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Australian Energy Market Commission

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ERC0399 – Real-time data for consumers

Thank you for the opportunity to provide a response to AEMC's questions regarding the rule change for access to real-time data for consumers.

SwitchDin is a technology provider helping participants in the energy sector make the transition to renewable energy. We provide systems and solutions to give visibility and control of distributed energy resources, including consumer energy resources (CER). In this role we have a keen interest in the provision of real-time data so that consumers can more easily, efficiently, and effectively use these resources in ways that benefit not just themselves, but also the grid as a whole. We are especially concerned to ensure that consumers can recover good value from their investment in CER and that the CER can participate effectively when connected to the energy grid.

Please find below our responses to the AEMC questions.

Sincerely,

Stuart Powell
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SwitchDin

1. Do you agree with a staged implementation approach for when consumers pay for access to real-time data?

Yes. A staged implementation is a reasonable approach to managing the cost of change, and giving time for service providers to adapt. However, the guiding principle should be that the data being provided is contained and readily available within provider equipment today. The cost to access it, even in real time, should not be large and consumers should not expect to pay any significant charge to access it. The intention to make it free to consumers and their nominated third parties is welcome, and will be an important contributor to fostering innovation and the uptake of CER in line with system plans published by various bodies including AEMO & ENA.

Much of the discussion on real-time data has been focused on the consumer getting access to this data in order to optimise their power consumption and thus reduce their power bill. While this is true, it is likely that this will happen as third parties manage this on the consumer's behalf. In particular, the automated co-ordination of CER devices behind the meter will be vital to achieving the consumer's desired goals, and real-time data must facilitate this co-ordination.

This use case, i.e. coordination of CER equipment behind the meter, should be carefully considered in implementing access to real-time data. The coordination may happen onsite (i.e. with onsite equipment physically located behind the meter) or over connections from CER equipment to controlling applications within the cloud. Both forms of control should be considered and, therefore, the provision of real-time data for both cases needs to be covered.

a) Is 15 years the right time-frame for industry to achieve cost efficiencies in delivering real-time data access from smart meters? Are there ways to support industry to reduce this time-frame?

15 years is a reasonable "stake in the ground", but avenues to shorten this time should be explored. Although real-time data has been of limited use to consumers to date, this is changing quickly as CER becomes more widespread and, in particular, the installation of multiple CER devices at a customer site is growing. Regulatory changes (such as emergency backstop legislation) are driving uptake of controllable CER. Incentives are increasing to install batteries and make better

use of controllable loads. And the uptake of electric vehicles (EVs) is bringing EV storage and charging equipment into the mix, with V2G technology emerging now. All these changes will drive increased need for real-time data well within the proposed 15-year period, along with increasing the value that could be obtained by consumers with cost-effective access to this data.

We understand the proposed rule change to make it optional for MSPs to install meters that are not capable of real-time data right up until the 15-year limit expires. We suggest that an additional, earlier milestone (e.g. 5 years or 7 years) should be set such that any new meter installations should be capable of providing real time data for no additional installation charge. The horizon of this cut-over can be selected to align with MSP stock levels and committed orders to minimise costs.

b) Would the marginal cost to each consumer be material in the long-term if costs were smeared across all consumers after 15 years?

The cost should be negligible with the right approach to meter equipment design and the surrounding processes. Therefore, it should not be material for consumers.

c) Are there other ways to facilitate efficiency and equity and support industry to lower costs to consumers?

Making real-time data available onsite and from the cloud will be beneficial. The onsite requirement (i.e. data every second within a second) seems to be clear. The need to have this data available from the cloud should also be included as a longer term target. In that case the latency may be greater (i.e. getting data within a second may not be feasible), but access to this data at a slightly lower frequency (e.g. up to every 5 or 15 seconds) should be considered.

d) What incentives would our approach create for retailers, MSPs and third parties?

The ability to better control behind-the-meter CER with access to real-time data should be beneficial for retailers and other third parties. In particular, retailers and their agents should have more information to control and coordinate the use of CER to optimise import and export of energy from and to the grid at times when

this is beneficial for the consumer (e.g. by responding to the price of electricity on the National Energy Market).

2. Should the prices for real-time data access be published by the AER?

Publishing prices seems to be the primary mechanism to ensure fairness in the market and, in particular, that MSPs are not given a protected and unfair advantage. So, an accessible published price is essential and the AER might be the best place for this.

In our view, yearly publication will not be frequent enough to encourage exercising of choice and we would recommend more frequent publication (e.g. monthly or quarterly). Moreover, published prices should be committed, forward-looking values, not retrospective snapshots, so that MSPs are encouraged to put forward their best price for each period.

a) How and where should the AER publish prices to access real-time data?

The prices should be made available publicly to consumers at large, and with enough transparency to enable consumers to “check the working” to ensure the service offered by the MSPs represents value for money. However, this is complicated by the fact that consumers do not have the ability to exercise direct choice in their MSP, only indirectly via their retailer.

In this light, the prices should be committed prices that can be used for future decision making rather than retrospective snapshots, and publication should happen frequently enough to enable the relevant parties to review & respond to the available prices. Monthly, or quarterly publication is likely to be more suitable than yearly.

b) What other measures would incentivise retailers to offer real-time data at competitive prices?

We have no further ideas to contribute at this stage.

3. Do you agree with our proposed definition of real-time data?

The proposed definition of real-time data, i.e. voltage (magnitude), current (magnitude) and phase angle (between voltage & current), is a pragmatic balance between minimising overheads while enabling important use cases.

However, additional requirements around the quality and interpretation of the data points should be considered to ensure consistency. In particular, to enable effective usage of this data for CER control, a single sample of the instantaneous voltage & current waveforms is not sufficient, and it should be specified, for example, that the data points will be the RMS magnitudes calculated over some defined period (e.g. 1s). This may impact the accuracy of results when calculating derived quantities like power or energy. The definition should make it clear what is intended, and ideally the data quality requirements for real-time data will ensure alignment with revenue meter data within accuracy limits (so that aggregating the one-second data points over a full hour corresponds well when comparing this to meter data for that one-hour period). Without such requirements then there may be discrepancies between control decisions & reporting based on real-time voltage & current, versus revenue metering of energy.

a) Does the proposed definition enable real-time data products and services to deliver the benefits of real-time data to consumers?

Yes, the proposed definition encompasses the minimal amount of data needed to monitor the connection point and enable effective local coordination of CER behind the meter.

b) What other features of a real-time data definition should be described in AEMO procedures?

- Consistency requirements to ensure derived quantities calculated from real-time data as consistent with metered values
- Clarify averaging requirements to avoid sample aliasing that would occur if “instantaneous” values were to be provided instead
- Defined units for measured quantities (e.g. degrees vs. radians for phase angle; Volts/Amps vs. millivolts/milliamperes; etc.)

- Specified numerical formats that are aligned with the nominated measurement units (e.g. integers vs. fixed point vs. floating point; number of decimal places; etc)
- Data formats
- Delivery path requirements – ability for local delivery is necessary for behind the meter coordination. Cloud-based delivery is an optional extra, and one which some MSPs may choose to build into their systems for their own needs, if this is the case then third parties should also be able to have non-discriminatory access to this path

4. Do you agree with the obligation on retailers to provide real-time data access?

As this rule change is intended to enable consumers to access their real-time energy data, it makes sense to place the obligations around real-time data access on the entities that own the relationship with the end consumers. Under the current market structure that means the retailers, however if this changes in the future then the obligations might shift.

a) Are the proposed timeframes of 10 business days and 20 business days sufficient to enable retailers to give customers access to real-time data?

We have no specific insight about the feasibility, however these timeframes seem reasonable from a consumer perspective.

b) Are there circumstances where the obligations on retailers to offer and give real-time data access upon customers' request, and the timeframes within which to give access should not apply?

Not that we can see. If the intention of the obligation on retailers is to enable consumer choice to drive adoption and thereby foster innovation, then it seems counterproductive to put limits on the ability of consumers to exercise that choice.

c) Are additional obligations on retailers required to enable the provision of real-time data access to consumers?

If the consent mechanism is going to be done by the MSPs, the retailer may need to assist the MSPs with identity verification and management.

5. Do you agree that MSPs should ensure multi-party, interoperable and secure access to real-time data?

Yes!

Security is a foundational requirement for the digital transition, and the requirements here should match the high security posture being introduced for CER in the Australian power system more generally. This includes the use of a PKI (public key infrastructure) standard to authorise and protect access to the equipment and consumer data. The industry is moving towards a national PKI approach to facilitate this.

Interoperable data accessibility is key to getting the full value from any data source with multiple providers, and permitting proprietary data access conditions only perpetuates fragmentation & reduces competition by increasing the cost of churning from one MSP to another. As such, any rule change must ensure that real-time data are provided using defined & open standards (for both transport & data formats), and details such as the units and precision of quantities must be defined (e.g. degrees vs. radians; number of decimal places; accuracy of numbers)

a) Are there requirements that we should impose on MSPs in addition to multi-party, interoperable and secure access obligations?

AEMC has argued that there is no competitive advantage for MSPs in providing the real-time data under the conditions outlined in the proposal. However, smart meters are becoming more powerful computing platforms and the MSPs are already trending globally towards using the smart meter hardware as a platform to offer many other services. So, others have argued that the MSPs are obtaining an advantage from this arrangement and, in particular, that they can leverage

their position as the metering and real-time data provider to provide subsidised additional services.

In the light of this possibility, we recommend that there should be obligations placed on MSPs to provide access to data feeds on a non-discriminatory basis. If the MSP is using the data for some related activity, they must provide the access to consumers and their nominated third party representatives on a no-less favourable basis.

An example would be that the MSP is able to leverage the real-time data in the cloud with very low latency. They may claim that it's only feasible to provide access to the data (in the cloud) every 15 minutes, while using the data for their own purposes (or for a related party) every 5 seconds. There should be an obligation to provide to other parties the same level of service and access as they (or their related parties) have.

On this point, while local data delivery is critical, there is also value in cloud-based delivery of data. Some MSPs have argued that cloud based delivery of real-time data is too costly to be practical. We believe that this might not be reasonable and, more importantly, may not remain true over time. There should be an obligation to provide the real-time data in the cloud. This might be with a greater latency than 1 second, but there should be an obligation to provide the real-time data (with values for every second) in the cloud under some conditions. These conditions should be revised over time and not remain fixed for a 15-year period.

6. Which consumer consent pathway do you consider to be the most practical and why?

Having consumer consent for the provision of real-time data to third parties is essential. The requirement for consent to be explicitly provided and tracked is being increasingly enforced both locally (in changes to the Privacy Act and other legislation) and overseas (e.g. with the GDPR in Europe). Consent will not just have to be explicitly obtained, but will also need to be tracked carefully over time.

The AEMC should explore, if it hasn't already, whether existing legislation covers the requirements or whether additional regulatory powers are actually required. Where existing legislation exists, it should be relied on rather than creating new regulation that participants need to address.

For the outlined solution, the MSP pathway is likely to be the most workable and efficient. Having the consent tracked closer to the source of the data will establish a clear accountability close to the point from where the data is shared. It is likely to be more robust than having this accountability with the retailer, where the consent tracking could more easily fail over time, e.g. when the consumer changes their provider.

a) Are there any barriers to implementing this pathway?

The most significant barrier for the MSP pathway is likely to be establishing and tracking the identity of the consumer (and any party they authorise to act on their behalf). Retailers will already be obliged to maintain these identities, and they are reinforced by routine mechanisms (such as transactions on periodic bills).

b) Are there any viable alternative pathways that better deliver outcomes for consumers?

It would be good to leverage existing mechanisms for the identity management, if possible. This is difficult, as each party collecting data has strict obligations to keep it secure, making it risky to share with other organisations.

If the CDR mechanisms for tracking identity and consent could be reused, that might be ideal, even if the provision of the data itself was not covered by CDR processes. In addition to meeting requirements on data management today, it's likely that CDR mechanisms will evolve for the changing needs of identity and consent management for the future.

7. What should third party access consent look like?

Consent processes should be standardised as much as possible. A single well-designed and consistent process will be easier for the consumer and will

evolve more readily as ongoing changes to privacy and data management legislation occur.

a) Should the form of consent be left to third parties to determine?

No. Each third party creating their own consent process is likely to be more confusing to consumers and less reliable and efficient.

b) Should there be specifications placed on the form of consent that third parties must obtain from consumers? If so, what could this look like?

Yes. Given the uniform nature of the real-time data to be shared, much of the specification of the consent process can be standardised. This will be easier for consumers to understand and gives the opportunity (as it only has to be done once) to make it efficient and as understandable as possible.

Flexibility will be required for third parties to specify explicitly what they intend to do with the data (as will be required under the Privacy Act and/or other legislation) and to maintain this description over time.

c) Should the process for the withdrawal of consent also be specified?

Yes. Again, consistency will be important for the consumer.

8. Should additional requirements be placed on third parties that request access to consumer data?

Yes. Additional requirements should be placed on third parties. It's likely that real-time data will be regarded as personal information or, at the least, inherit some of the requirements for treatment of personal information.

Third parties should be obliged to show that they are capable of meeting the requirements for collecting, storing, using, and disposing of this information as required. In particular, requirements should ensure that they store this information securely and use it only for the intended purpose.

a) Should third parties be accredited by AEMO under the NER?

Accreditation of third parties should be done, but it should have a low administrative cost and be as efficient as possible.

We believe it would be preferable to re-use the CDR mechanisms for this accreditation. If this is not possible and AEMO is the right energy industry body to accredit, then that would be an alternative.

b) Are there any other safeguards required to ensure third parties do not misuse data?

A clear statement of purpose is required from the third party on how the collected data will be used. Consumers must be made aware of what the third party intends to do with the data and if they will be sharing it with any other parties.

Audits on this and the security of holding data should be considered.

9. What features of the consumer data right (CDR) can we adopt?

It's likely that the CDR processes for authentication of identity, management of consent, and other obligations placed on data holders and recipients should be reused. This will be important not just for today, but as these requirements evolve in coming years.

The processes for exchange of data are less important, especially as CDR does not currently cover real-time data or release of data onsite. It is unlikely that uplifting CDR rules to handle real-time data would be helpful, especially as that disclosure will be onsite in some cases.

a) What specific features of the CDR would be beneficial to apply to third parties who seek access to real-time data?

Obligations on Authorised Data Recipients, especially for identity and consent management and for the secure holding of data should be re-used where possible.