute data to 15 and 30 increments for use by our network billing system;
  - market transaction systems – sends data to the market. This will need increased bandwidth to send and receive five minute interval data; and
  - network planning system – this system is used to plan the distribution network. It will need modification to accommodate five minute data.

We have not conducted a fulsome review of the requirement for additional access points, but we believe the cost could be in the order of \$8 million. We have not approached our vendors about the costs for required IT system changes. Due to the significant volume of AMI interval meters capable of providing five minute settlement in Victoria compared to other States (type 6 accumulation meters would not need to provide five minute data), the extent of system changes in Victoria is likely to be greater than elsewhere.

### **Meter memory storage**

The AEMC noted the potential difficulties with locally storing 35 and 200 days of five minute data for remotely read interval meters and type 5 manually read meters respectively as required by the NER. The AEMC engaged with meter manufacturers, which indicated the meters are technically capable of meeting the local storage requirements.

Whether meters can store the required data is, in part, a function of their configuration and operation. The default configuration delivered by manufacturers is to provide one 30 minute data stream, however, we have remotely reconfigured our meters to provide and store multiple data streams to ensure AMI and tariff structure benefits are realised, such as:

- export data from the growing number of premises with solar PV installations;
- power quality (coincident voltage and current) data for a range of meters to better balance phase load and reduce augmentation requirements;
- reactive power for customers on certain tariffs to encourage the installation of efficient power factor correction equipment; and
- providing a number of event alarms and logs to remotely monitor the network.

Hence the volume of meter memory being used (and therefore available for additional use) can vary. We have not yet undertaken analysis of our meters' capabilities to comply with the five minute requirement but we would encourage the AEMC to engage with the distributors that operate the meters to understand these implications. We note also that using more memory may shorten meter life because there are limits to the number of times memory can be re-written. Again, we have not yet investigated these implications.

#### **Recording two sets of data**

The AEMC has flagged that distributors could record both five minute and 30 minute metering data. We do not support this because:

- there should be only a single source of truth to avoid data discrepancies; and
- we would need to communicate, process and store 7, rather than 6 times the current data levels.

If the rule change is to be made, market participants should aggregate five minute data to derive 30 minute data if it's required.

#### **Transition**

The 15,000 type 1-4 interval meters in our network represent around only 1.2% of total meter volumes, however, the network revenue associated with these meters is around 50% of total network revenue. We suggest these meters transition to five minute settlement first. This will unlock the rule change's benefits for half of transactions (by value), while allowing IT changes to be tested with lower data quantities. With this transition, unforeseen issues will be identified without affecting millions of data points generated from the 1.2 million type 5 AMI meters.

We propose type 1-4 interval meters transition to five minute settlement over three years from when the rule comes into effect. Type 5 AMI meters should transition within five years.

We would be pleased to discuss any aspect of this letter with the AEMC. Please contact Frans Jungerth on 03 9683 2022 or [fjungerth@powercor.com.au](mailto:fjungerth@powercor.com.au).

Yours Sincerely



**Brent Cleeve**  
**Head of Regulation**