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INTELLIHUB GROUP

SUBMISSION TO THE AEMC CONSULTATION PAPER ON THE REAL-TIME DATA FOR CONSUMERS RULE CHANGE REQUEST

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The Intellihub Group (Intellihub) welcomes the opportunity to provide feedback on the AEMC's Consultation Paper on the Real-time data for consumers rule change request submitted by Energy Consumers Australia (ECA).

Intellihub is an Australian and New Zealand based digital energy management specialist that is simplifying the transition to sustainable energy through our holistic ecosystem of smart devices and services. We deliver innovative metering, data and behind the meter solutions that maximise digital and new energy services. We are an experienced and leading provider of multi-utility services across electricity and water networks for residential, commercial & industrial, embedded network and solar metering customers. We specialise in asset management, installation, financing, and the day-to-day operations of smart meters, managing more than 2.5 million advanced smart meters.

Access to data provides benefits to consumers, but provision of real-time data services will involve material costs that may outweigh the benefits for most customers

Intellihub agrees with the ECA that access to data about energy consumption and generation can provide a range of benefits to consumers, including helping them understand their usage and opportunities to change their behaviour or invest in new products or services to reduce their energy bills.

There are a range of commercially available services that customers and their service providers can already use to access various forms of this data. In particular, many customers can already access detailed 30 minute consumption and generation data through apps provided by their retailers, with the data made available to the customer the following morning at no cost. These existing services are likely to be sufficient to meet the needs of many customers, as explained in the AEMC's consultation paper. Regulating access to real-time data will impose costs that will ultimately need to be recovered from customers. As noted in the AEMC's consultation paper, if a real-time data service is required to be provided to customers at no separate cost, the costs of the service will be paid for by all customers through their retail energy bills regardless of whether they want the service.

The provision of real-time data services would involve substantial costs that we expect most customers would be unwilling to pay. The rule change request seems to assume that provision of real-time data is as simple as just connecting a cable or a customer's home wifi to the existing meter and accessing the data inside the meter, and will therefore not involve significant costs. That is not correct. Provision of any form of real-time data service would involve significant costs for new systems, processes and hardware to connect to the meter, and to transmit and process the data and deliver it to the customer is a useable form. Extensive new regulatory arrangements would be required to regulate access and protect privacy and cyber-security.

The key task for the AEMC in this rule change process is therefore to determine whether the benefits to customers of access to real-time data outweigh the costs and, if so, how should the service be defined so that it can be delivered at a relatively low cost that consumers are willing to pay for. While we agree with the research quoted in the ECA's rule change request that many customers consider that access to real-time data would be useful, we have not seen any research that indicates that customers would be willing to pay higher electricity bills for access to that data and we expect that most customers would not be prepared to do so.

The AEMC should engage in a collaborative process with stakeholders to define use cases and strawperson access mechanisms and assess the costs and benefits of different forms of data access

Intellihub supports the approach proposed in the AEMC's consultation paper of assessing the likely benefits and costs of providing improved access to real-time data. We also support the AEMC's reference to use cases in its consultation paper question on the benefits of access to real time data.

ECA's rule change request states 'We also note the stated intention of the AEMC to consider design and implementation issues in collaboration with stakeholders on receipt of a rule change request. We agree that further, collaborative work is required to design details of the proposed rule, including the many technical details that will need to be resolved. With this in mind, this proposal has focused on key elements of the framework and the outcomes we consider this rule change should achieve'.

We recommend that the AEMC undertakes a collaborative process with stakeholders to develop uses cases and obtain information on costs and benefits to allow it to undertake a robust cost-benefit assessment of whether and how to regulate real-time data services.

We recommend that the AEMC work with stakeholders to:

- Develop use cases: An assessment of the potential costs and benefits of regulating access to real-time data should be based on realistic use cases explaining how that data may be used and the resulting expected benefits to customers. As discussed below, we consider that the rule change raises several distinct use cases that have materially different costs and benefits and would require very different changes to the rules.
- Define strawperson access frameworks: The ECA rule change request and AEMC consultation paper provide very little information on what a real-time data access service would involve. For example, it is unclear what data would be required to be provided, what 'real-time' means and what obligations would be imposed on metering coordinators (MCs), retailers and other participants. This means that stakeholders and the AEMC do not currently have sufficient information to be able to assess the costs and benefits of regulating access to real-time data services. ECA proposes that many of these details are left to AEMO procedures, but that approach is inappropriate as these details will materially affect the rule changes that are required and the costs and benefits of any rule and therefore need to be determined by the AEMC before making a rule. We recommend that the AEMC works with relevant stakeholders to develop one or more strawperson frameworks for how real-time data could be provided in relation to each relevant use case, including defining the type of data that would be provided, the method and timeframes for data access and delivery and the high-level obligations that would apply to each relevant party.
- Obtain information on costs, benefits and willingness to pay: Once the use cases and strawperson frameworks have been prepared, the AEMC can request MCs, retailers, AEMO and any other relevant parties to provide their estimates of the costs they would incur to provide the strawperson service(s). The AEMC can also seek information from consumer groups, service providers and other stakeholders on the expected benefits under each use case. We also recommend that the AEMC seeks to assess consumers' willingness to pay under each use case, for example how much extra would customers be willing to pay as part of their retail energy bills (if anything) for access to data instantaneously vs daily.
- Undertake a cost-benefit assessment: The AEMC should use the information gathered through the above steps to undertake a cost-benefit assessment to determine if the benefits to consumers exceed the costs for each use case and strawperson access framework. The benefits under each use case should be assessed based on the additional benefits that would arise from regulating access to the service compared with the status quo, noting that customers can already access data through a variety of mechanisms.

We consider that the process adopted by the AEMC in relation to power quality data (PQD) as part of the metering review is a good precedent for how such a process could work, although real-time data would be much more complex to provide than PQD so that process would need to be scaled-up to reflect the greater complexity and range of interested stakeholders. As part of its consultation on PQD in the metering review,

the AEMC formed a working group of stakeholders that met on multiple occasions. The AEMC and working group developed a high-level PQD service including a definition of the relevant types of data and the delivery mechanisms. Working group members used that service description to provide confidential cost information to the AEMC setting out their estimates of the costs required to provide the service. The result of this process was the development of a relatively low-cost basic PQD service that would be provided at no direct cost by MCs to DNSPs as a regulated service and a framework for provision of advanced PQD services on a commercial basis.

The AEMC consultation paper raises two distinct use cases with materially different costs

Intellihub considers that the ECA rule change and AEMC consultation paper raise at least two distinct use cases for access to real-time data:

1. Access to 5 minute energy consumption and generation data by small customers to enable them to make better informed decisions about their energy usage and ways to save money.
2. Access to instantaneous metering data by customers or their authorised representatives to facilitate the provision of CER services or other value-added services to customers.

The first use case above is the focus of the ECA rule change request and should be the focus of any rule. A key question in developing this use case and assessing its costs and benefits will be determining how quickly the data must be provided to the customer. The costs of the service will materially increase the shorter the timeframe for data provision, eg is data provided the next day, hourly or every 5 minutes?

The second use case is briefly mentioned in the ECA rule change request but does not appear to be its focus. It was discussed in the AEMC's metering review and is mentioned in the consultation paper. However, the ECA and AEMC have not clearly explained what services this data would be used for, how it would benefit customers, or why access regulation is appropriate for such a service given the existing ways this data can currently be provided.

The costs and benefits of each of the above use cases are materially different.

Intellihub considers that the vast majority of the benefits of improved data access for customers can be obtained by a solution that focusses on use case 1. Attempting to also regulate for use case 2 will add much higher costs and significantly longer implementation timeframes and risks for little, if any, additional benefit for customers as discussed below. Those customers or service providers that want, and are willing to pay for, a service to address use case 2 can obtain that service as a commercially negotiated service they pay for, and there is no justification for regulating that service or imposing the costs of providing it on all customers. Such an approach would have parallels with the approach the AEMC proposes to implement for PQD, where a relatively low-cost basic PQD service that meets most of DNSPs' needs will be regulated and required to be provided at no direct charge, while DNSPs that require more costly advanced PQD services can obtain those on a commercial basis.

The AEMC consultation paper raises a potential third use case involving the provision of real-time data to DNSPs to optimise network planning and operation. Intellihub does not consider that there is any such data that may be useful to DNSPs that would not be covered by the advanced PQD service in the Accelerating smart meter deployment rule change. In the draft rule for that rule change, the AEMC proposed to define PQD very broadly in a way that would appear to cover all information that is measured by the meter and is requested by the DNSP. The scope of the ECA's rule change is stated to be real-time data access by consumers and their authorised representatives and the rule change request does not mention access to data by DNSPs anywhere. It would introduce significant confusion, overlap and unnecessary additional costs to also cover DNSP access to data in this rule change when it is also addressed by the PQD provisions of the Accelerating smart meter deployment rule change.

The lowest cost way to deliver the benefits of data access is likely to involve giving small customers remote access to interval data

Many retailers already provide customers free access via an app or website to their consumption and generation data at intervals of 30 minutes. This data is available to customers the following day, often early the following morning, via commercial agreements between retailers and MCs to support this next day data delivery which is beyond the regulated data delivery timeframe.

This existing service is enabled by retailers as a method to engage with their customers, provide customers visibility of their energy usage habits, and allow the customer to view and manage their bills. Although customers are primarily focused on price when selecting their energy retailer, additional services like the retailer's app demonstrate that a competitive market can deliver on customer centric solutions without regulation.

Retailers could use this existing service to provide 5 minute interval data to customers instead of 30 minute data. However, we understand that no retailer currently do so, which likely reflects that most customers do not want or need that level of granularity.

This data is likely to be sufficient to address many of the use cases and problems identified in the ECA rule change and AEMC consultation paper. If the AEMC considers that customers would benefit from improved access to data, Intellihub considers that most of the potential customer benefits identified in the ECA rule change request and AEMC consultation paper can be delivered through a remote service that involves faster access to 5 minute interval data, addressing use case 1 referred to above. For example, this service could involve the MC providing unvalidated interval metering data to the customer's retailer for each 5 minute trading interval within a specified timeframe and the retailer providing that data to the customer through an app or other suitable mechanism.

Such a faster service would involve additional costs for MCs and retailers, including establishing new systems and processes and incurring higher mobile data costs. The faster the service, the higher these costs would be. The AEMC would need to assess whether the additional benefits to customers of receiving this data earlier than the next morning outweigh these additional costs.

Providing local access to metering data through communications ports is not currently possible and requiring it would impose significant costs and risks for little additional benefit

ECA's rule change request proposes that, in addition to remote access to real-time data, MCs should be required to provide local access to metering data through a communications port in the meter. Specifically, ECA proposes that the NER and NERR should be amended to require that:

- as part of the minimum services specification, all new meters must have communications ports that are physically capable of being accessed locally;
- communications ports on new meters must be able to be unsealed and available for access by approved parties without needing the metering provider's consent;
- interoperability requirements should be added to the minimum services specification to facilitate seamless real-time data transfer in a format that is usable to customers and their representatives;
- requirements should be added to the minimum services specification to enable read-only passwords to be provided to customers and their representatives to access the meter to obtain real-time data; and

- appropriate privacy and cyber-security protections apply.

Local access to real-time data through a communications port on the meter is currently not technically possible. Making rules requiring such a service to be provided as proposed by ECA would result in very large additional costs, create significant safety and cyber-security risks, and require a lengthy implementation timeframe. These costs and risks will heavily outweigh the benefits to customers, particularly when most of the customer benefits can be delivered much quicker and cheaper through a remote service as discussed above.

The main issues with the proposed local access requirements are as follows:

- **Intellihub's meters do not have communications ports that could support real-time data access**: Most of Intellihub's current meters do not have a communications port that is suitable for real-time data access. Intellihub's meters have an optical port that is designed for occasional use for firmware updates and manual meter reads using a held-held unit in accordance with AS 1284-10.2[1] where remote communications is not available. This port is not designed for use for a permanent connection to a local device for real-time data collection, as opposed to occasional use by a hand held probe. The port is also very slow and could not support real-time data provision. Most of our meters do not have other ports that could be used for a real-time data connection. A port for use as a permanent local connection to a meter for communicating real-time data is outside the scope of AS 1284.10.2 and not supported by any relevant metering standards in Australia.
- **The service would take years to implement and only be available to a minority of customers with new meters:** Local access would only be possible for new meters after an extensive implementation period that allowed sufficient time for:
  - the final rule to be made by the AEMC;
  - a new standard for local communications ports for real-time data access to meters be consulted on and developed by AEMO or Standards Australia;
  - new procedures on cyber-security, access processes, accreditation or registration requirements for parties seeking access to data, and other relevant maters to be developed and implemented by AEMO;
  - new meters to be developed by meter manufacturers to comply with the above requirements and procured by MCs; and
  - new processes and systems to be implemented by MCs and parties seeking access to data to comply with the new rules, procedures and standards.

  Intellihub expects that the above actions would not be completed until at least late 2028, assuming a final rule is made in late 2025. By that date, the majority of customers will have a smart meter without local access ports under the accelerated rollout so will not be able to access this service until their smart meter is replaced at the end of its life, which may not be until the 2040s.
- **'read-only passwords' must be managed via an access framework**: ECA proposes that security controls could be implemented by the MC providing small customers and their representatives 'read only passwords' they could use to access data locally from the meter. However the 'read only password' must be managed via an access framework to give customers the confidence that their data will only be provided to a representative they approved and only for a period approved by the customer. This would require new systems and processes to manage password allocation, password resetting and linking the password to a physical communications port, which would only

[1] *AS 1284, Electricity metering, Part 10.2: Electricity metering Data exchange for meter reading, tariff and load control – Direct local data exchange via held-held unit (HHU) – ANSI Standard interface, 2006*

be possible if the meter had a suitable local communications port. We believe an access framework similar to the Consumer Data Right (CDR) is required.

- **Accessing communications ports would create significant safety risks**: ECA proposes that approved parties should be able to unseal and access communications ports. ECA states that the MC's consent should not be required to do so, as that could create potential for MCs to hinder access. This proposal would create significant safety risks. Gaining access to a communications port would require breaking of meter seals and accessing parts of the meter which have live terminals and wiring. In addition, if the MC's consent is not obtained then this would put the MC's compliance with its obligations at risk and create additional work for the MC such as having to investigate the resulting meter tamper alarms.

- **Accessing communications ports would create significant cyber-security risks:** ECA notes that allowing local access could create significant cyber-security and privacy issues. Intellihub has very serious cyber-security concerns related to enabling a third party to have direct access to a port on its meters, which is one of the key reasons why its current meters do not have such ports and local access is not possible.

- **Complex new rules and participant categories would be required to address privacy and cyber-security issues**: ECA proposes that the AEMC consider how to address cyber-security and privacy issues related to local access by authorised representatives in the NER or NERR. However, customers' 'authorised representatives' are not registered participants and are therefore not bound by the NER or NERR. A new category of registered participant (or AEMO accredited service provider that is deemed to be a registered participant for certain provision of the rules) would be required. Complex new rules and AEMO procedures would be required to set out matters including registration or accreditation requirements, obligations of these authorised parties, processes and systems for requesting and granting data access, customer consent requirements and processes for how the MC verifies consent, and protections including restrictions on the purposes for which the data can be used. Intellihub considers that extensive changes to the NER would be required to address these risks, which would significantly delay the commencement of any new real-time data access rules and the realisation of benefits by customers. None of these issues would arise with a simpler service based on remote access to interval data, which could be provided much sooner but still deliver most of the desired benefits.

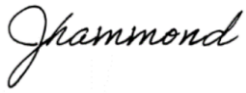
- **Regulation risks imposing costs for technology that most customers will never use**: Requiring local access through a communications port has parallels with failed aspects of the Victorian smart meter roll out where government mandated that all smart meters have a ZigBee home area network interface for data access and many customers were given 'free' in home displays. These requirements resulted in all Victorian customers incurring material costs to fund technology that was almost never used. ZigBee quickly became obsolete technology and most in home displays were put in drawers and never used, with customers preferring to use cloud-based apps on their mobile phones that were offered by retailers for free despite no regulatory requirement to do so.

Responses to the AEMC's consultation paper questions

Intellihub's responses to the questions in the AEMC's consultation paper are set out in Appendix 1.

We would be happy to provide more detail on any of the issues raised in this submission and to work with the AEMC to provide information to inform its assessment of the costs and benefits of the rule change request. If you have any questions regarding this submission please contact Dino Ou, Industry Development Lead on dino.ou@intellihub.com.au or 02 8303 4033.

Regards



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Appendix 1: Responses to the AEMC's consultation paper questions

Question	Response
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	Intellihub welcomes the AEMC's reference to use cases and supports an approach where the potential costs and benefits of regulating access to real-time data are assessed by the AEMC based on realistic use cases explaining how that data may be used by customers and the resulting expected benefits to customers. Intellihub considers that the ECA rule change and AEMC consultation paper raise two distinct use cases for access to real-time data that the AEMC should consider: 1. **Access to 5 minute energy consumption and generation data by small customers to enable them to make better informed decisions about their energy usage and ways to save money**. This use case is the focus of the ECA rule change request and should be the focus of any rule. Intellihub considers that this use case would best be met by the customer's retailer providing the customer with access to 5 or 30 minute metering data. Intellihub agrees that many customers can benefit from access to this data, but notes that many retailers already offer this as a free service with data provided the following morning and the AEMC would need to assess whether the benefits of faster provision of this data outweigh the benefits. 2. **Access to instantaneous metering data by customers or their authorised representatives to facilitate the provision of CER services or other value-added services to customers**. This use case is briefly mentioned in the ECA rule change request but does not appear to be its focus. It was discussed in the AEMC's metering review and is mentioned in the consultation paper. However, none of the rule change request, metering review final decision or consultation paper clearly explain why customers want this data, what additional benefit they would obtain from it compared with access to interval data, or why access regulation is appropriate for such a service given the alternatives that are currently available. It is also unclear what types of 'authorised representatives' require this data and how they would use it, particularly in the context of the AEMC having recently decided in the Flexible Trading Arrangements rule change that small customers can only have one retailer at their connection point. The benefits of each of these use cases should be assessed based on the additional benefits that would arise from regulating access to the service compared with the status quo. As noted in the consultation paper, customers can already access data through a variety of mechanisms, including: • For use case 1, many retailers provide customers free access via an app or website to their daily and 30 minute consumption and generation interval data. This data is usually available early the following morning. Intellihub understands that retailers' apps currently only show 30 minute data. Retailers have access to 5

Question	Response
	minute interval data that they could provide to customers as well as or instead of 30 minute data if they considered that customers wanted it. This data is likely to be sufficient to address many of the use cases and problems identified in the ECA rule change and AEMC consultation paper. The AEMC will need to assess whether the additional benefits of mandating faster access to this data outweigh the additional costs. • For use case 2, section 2.1.2 of the consultation paper explains the various mechanisms that can already be used by customers and authorised representatives to access real-time metering data or alternative real-time measurements of energy consumption and export, including third party devices and apps. Some metering parties and a range of third party service providers also provide access to this data as a commercial service using additional equipment that is installed at the customer's premises and paid for by the customer or service provider. The costs and benefits of each of the above use cases are materially different. Intellihub considers that the vast majority of the benefits of data access for small customers can be obtained at relatively low cost by a solution that focusses on use case 1. Attempting to regulate for use case 2 will add much higher costs and significantly longer implementation timeframes and risks for little, if any, additional benefit for customers. Those customers or service providers that want, and are willing to pay for, a service to address use case 2 can obtain that service as a commercially negotiated service they pay for, and there is no justification for regulating that service or imposing the costs of providing it on all customers. The AEMC should also assess the benefits of *regulating* access to real-time data for each use case, as opposed to leaving it to market participants to determine whether customers want and are willing to pay for these services. The ECA rule change and AEMC consultation paper do not explain why retailers will not offer these services to their customers if customers want them and are willing to pay for them. As discussed in response to question 12 below, access regulation is usually reserved for significant cases of market failure in relation to natural monopoly services. In contrast, the AEMC's consultation paper explains that real-time or close to real-time data can be obtained through a range of currently available commercial services. Intellihub does not consider that the use cases for real-time data considered as part of this rule change should include: • **DNSPs**: As discussed in relation to question 4 below, Intellihub does not consider that there is a use case for real-time access to data by DNSPs that is not already covered by the advanced PQD service the AEMC intends to address in the Accelerating smart meter deployment rule change. • **Large customers**: Intellihub does not consider that there is a case for regulating access to real-time data by large customers. Large customers can already obtain these services on a commercial basis if they value

Question	Response
	them. Their needs are also likely to be relatively bespoke and better suited to a commercially negotiated service that is tailored to their requirements. • **Retail switching**: The problem definition diagram in figure 2.1 of the consultation paper states that one of the problems identified in the rule change request related to access to real-time data is that 'switching between service providers is challenging'. This claimed problem is not further explained in the paper or the rule change request. Intellihub does not consider that lack of access to real time data creates challenges for switching service providers. The AER's Energy Made Easy website allows customers to obtain accurate information about retailer switching and advice on the best retail offer for their consumption and generation based on direct access to detailed metering data held by AEMO.
Question 2: What are the costs of improving access to real-time data? a) What are the types of costs that would be incurred to improve access? b) What is the magnitude of these costs? c) Who would incur these costs?	As discussed in other sections of this submission, we do not currently have sufficient information on the nature of any potential real-time data service to be able to provide more comprehensive cost information or to provide cost estimates for other forms of real-time data services. We would be happy to provide that information during the rule change process if the proposed service is more clearly defined in a way that would allow us to estimate its costs. As discussed above, we recommend that the AEMC answers this question by adopting a process similar to the approach it undertook in relation to PQD as part of the metering review that involves: • The AEMC working with relevant stakeholders to develop strawperson frameworks for how real-time data could be provided in relation to each relevant use case, including defining the type of data that would be provided and the method of delivery and specifying the high-level obligations that would apply to each of the relevant parties • The AEMC requesting MCs, retailers and any other relevant parties (eg AEMO) to provide their estimates of the costs they would incur to provide the strawperson service(s), on a confidential basis if necessary • The AEMC undertaking a cost-benefit assessment and willingness to pay estimates to determine if the benefits to consumers exceed the costs for each use case and customers are willing to pay the additional costs as part of their retail electricity bills. We consider that the absence of any attempt to understand or quantify the costs of providing real-time data services was a major problem with the approach in the AEMC metering review. In the review, the AEMC stated that it had no information on the level of these costs but 'assumed' that they will be less than the potential value of the

Question	Response
	service. Similarly, the ECA rule change request does not provide any information on how the benefits of the proposed services outweigh the costs or any evidence of customers' willingness to pay for these services.
Question 3: Do metering parties currently have a competitive advantage? a) Do you agree with the proponent that metering parties have a competitive advantage in providing services not related to their core functions of settlement, billing and maintenance? b) How would any competitive advantage impact the costs of new energy services to consumers?	The AEMC consultation paper states that ECA's concern is that 'MCs may be leveraging their metering platforms to provide services to consumers that are unrelated to their core functions of settlement, billing and maintenance'. This concern is unfounded. Intellihub does not provide any services directly to small market customers. Intellihub is an independent service provider that provides services on a non-discriminatory basis to any parties that are permitted to access metering data and services them under the rules. We currently provide metering data services to over 50 parties, including retailers, DNSPs and other accredited service providers. The reference to MC's 'core functions of settlement, billing and maintenance' also significantly understates MCs' and MDPs' current obligations under the rules and the breadth of metering-related services and data they are required to provide, including the advanced data services that are currently listed in the minimum services specification and the new PQD services that will be added by the Accelerating smart meter deployment rule change.
Question 4: Do DNSPs need more than PQD to improve network planning and operation? a) Do the benefits of improving DNSP access to real-time data outweigh the costs? b) What are the use cases for DNSPs and other network planners to have access to real-time data other than advanced PQD?	The AEMC consultation paper asks whether DNSPs need 'data beyond advanced PQD to optimise network planning and operation'. It is unclear what type of data the AEMC envisages with this comment. The answer to this question depends to an extent on how the AEMC defines the advanced PQD service in the Accelerating smart meter deployment rule change, but based on the draft rule for that rule change Intellihub does not consider that there is any such data that may be useful to DNSPs that would not be covered as advanced PQD. In the draft rule, the AEMC proposed to define PQD very broadly as 'The characteristics of the power supply as measured by the meter, which includes measurements of voltage (in volts), current (in amperes), and power factor (expressed as the ratio of the active power kW to the apparent power kVA or as a phase angle)'. The AEMC proposed that advanced PQD is any PQD that is not covered by the basic PQD service. Accordingly, advanced PQD would appear to cover all relevant information that is measured by the meter and therefore cover any metering data that DNSPs may require for network planning an operation. To the extent that the AEMC considers that there are any gaps in the proposed definition of the advanced PQD service in relation to data DNSPs may require for network planning and operation, the advanced PQD service in the Accelerating smart meter deployment rule change is the appropriate mechanism to address those issues. The scope of the ECA's rule change is stated to be 'real-time data access by consumers and their authorised representatives'. The rule change request does not mention access to data by DNSPs anywhere and this issue does not appear to be within scope of the rule change process. It would introduce significant confusion, overlap and unnecessary additional

Question	Response
	costs to also cover DNSP access to data in this rule change when it is also addressed by the PQD provisions of the Accelerating smart meter deployment rule change.
Question 5: Who should have a right to real-time data in the NER? a) Should consumers, their authorised representatives or any other party, including DNSPs, have a right to access real-time data?	Intellihub's preliminary view is that, if the AEMC demonstrates that the benefits of regulating a real-time data service outweigh the costs: • any right to access real-time data should only apply to small customers; • the service should be provided on an opt-in basis to avoid incurring unnecessary additional costs for customers who will not use the service; • the most cost-effective mechanism for providing access to data is likely to be a remote data service provided to the customer by its retailer based on 5 minute interval data; and • providing access to real-time data to representatives other than the customer's retailer would significantly increase the costs, risks and implementation timeframes without delivering material additional benefits. However, these are preliminary views only and the AEMC has not yet provided sufficient information for stakeholders to be able to assess whether parties should have access to real-time data and which parties should have access. We also consider that this language of a 'right to access' real-time data is unclear and unhelpful. A 'right' to access data is not useful to customers unless it is implemented through a series of clear obligations on the relevant parties to take actions to provide the relevant data to customers. Unlike customer access to historical data, which is referred to as a precedent in the consultation paper, providing access to real-time data is not as simple as sending customers a spreadsheet of data in a specified format. It is also not a case of simply providing the customer a password so they can plug a cable into the meter or connect it to their home wifi and download the data, as seems to be assumed in the rule change request. Multiple actions would need to be taken by various parties. The rule change request and consultation paper are very unclear on what obligations on the MC/MDP, FRMP/retailer and other parties are envisaged by the ECA and AEMC as being required to give effect to the proposed 'right' of access. The nature and cost of those obligations will also be heavily dependent on how real-time data is defined, e.g. how quicky access must it be provided (e.g. sub-second, 5 minutes, hourly, daily), what type of data must be provided, what forms of access must be supported (e.g. remote or local), and how the data would get from the meter to the customer (e.g. is the retailer also required to provide the customer with an app or hardware so it can access and understand the data).

Question	Response
	In the absence of understanding the answers to these key questions, it is not possible to provide a meaningful response to the question of whether parties should have access to real-time data, and if so, which parties should have access. We recommend that the AEMC addresses this question by: • defining potential use cases for access to real-time data consistent with the problem definition set out in the ECA rule change request and the consultation paper; • developing strawperson frameworks for how data would be provided in relation to each use case, including specifying the obligations that would apply to each of the relevant parties; • obtaining information on the likely costs, implementation timeframes, customer uptake and customer willingness to pay under each use case; and • using that information to undertake a cost-benefit assessment to determine if the benefits to consumers exceed the costs.
Question 6: How should real-time data be defined ? a) Do stakeholders agree with the proposed definition of real-time data and customer power data? b) What should be defined and/or further expanded in AEMO procedures? c) Should data be validated or not?	**'Real-time'** In the rule change request, ECA suggests two possible approaches to defining 'real-time'. One option is to define 'real-time' in the NER as 'instantaneous'. The other option is to provide that AEMO defines real-time in procedures such as the Metering Data Provision Procedures, with the NER providing that it cannot be slower than 300 seconds (ie 5 minutes). Intellihub does not support the ECA's proposed approaches to defining 'real-time'. Defining 'real-time' as instantaneous would result in an extremely high-cost service that could not be provided by current meters and would involve costs that would far outweigh the benefits. Allowing AEMO to define real-time as anything that is 5 minutes or less would be extremely unclear and leave the most important decision in the rule change process to AEMO procedures. The definition on what is meant by 'real-time' and how fast data must be provided is a critical decision. It will dramatically affect what methods are feasible to provide the service, the costs of providing the service, the potential benefits of the service, the nature of the obligations that need to be placed on MCs/MDPs, retailers, AEMO and other relevant parties and the implementation timeframe for any new rules. The most efficient way to provide

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	5 minute data will be dramatically different to the most efficient way to provide instantaneous data, and the costs of providing instantaneous data will be many times higher than the costs of providing 5 minute data. It is therefore not possible for the AEMC to draft suitable rules and be satisfied that making a rule would promote the NEO and NERO without having first made decisions on those matters. It is also inappropriate to leave such important issues to subsidiary AEMO documents that can be amended without needing a subsequent rule change process. Intellihub therefore considers that 'real-time' needs to be clearly defined in the NER. **'Customer power data'** ECA proposes a new definition of 'customer power data', that is defined as 'power quality data and any other category of data that is specified in the relevant AEMO procedures'. Intellihub does not consider that ECA's proposed definition of 'customer power data' is appropriate. This term is unclear and appears to contain a lot of data that will not be of any value to customers. The definition of what data is provided should be based on a clear identification of use cases as discussed in relation to question 1 above. The definition should also clearly identify what data is required to be provided at no direct cost as part of a regulated real-time data service and what additional data could be provided on a commercially negotiated basis. Basing the definition on the PQD definition from the AEMC's draft rule in the Accelerating smart meter deployment rule change is therefore inappropriate, as that definition covers both the basic PQD service that is provided at no direct cost and advanced PQD services that are provided on commercially negotiated terms. Intellihub's preliminary view is that any regulated real-time data service should involve the provision of 'interval metering data' as defined in the NER, or a defined subset of that data. Based on the use cases and potential benefits to customers discussed in the ECA rule change request and AEMC consultation paper, we consider that the only information that is likely to be useful for customers as part of this service is consumption and generation interval data. Other data such as meter events and alarms or measurements of voltage, current and power factor are unlikely to be of any use to customers and the costs of providing them are likely to outweigh the benefits. **Data validation** Assuming that data is required to be provided more frequently than daily as part of any real-time data service, it must be unvalidated data. The requirements for data validation are set out in AEMO's Metrology Procedure: Part B. Data cannot be validated in accordance with AEMO's requirements until the end of the day as a full day of data is required to comply with the validation requirements. For example:

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	• Validations that requires a full day of data include:
	  ○ 10.2.c: a 'zero' check that tests for an acceptable number of zero Intervals values per day to be derived from the Site's Historical Data
	  ○ 10.2.d: Check for null (no values) *metering data* in the *metering data services database* for all Datastreams.
	• Validation failure usually requires substitution, which cannot be done in real time because a full day of data is required and/or historical data is required
	• Validated metering data is sent to AEMO and participants in the NEM12 format, which does not allow for a partial day of data to be delivered.

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?	Please see the main body of our submission above for the reasons why Intellihub does not consider that regulating local access to meters to provide real-time data is appropriate. Any real-time data service should be based on remote delivery of interval metering data.
Question 8: Who should bear the costs of accessing real-time data? a) Should all consumers bear the cost of accessing real-time data? b) What would be the benefits of a dispute resolution framework and how should it operate?	Consistent with the AEMC's approach to PQD, Intellihub recommends that any rule clearly distinguishes between: • a regulated real-time data service that is required to made available to all small customers and is expected to provide benefits to most customers that outweigh the costs of providing the service; and • additional real-time data services that could be provided to customers or their authorised representatives on a commercial basis and are not regulated by the rules.

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	ECA proposes that the costs of providing the regulated real-time data service to customers cannot be recovered by way of a separate charge to customers and are instead recovered: • by MCs as part of their charges to the FRMP in accordance with clause 7.6.1; and • by retailers as part of their retail electricity charges to customers. Intellihub supports this approach provided that: • the regulated service is designed in a way that means it is able to be provided at a low cost; • the restriction on charging for this service only applies to the regulated service and only applies to small customers, with commercially negotiated charges applying for services provided to large customers, 'customers' representatives' or other service providers or for the provision of more advanced services; and • the AEMC demonstrates that the benefits of this service exceed the costs and that consumers are willing to pay for the increased costs that are recovered as part of their retail electricity charges. The rule change request and consultation paper are very unclear on what charges should be paid by customers' authorised representatives. The consultation paper refers to the position set out in the metering review that 'authorised representatives should pay metering parties' new and direct costs incurred to make real-time data available, but not for data collection or production costs'. We find this distinction very unclear and confusing, and it will lead to inefficient and unfair outcomes for customers. The nature of the costs that are incurred in providing real-time data services will depend on how the service is defined and required to be provided, but all forms of real-time data services are likely to involve a combination of one-off set up costs and ongoing costs. We consider that all of those costs should be paid for by 'customer's representatives' who request access to the service. These representatives are likely to be commercial service providers who are using the data to provide a paid service to the customer. There is no basis for making rules that would allow these service providers to obtain these services for free and require the costs of providing these services to be instead borne by MCs or by other customers who obtain no benefit from the service. We do not consider that there is any justification for regulating a dispute resolution framework related to the terms of provision of data services between MCs and customer's representatives. Imposing this form of access regulation would effectively impose regulation of the price and non-price terms on which MCs provide data services to other commercial parties by allowing the dispute resolution body to set those terms if there is a dispute. This would be an extremely intrusive form of regulation that should only apply to natural monopoly

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	services where there is clear evidence of market power and public benefits in imposing regulation. Those conditions are clearly not met here. Imposing such regulation for access to real-time data would also be inappropriate given that it does not apply to any other metering services provided by MCs under the rules, e.g. the proposed new advanced PQD service or services provided under clause 7.6.1(b) of the NER. As discussed in our response to question 12 below, we also question whether the AEMC has the powers to impose such regulation on any person other than network service providers.
Question 9: What changes would be required to ensure interoperability ? a) Would changes to the minimum services specification requirements be the most effective way to ensure interoperability of real-time data? b) Would any other changes be required to facilitate interoperability, for example, changes through device standards? **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?	The answers to these two questions depend on the type of real-time data service that is required to be provided. Intellihub does not consider that any changes to the minimum services specification or other changes would be required to address interoperability issues for a service that involves the remote provision of interval metering data to the customer via the customer's retailer. Similarly, Intellihub does not consider that any additional privacy or cyber-security protections would be required for such a remote service and these issues would be adequately addressed by existing NER provisions and privacy laws. In contrast, requiring MCs to provide local access to the meter would raise numerous complex privacy, cyber-security, physical security and safety issues as discussed in the main body of this submission. An extensive program of work would be required to assess those risks and develop regulatory mechanisms to address them. Similarly, extensive changes are likely to be required to the minimum services specification, AEMO procedures and Australian standards to ensure interoperability of real-time data provided through local access to meters.

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Question 11: What other changes would be required to enable a real-time data framework? Would any other changes be required, for example to clarify data and storage arrangements or to implement relevant best practice features from other frameworks?	Intellihub considers that if the AEMC decides to regulate a real-time data service, there are a number of issues that it will need to address that are not discussed in the rule change request or consultation paper. More issues are likely to become apparent as the rule change process progresses and the AEMC provides more clarity on the potential nature of any real-time data services, but our initial views on material issues to consider are set out below: • As part of the rule change process, the AEMC should work through how data would get from the meter to the customer and whether any NER or NERR changes are needed to ensure the data is provided to customers in a usable form. This issue is not addressed in the rule change request or consultation paper. ECA proposes amending cl 7.15.5(d) of the NER so that customers and their authorised representatives are a permitted access party for this data and amending the minimum services specification so that new meters can allow access to this data. However, these changes will not result in data being provided to customers and will simply remove prohibitions on customers and their representatives accessing the data. There is no way that customers can access real-time data directly from the meter themselves, and they will only be able to access and use it as part of a service provided by their retailer or another service provider. The AEMC should explain how it expects data to get from the meter to the customer. It is possible that all the rule change intends to do is remove provisions in the rules that prohibit customers and their representatives from accessing this data and hope that if that occurs then real-time data services will be provided by retailers or other service providers. However, the rule change request and consultation paper imply that the intention goes beyond such an approach. For example, the rule change request states 'We propose that a "by request" approach is only a marginal improvement over current arrangements and continues to place a level of complexity over accessing data. Rather, the onus should be on retailers and/or third-party service providers to provide consumers with a simple means to access their data, such as through an app or in-home display.' For the rule change to deliver on this objective, we expect that new obligations would need to be placed on retailers under the NERR to provide this data to customers, but that would likely materially increase the costs and complexity of any rule and obligations of this nature are not discussed anywhere in the consultation paper. • As part of considering the above issue, the AEMC will need to consider how to get this data to customers in a usable form. Real-time data is not like the historical consumption data retailers and DNSPs are required to provide customers under rules 56B and 86A of the NERR where retailers and DNSPs can simply email the customer a spreadsheet in a specified format. MCs cannot provide this data directly to customers and customers cannot access it directly from the meter themselves, as noted above. We expect this data will only be useful to customers if it is provided to them by a retailer or other service provider. As noted in the ECA rule change request, giving effect to the intended benefits of the rule change request is likely to require retailers or other service providers to provide mobile phone apps, in home displays or other display mechanisms to customers (at no separate charge) to enable them to access and understand this data. However, it is not

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	clear whether the ECA and AEMC intend to mandate that retailers provide such services, or simply hope that they provide them voluntarily. It is also not clear that the NEL or NERL extend to regulating these types of services and would allow the AEMC to make rules imposing obligations to provide them at no charge. • The rule change request proposes that customers should not face a separate charge for the provision of real-time data. However, it is unclear how such a requirement would be implemented. ECA proposes that it be implemented by amending cl 7.6.1 of the NER, but this clause only relates to MCs' charges to retailers. Amending cl 7.6.1 would require MCs to include the costs of providing this service in their charges to retailers, but would not prevent retailers or customer representatives from imposing a separate charge on customers who request access to the data. MCs have no direct contractual or other relationship with small customers and never charge small customers directly for any services. The AEMC consultation paper implies that there would also be a prohibition on retailers imposing a separate charge on customers for this service, but it does not explain how that would be implemented through changes to the NERR. • The provision of any form of real-time data service will impose costs on retailers, including MCs' increased costs that are passed on to retailers. If the AEMC makes a rule preventing retailers from imposing a separate charge for these services, it should be satisfied that the AER will allow recovery of these costs in the Default Market Offer. • The rule change request and consultation paper do not discuss whether or how any rule would apply in Victoria. The ECA proposes changes to provisions of chapter 7 of the NER that apply in Victoria, so the proposed rule would appear to apply in Victoria. However, the proposed changes also rely on changes to the AEMO minimum services specification and the NERR, neither of which apply in Victoria. The AEMC should clarify whether all or part of any rule would apply in Victoria. Intellihub was surprised that the consultation paper referred to the ability of small customers in New Zealand to appoint their own metering parties at a connection point as an example of a potential additional change that could be considered in this rule change process. The ability of small customers to appoint an MC has been extensively considered and rejected twice by the AEMC – in the metering competition rule change in 2015 and in the metering review in 2023. In both cases the AEMC found there were strong reasons to not allow this arrangement due to the risks that would arise to consumers. The issues raised in the ECA's rule change request are already very broad and its proposals would require an extensive program of work to implement them. The AEMC should avoid further broadening the rule change process to add tangential issues that are not referred to in the rule change request.

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Question 12: Do you agree with the proposed assessment criteria? Are there additional criteria we should consider or criteria included here that are not relevant?	Intellihub supports the AEMC's proposed assessment criteria in section 4.2. In particular, we support the statements in the criteria that: • 'The Commission must be satisfied that any rule change would put downward pressure on consumer bills.' • 'we must test whether the benefits of improving access to data outweigh the costs of any new data sharing arrangements that may be introduced.' • 'The Commission must be satisfied that any rule change can be successfully implemented at least cost to market participants'. The consultation paper does not explain how the AEMC intends to undertake a cost-benefit assessment for the rule change or how stakeholders will be consulted on that assessment. The AEMC should provide more information on these issues. The rule change request proposes a highly intrusive form of access regulation that would require MCs and retailers to provide new data services and regulate how they can charge for those services. The AEMC should carefully consider whether such regulation is justified and consistent with the National Electricity Objective (NEO) and National Energy Retail Objective (NERO) and its rule making powers. This form of access regulation is usually reserved for exceptional circumstances. Under the NER and NERR, access and price regulation is usually justified on the basis that electricity services are an essential service. Under the national access regime in Part IIIA of the Competition and Consumer Act 2010, access regulation is only available for natural monopoly services that are of national significance and would be inefficient to duplicate and where regulating access would materially increase competition in another market and be in the public interest. None of those tests are met for real-time data services, which are not an essential service or a natural monopoly and have a number of commercially available alternatives. The AEMC should consider its powers to make rules regulating access to real-time data services and the appropriate tests to apply when making such rules. In particular, it is not clear that the AEMC has the power to make rules imposing any access model that involves regulation of the price of data services provided by MCs or MDPs or imposing a dispute resolution model when another party has the power to determine the price of those services. Under the National Electricity Law (NEL), the AEMC does not appear to have the power to make rules

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	imposing access regulation or price regulation on any person other than network service providers.[2] Similarly, the AER does not appear to have the power under the NEL to regulate prices or resolve access disputes for any services other than network services.[3] The AEMC should also explain how it will incorporate these matters into the assessment framework set out in chapter 4 of its consultation paper. For example, if this rule change had involved a proposal to impose access or price regulation in relation to services provided by DNSPs, the AEMC would be required by the NEL to also take into account the form of regulation factors and the revenue and pricing principles set out in the NEL. The matters referred to in those principles are equally relevant to a proposal to impose access or price regulation on services provided by MCs or MDPs and should be taken into account by the AEMC in determining whether to impose regulation and the appropriate form of regulation.

[2] The AEMC's rule making power under section 34 of the NEL is relatively broad. However, several provisions of the NEL indicate that this power is not intended to extend to making rules that impose access regulation or price regulation on any person other than network service providers. The subject matter for the NER in Schedule 1 of the NEL covers the regulation of prices for transmission or distribution services, and the regulation of the terms and conditions for the provision of electricity network services, but there is no equivalent power for any other services. When making such rules in relation to network services, the NEL requires the AEMC to take into account the form of regulation factors and the revenue and pricing principles. It seems unlikely that it would have been intended that the AEMC's rule making powers in relation to regulation of network services were limited in this way but that the AEMC has the power to impose access or price regulation on any other party without being subject to equivalent limitations. Schedule 1 allows the AEMC to make rules related to access disputes, but the NEL clearly limits the scope of the access dispute and access determination powers to network services. It seems unlikely that it would have been intended that the AEMC has a broad power to make rules related to access disputes and access determinations involving other parties that are not subject to any of the NEL provisions in Part 10 regarding access regimes.

[3] The AER's economic regulation functions and powers under the NEL only apply to transmission and distribution services. The AER's powers in relation to access disputes and access determinations under Part 10 of the NEL only apply to disputes and determinations regarding network services.