Submission to Australian Energy Market Commission (AEMC) for a rule change proposal on

“Real-time data for consumers (ERC0399)”

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Aim of this document

This document aims to address questions 1, 7 and 10 in the consultation paper on "Real-time data for consumers," published by the Australian Energy Market Commission (AEMC) on 10 Oct. 2024, that requested stakeholders' views on changes that may be needed to improve access to real-time data, such as:

- whether parties should have an explicit right to access real-time data
- how real-time data should be defined
- how the data could be shared and received
- who would pay for real-time data
- how interoperability could be achieved
- how privacy and cyber security would be maintained
- other considerations including data handling requirements and learning from other frameworks.

General Statement

This rule change proposal is very timely and is well aligned with the changing community expectations and customers' shift to a cleaner energy system. It also concurs with the broad uptake of various consumer energy resources (CER) like solar photovoltaic systems and energy storage batteries. This also coincides with the significant uptake of smart metres across many regions in Australia and existing communication technologies that can realise the customers' real-time energy consumption monitoring. We agree that this rule change will improve access to real-time data from smart meters. We believe that while some parties will incur costs to implement an improved access framework, the utilities, retailers, aggregators, virtual power plant operators, and researchers can use the data to understand better the energy generation, distribution and storage within their networks. This further can help them to plan and manage the operation of energy distribution properly.

Below, we have replied explicitly to questions 1, 7 and 10 of the consultation paper and shared our opinions.

Question 1: What are the benefits of improving access to real-time data?

a) What are the anticipated use cases of real-time data?

b) What is the value of the benefits that flow to consumers ?

Smart meters play an important role in contributing to the efficient integration of consumer energy resources (CER), improving the electricity network and supporting the cost-effective of decarbonisation of the energy market. Considering the importance of smart meters, the recent review of the regulatory framework for metering services recommended key changes to improve the metering framework.

We believe that improving access to real-time data offers substantial benefits, particularly in enhancing the effectiveness of smart meters and maximising the value they provide to consumers. We agree with the recent review and recommendations on key changes to streamline the deployment of smart meters across the National Electricity Market (NEM). These changes are vital to ensure clarity and certainty in data access and sharing.

By enabling real-time data accessibility, consumers can make more informed decisions about their energy use, leading to potential cost savings and increased energy efficiency. Very specifically, the real-time data from smart meters will allow consumers to make informed decisions, interact frequently with their energy usage and reduce energy consumption, and balance the energy and demand.

Access to real-time data will improve the grid performance, such as grid stability and quality, by improving the integration of CER, and demand management and will optimise the energy and cost of electricity. The real-time data will provide an adaptive, consumer-friendly scheme to engage in innovative energy programs further.

As practical examples to present evidence, we are referiing to some of our research outcomes in which we have used real-time and near-real-time data (5–15-minute intervals) in our research projects to demonstrate the importance of real-time data in optimising energy distribution, improving grid stability, and supporting consumer engagement [1,2, 3]. These examples highlight the need for improved real-time data through smart meters, increasing transparency and enabling consumers to interact more with their energy usage.

1- A Abualsaud, F Taghizadeh, S Deilami, J Hossain, and J Lu (2023) “Smart electric vehicle charging system with flexible charging and voltage stabilisation service for Australian household network,” in Proc. of IEEE International Conference on Energy Technologies for Future Grids (ETFG), Wollongong, pp.1-6 https://doi.org/10.1109/ETFG55873.2023.10408340
2- S Deilami, and S Muyeen (2020) “An insight into practical solutions for electric vehicle charging in smart grid,” *Energies*, 13:1545 https://doi.org/10.3390/en13071545

3- S Deilami, AS Masoum, PS Moses, and MAS Masoum (2011) "Real-time coordination of plug-in electric vehicle charging in smart grids to minimise power losses and improve voltage profile, *IEEE Transactions on smart grid*, vol. 2, no. 3, pp. 456-467 https://doi.org/10.1109/TSG.2011.2159816

Question 7: How should real-time data be accessed and shared?

a) Do parties, other than metering service providers, need to locally connect directly to the meter to access real-time data? If so, what changes are needed to enable this?

b) Are there alternative data sharing arrangements that should be enabled by a rule change, if made?

The AMEC consultation paper states that ECA has proposed that parties should be able to access real-time data locally through the smart meter, and this would enable consumers' authorised representatives to access real-time data using technology such as plugs, clamps, and sensors.

We agree with ECA's proposal that local access should be enabled by requiring all new meters to be equipped with communications ports to access data locally, and these communications ports should be unsealed and accessible to approved parties.

We also believe that smart metres with WIFI-enabled features are suitable as they can transfer data without the data being sent off-site, and they should also be considered as a suitable alternative.

Furthermore, we believe that this rule change should not only be applied to all new metre installations but should also be applied to all existing customers to have a broader impact on the benefits provided.

Question 10: Do existing arrangements sufficiently protect consumer privacy and maintain cyber security for any real-time data framework?

a) Would any additional consumer privacy and cyber security protections be required if a real-time data framework were implemented?

b) Do you consider other work programs could provide any additional protection required, such as the Roadmap for CER Cyber Security?

Smart meters record customers' energy consumption data and behaviour, which can lead to identifying the customer in reference to the customer's National metering identifier (NMI). The AMEC consultation paper states that ECA has proposed to classify real-time data as confidential information so that the registered participants are not to

disclose this information to any persons except as permitted by the NER and not to permit unauthorised persons to access it.

We do not believe any additional consumer privacy and cyber security protections may be required on top of those already in place, as it will fall under either of the below categories:

- If this data is to be provided to the same customer for monitoring purposes, they can access this data through proper passwords accompanied by a multi-authentication process (e.g., mobile phone number or email address registered against their account number).
- If this data is to be accessed in real-time by an asset within the same customer's premises (e.g., for coordination of charging or discharging of a residential energy storage battery, air conditioning system, swimming pool pump, electrical vehicle charging, etc.) the data can be accessed either wired or wirelessly securely using the existing communication protocols which already have suitable measures for data transfer securely.
- If at any stage, this data would be requested to be accessed by third parties (such as a utility, retailer, aggregator, a virtual power plant operator (VPP), etc.) they should automatically fall under the organisations permitted and authorised by NER, and should follow the existing protocols.

In both latter cases, we agree with the AEMC consultation paper notes that the parties accessing, recording and analysing these data should have Australian Energy Sector Cyber Security Framework accreditation and must not share data with Australian Competition & Consumer Commission's Designated Digital platforms.

However, they should be able to monitor, use and analyse this data for better planning and operational management of the energy distribution within the utility network, area supplied by a retailer, or group of customers managed by an aggregator or VPP.

We also support the idea that additional protections recommended by the Roadmap for CER Cyber Security 2024 report will make the data availability and access resilient in cyber security, data exchange amongst metres and multiple consumer appliances, deliberate data tampering attempts, etc. This is crucial if this real-time data is used explicitly by utilities, retailers, aggregators, and VPPs to plan and manage energy distribution.