AEMO Data Communication Standards Review Team
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REVIEW OF (AEMOs) POWER SYSTEM DATA COMMUNICATION STANDARD
RESPONSE TO ISSUES PAPER
Date of Notice: 03/02/2022

Delta Electricity operates the Vales Point Power Station located at the southern end of Lake Macquarie in NSW. The power station consists of two 660MW conventional coal-fired steam turbo-generators. Delta Electricity appreciates the opportunity to respond to the questions raised in AEMO's Issues paper.

The data communication standard has relevance to the compliance program activities of Generator Performance Standards and, in being so referenced, it is important that the correct ownership of equipment and faults within that equipment under the control of various participants is properly assigned by interpretation of the Data Communication Standard. Non-compliance reports of a Generator or TNSP arising from a fault not under the direct control of the party with the registered performance standard are erroneous. The location of a specific data communication system fault could also exist within AEMOs equipment and it is therefore not appropriate for the Data Communication Standard to assign responsibility for such a fault, even cooperatively, to multiple parties and, by inference, have such faults represent a non-compliance under a party's registered performance standard through no fault of that party.

Detected under performance of data communication transfers requires centrally coordinated investigations when found and reported to AEMO by any party. Following detection, in the first instance, all potentially affected parties should be advised by AEMO of the reported fault and placed on notice to assist in investigations. AEMO should take the coordination lead in this activity and direct a no-cost investigation. Any other strategy risks arguments between parties as to where the fault is located and by whom costs for repairs are bourn, delaying the improvements and potentially generating the need for unnecessary non-compliance reports in the generator performance standard compliance process.

The following pages provide a table of comments to the AEMO's specific questions included in the issues paper.

If AEMO wishes to discuss this submission please contact Simon Bolt on (02) 4352 6315 or simon.bolt@de.com.au.

Yours sincerely

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ATTACHMENT – REVIEW OF AEMO's NEM POWER SYSTEM DATA COMMUNICATION STANDARD – ISSUES PAPER QUESTIONS

Id	Issue Raised	AEMO Question	Delta Electricity Comments
SECTION 3.1 Issues with the current Standard			
SECTION 3.1.1: Scope and Application of Standard			
Q1	Data to be provided - Standard needs to be more definitive on the range of measurements that need to be provided as there is significant uncertainty as to what will actually be required for new connections.	Does the Standard need to be more specific on the range of data covered by the Standard? If so why and what level of detail is considered necessary?	The standard only needs changing if it is failing, for all participants, in any specific area required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. Having a wish list of improvements is understandable but if the standard is functional and the improvements will cost the NEM, best avoid the improvements. Improvements that have demonstrable (by AEMO or participants) need must be substantiated in the final determination including the comparisons of the potential costs versus the benefit.
Q2	Definition of power system data - with the growth of embedded generation and the need for AEMO to monitor power flows in distribution systems which impact on the security of the transmission network, this definition needs to be expanded.	Does the definition of power system data need to be extended? If so why and what would be a more appropriate definition?	If the application of the standard is desired (by AEMO and/or proposed applicants) to occur to generators, NSPs or large loads where the standards don't apply because of the restrictions implied by points 1. and 2. of the existing standard it would seem to be a necessity. Wouldn't power system data simply be any data that is necessary for the secure operation of the power system and therefore include some AEMO control and indication data not defined in the present definition?

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Q3	Definition of Control Commands - this definition is inadequate as it does not cover the full range of control commands sent out from AEMO NEM Control Centres.	Does the definition of control commands need to be extended? If so why and what would be a more appropriate definition?	The wording of the definition seems obscure. The work control means something as does the word command. Neither mean "representation" but rather that word is attempting to describe how the commands are converted to signals and transmitted to the object for the control. It is also confusing when used with Analogue value above it because some control commands will be analogue values so neither definition is adequate at present. Follow some control system definitions for analogue signals (which can be still relevant in this standard), analogue to digital converter, digital to analogue converter and these sorts of terms commonly known to control and instrumentation technicians.
Q4	Definition of RCE and RME - this definition in no longer adequate in context of new technology for data acquisition.	Do the definitions of RCE and RME need to be extended? If so why and what would be a more appropriate definition?	Aren't these terms Rules Defined? Better make sure the definitions in the Standard do not contradict with the Rules definition which take precedence in a full application and if a different definition is needed a rule change is required. (**Rules v177**: **remote control equipment** - Equipment used to control the operation of elements of a power station or substation from a control centre. **remote monitoring equipment** - Equipment installed to enable monitoring of a facility from a control centre.)

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Q5	Participants in the data communications process - the Standard in Section 1.1 does not include the full range of participants involved in the data communications process.	Other than the changes required to accommodate additional participant categories identified in clause	The standard only needs changing if it is failing, for all participants, in any specific area required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it will cost the NEM for no valid purpose.
SECTION 3.1.2: General Issues			
Q6	The requirements set under the Standard for different classes of data need to take into account the use of the data and its criticality.	Should requirements under the Standard be varied according to how critical the data is? If so, what criteria should be used to determine the requirements particular data needs to meet?	Data necessary for the automatic control of the system should have a higher standard and a redundancy than data that only provides indication of conditions to human controllers. However, if the latter are heavily relied on by the human controller to manage the system then they have a higher criticality than other data that is not relied on or not relied on often.
Q7	The standard is not consistent with more stringent requirements in some areas (e.g. Market Ancillary Service Specification).	Are there examples where AEMO has specified requirements beyond those set in the Standard, and how can any potential inconsistencies best be reconciled?	The MASS is supposed to be more detailed because it is a specification. If there is meant to be a Data Communications Specification, that is a separate question. A Standard should be brief and describe expected performance criteria not specify how data communications is supposed to be constructed.
Q8	The standard seems to assume that all participants in the data communications process operate data centres.	Are there examples where the Standard has not kept pace with	No comment.

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		developments in data communications technology?	
Q9	There is an opportunity to design vulnerability out and design security in, as opposed to putting in place processes to manage the emergence of security issues. It might be possible for the Standard to encourage enhancement of resilience through design.	Is there an opportunity for the standard to encourage enhancement of resilience through design? If so, how might this be done?	Design requirements are not the place of a standard but belong in a construction specification. The standard should describe only as much as is needed to guide designers in expectations of the outcome of a design. The outcomes should only be such that are required to meet the objective of data communications required for AEMO to achieve secure operational control of the NEM. If the standard is missing some outcomes necessary for this they should be added but the necessity should also be fully explained. Data communications has appeared to function adequately for 20 years.
Q10	The Standard to be clear on the consequences for a participant failing to meet the requirements of the Standard.	Should the Standard set out the consequences for a participant failing to meet its requirements?	No. A standard is not the place for such information and neither is a specification. The Law, Regulations and Rules are the place for such information and in fact the words and penalties are already adequate in the Rules for this.
SECTION 3.1.3: Architectural Requirements			
Q11	The requirements specified for DNSPs may be unclear in a number of areas. Possible examples are:	What changes to the current Standard are required to clarify the requirements for DNSPs?	No comment.

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	• Current standard does not reflect topology that applies for DNSP (e.g. diagram in Section 1.3 and tables 4 and 5). • Standard needs to state whether or not DNSP can have direct connection with AEMO rather than going through TNSP • Standard needs to account for diversity in comms between TNSP/DNSP to AEMO. • Standard should include situation where there are two intervening facilities and perhaps more.		
Q12	The current structure is making it difficult for new connections.	Are there specific examples where the current data communications structure is making it difficult for new connections or embedded participants? If so what changes in the Standard would be required to address these issues?	No comment.
Q13	It is reported that wholesale demand response providers are finding it very difficult to be connected for data	What difficulties are wholesale demand response providers finding to be connected for data	No comment.

Id	Issue Raised	AEMO Question	Delta Electricity Comments
	communications under current arrangements.	communications under current arrangements?	
Q14	New embedded scheduled and semi-scheduled generators have obligations under the rules and Generator Performance Standards (GPS) to participate in Automatic Generation Control (AGC). However, some stakeholders have indicated that this is not possible through some DNSP SCADA systems.	What difficulties do DNSPs have in communicating AGC control signals?	No comment.
SECTION 3.1.4: Data Protocols			
Q15	The current standard specifies ICCP IEC60870-6 TASE.2 and its extensions as a secure ICCP protocol. A stakeholder has questioned whether this can actually be considered as a secure protocol	Is the current ICCP Protocol specified in the current Standard still appropriate?	If the standard is meeting the objective of data communication as necessary for AEMO to achieve secure operational control of the NEM no change is required. If not, AEMO must clearly demonstrate how the protocol is not appropriate especially if changing it will cost the NEM.
Q16	The Standard in Section 5.1 should be more specific on protocols used when AEMO WAN is connected to another party's data Communications Facility	What protocols should apply for connections to AEMO WA~~M~~N?	No comment.
SECTION 3.1.5: Interfacing			

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Q17	The Standard should provide more clarity on the boundary of both operational and financial responsibility between · Generator and NSP · DNSP and TNSP · AEMO and TNSP	What additional detail is required in the Standard to provide more clarity on boundary of both operational and financial responsibilities?	In isolation, this point is less important than when considered in combination with the next question. It is inappropriate to imply in Generator Performance Standards S5.2.6.1 and/or S5.2.6.2 that a participant has obligations for equipment performance outside of their control.
Q18	The standard should make clear the obligation of parties to work together to resolve any problems to ensure a requirement is met.	Should an obligation for parties to work together be added to the Standard?	The standard should not assign these obligations at all. The Rules do this. However, as the standard is necessary for AEMO to achieve secure operational control of the NEM, AEMO should manage the performance issues including coordinating rectification of detected performance issues either found by AEMO or reported to AEMO by other participants.
Q19	The Standard needs to be clear that connections are required to both AEMO control room sites.	Does the Standard need to clarify that connection is required to both AEMO control room sites?	If connection to both AEMO control room sites is necessary for AEMO to achieve secure operational control of the NEM then yes but AEMO should demonstrate why it is so.
SECTION 3.1.6: Data Quality			
Q20	The Standard needs a specific requirement that data sent is of good quality. It is	Should the Standard include a specific requirement that data sent	The standard only needs changing if the lack of this specific requirement is agreed, by all participants,

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	possible for a connection to be available and the data to be unusable due to quality.	should be of good quality? If so, what would be implications for stakeholders?	required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it will cost the NEM for no valid purpose. Has it been demonstrated that such quality is needed by AEMO? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.
Q21	Some remote metering equipment does not provide quality flags.	Should all data be sent with quality flags? If so, what would be implications for stakeholders?	The standard only needs changing if the lack of this specific requirement is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it will cost the NEM for no valid purpose. Has it been demonstrated that such quality flags are needed by AEMO? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.
SECTION 3.1.7: Data Accuracy			
Q22	The Standard does not have an effective requirement to ensure the accuracy of data in particular to ensure that RME remains calibrated. Monitoring and remediation	Should the Standard include a more specific requirement regarding data accuracy? If so, what would be implications for stakeholders?	The standard only needs changing if the lack of this specific requirement is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it

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	may be problematic (e.g. kv measurements at some stations can vary by over 10kV).		will cost the NEM for no valid purpose. Has it been demonstrated by AEMO that accuracy issues exist? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.
Q23	All semi-scheduled units being clamped in SCADA (at the AEMO end) such that telemetered MW values could not be negative is undesirable, noting that participants are responsible for providing accurate data and separate metering of auxiliary loads.	How material is the issue regarding clamping of values for semi-scheduled units? If the standard were to be changed as suggested, what would be the implications for participants?	No comment.
SECTION 3.1.8: Data Latency			
Q24	The Standard is not clear on requirements for data latency or end-to-end response times. There is current no minimum requirement for data latency.	Should the Standard include a specific requirement regarding data latency? If so, what would be implications for stakeholders?	The standard only needs changing if the lack of this specific requirement is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it will cost the NEM for no valid purpose. Has it been demonstrated by AEMO that issues of data latency exist? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.

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Q25	Significant timing difference can exist particularly for the RME equipment that uses UTC time and the conversion of this to AEST. There should be greater clarity on the requirements for calibration, testing, validation, and maintenance of the timing stamp quality.	How material is the issue regarding timing differences due to RME? If the standard were to be changed to address this, what would be the implications for participants?	The standard only needs changing if the lack of this specific requirement is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it will cost the NEM for no valid purpose. Has it been demonstrated by AEMO that issues requiring more calibrations, testing, validation and maintenance of time-stamping exist? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.
Q26	Monitoring end-to end update times is difficult post commissioning	Should an additional requirement be included in the Standard to allow ongoing monitoring of end- to-end response times? If so, what would be the implications of such a change?	The standard only needs changing if the lack of this specific requirements is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it will cost the NEM for no valid purpose. Has it been demonstrated by AEMO that issues with end-to-end update times exist? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.
SECTION 3.1.9: Control Commands			

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Q27	AGC is showing performance issues which suggest that a more responsive control loop is needed. With the current 4 second AGC cycle, updates at a minimum of less than 2 seconds may be required.	What would the implications be if the specification of maximum delay for control commands was tightened to 2 seconds? What are the implications if control command delays remain at current levels?	No issues.
Q28	There have been incidents where AGC used to control a battery is stale (20s old) resulting in unwarranted discharge and charge cycles and at times oscillations. This is mainly because the communications delay is more than 97% of the response delay time.	Is there a material issue associated with reliability of the connection to AEMO's market portal?	No issues.
Q29	There should be increased use of dispatch signals via SCADA through the NSP as AEMO's Market Portal may be unreliable and any failure to meet dispatch requirement increases system risk.	Should the specification of control command delays in the Standard take into account the number of intervening facilities? If so, how should these be accounted for and what would the implications be?	No comment.
SECTION 3.1.10: Security			
Q30	The current standard is not clear on obligations of the parties to the security of	What specific obligations regarding maintenance of security should be	No issues. If the AEMO or TNSP system were demonstrably in-secure, the power station can operate

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	the data (physical, personnel and cyber) and of control protocols at the level required for critical infrastructure.	included in the Standard, and what would be the implications of this?	on local control. Are there security risks? If so, what are they and how have they propagated and what is required to address them. If there are none, no change is needed.
Q31	Alignment between this data communications standard and these current and proposed regulations requires consideration.	Does the legislation adequately cover security obligations and requirements or is there a need for more detailed obligations in the Standard?	No comment.
Q32	The Standard should include an obligation for participants to advise AEMO of any known relevant cyber security issues or when abnormal risks to cyber security arise.	What would be the implications of including a specific obligation to advise on cyber security risks?	The standard should not assign obligations. It should describe conditions expected for data communications.
Q33	There are questions about ownership and control and rights to data, and when. While not specifically related to the Standard, the standard should nonetheless fully support and enable these requirements.	Should the Standard be enhanced to better identify and support the protection of the confidentiality of data? If so what type of enhancement is required?	The standard only needs changing if the lack of this specific requirement is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it will cost the NEM for no valid purpose. Has it been demonstrated by or to AEMO that issues with confidentiality of data exist? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.

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SECTION 3.1.11: Reliability			
Q34	There is a need for greater clarity in Section 3.1 of the Standard regarding the specification of reliability requirements. In particular: • In table 4 standard term RCE needs to be better defined • Tables 4 and 5 are not clear. For instance does the 6 hour requirement apply to a single site or all sites? • Possible inconsistency between table 4 and 5 • Difficulty in seeing how tables 4 and 5 apply to DNSPs • Need to better define what is meant by a critical outage in Section 3.1 - i.e. does it refer to total loss of data or simply loss of redundant path?	What changes would be required to clarify reliability requirements in the Standard?	These questions should be considered in combination with Section 3.1.2 (Q6) and 3.1.5. The standards should describe the highest performance on signals necessary for automatic control, lesser performance for signals relied on for human control and lower performance for all others. The tables should also consider importance from the perspective of individual point error at the source compared to errors of all points due to failure of a RTU or Data concentrator and failures of both primary and secondary systems where redundancy has been included. Failures on elements that carry risk of affecting a group of signals require a separate focus and priority as can be interpreted in the present standard but some clarification could achieve a more effective common understanding.
Q35	The Standard should set expectations on the level of monitoring and reporting of	Does the Standard need to set enhanced expectations regarding	The standard is not the place for maintenance requirements and obligations. That is the arena of good

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	reliability required. For instance, this might include a comprehensive heartbeat facility.	monitoring and reporting of availability and why? What would be reasonable expectations to set? What changes would be required to data communications systems to achieve enhanced monitoring and reporting of availability?	electricity industry practice and is best left out of the standard which should be providing the criteria for further on-reporting of detected performance issues. Performance Standard Compliance programs should be where maintenance objectives are supervised for relevant signals and otherwise as maintained under good electricity industry practice.
Q36	Frequent and rapid applications of software patches is becoming an increasing requirement for maintaining cyber security. One stakeholder has queried whether new or additional redundancy may be needed at DCFs to allow rapid application of patches without disrupting operations.	Does any lack of redundancy currently restrict the ability of participants to apply software security patches in a timely manner?	No comment.
SECTION 3.1.12: Maintenance			
Q37	Section 2.2 of the current Standard states that "DCPs must notify AEMO of their sign convention when applying to AEMO for registration as a Registered Participant. To change the sign convention, DCPs must give 60 business days' notice to AEMO". It is not clear whether this requirement applies to small scale changes to correct individual	What change to Section 2.2 of the Standard would be required to clarify the requirement for adequate notice?	No comment.

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	sign conventions or only to a major change following a change in policy.		
SECTION 3.1.13: Response to Failures			
Q38	The Standard has no specific requirements for the times required to return to service following forced outages and in practice failed data can take a long time to rectify. Tables 4 and 5 of the current Standard refer to a reliability requirement rather than a specific response time.	What issues have arisen that would justify including in the Standard a specific requirement regarding response time to forced outages? If so, what would reasonable expectations be?	The standard only needs changing if the lack of this specific requirement is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it may cost the NEM for no valid purpose. Has it been demonstrated by or to AEMO that issues with return to service times exist? If so, the statistics supporting the change need to be reported in any final determination that upholds making a change.
SECTION 3.1.14: Testing			
Q39	The current testing scope does not include testing of whether the data is correct, but only that data is being communicated. The scope of testing specified under the Standard could also include testing for cyber security; and robust RCE and RME testing, calibration and validation.	What issues have arisen that would justify expanding the scope of testing specified in the Standard? If so, what increases in scope are required? What would be the implications of a change in testing scope?	The standard only needs changing if the lack of this specific requirement is agreed, by all participants, required to achieve the overall objective of data communications as necessary for AEMOs secure operational control of the NEM. If it is not a necessity it may cost the NEM for no valid purpose. Has it been demonstrated by or to AEMO that expanded testing is required? If so, the statistics supporting the change need

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			to be reported in any final determination that upholds making a change.
Q40	The level of testing required for new generators is onerous.	What are examples of testing requirements that are considered too onerous for new generators? Are there opportunities to make these requirements less onerous without materially reducing the effectiveness of the testing programme in demonstrating the necessary capabilities?	The standard only needs to describe conditions of data communications as necessary for AEMOs secure operational control of the NEM. If it goes beyond that it is a burden to participants in the NEM for no valid purpose. If it can be simplified to reduce the testing burden for all generators it should be.
Q41	Section 6.4 of the current Standard is not clear on what constitutes an "upgrade".	What changes to the definition of an "upgrade" is required? What implications would such a change have?	Reference to Rule 5.3.9 may be relevant here and the Standard need not mention it if so.
Q42	The requirement under Section 6.4(c) of the current Standard is unclear and that for the sake of efficiency it should encourage the use of standard test procedures.	Should section 6.4(c) of the current Standard be amended to encourage use of standard test procedures?	Section 6 should not be in the standard. It belongs in the Performance Standard Compliance template instead or some other industry guide on Data Communication system maintenance.
Q43	Due to the changing nature of the power system the requirements for advice on	What issues have arisen that would justify expanding the scope of	Reference to Rule 5.3.9 may be relevant here and the Standard need not mention it if so.

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	augmentations under the Standard need to be increased.	augmentations required to be advised under the Standard?	
Q44	The Standard needs to require the provision of an appropriate testing environment for data links.	What issues have arisen that would justify the Standard specifying the provision of testing environments for data links? What implications for stakeholders would such a new requirement have?	Section 6 should not be in the standard. It belongs in the Performance Standard Compliance template instead or some other industry guide on Data Communication system maintenance.
SECTION 3.1.15: Transitional Arrangements			
Q45	Any increased requirements in the Standard need to be transitioned to accommodate additional funding requirements to meet such increased requirements.	In what circumstances would transitional provisions be justified for increased requirements in the Standard? If justified, what form of provisions would be needed and for how long?	Agreed but changes to the standard should pass through a necessity test such that AEMO demonstrate clearly, referencing statistics of all relevant events, why the change is required. Changes that impact on the entire data communication system will be expensive to all participants and NEM in general and should be avoided if possible.
SECTION 3.2 Emerging Issues			
SECTION 3.2.1: Scope of Standard			
Q46	AEMO NEM Control Centres currently use limited real time data from PMUs. In the	Does the Standard need to cover to cover PMU and HSM data? If so why	No comment.

Id	Issue Raised	AEMO Question	Delta Electricity Comments
	near future the level of this real time data from PMUs and High-Speed Monitors (HSMs) will greatly increase and requirements for the communication of these data types may need to be included within the Standard.	and on what basis should the requirements be set (i.e. appropriate standards on which the requirements could be based)?	
Q47	Some stakeholders have noted that the Integrating Energy Storage Systems rule change will enable Small Generation Aggregators (SGAs) to provide FCAS and that the Standard may need to accommodate this change	Does the Standard need to cover SGAs? If so why and on what basis should the requirements be set?	No comment.
Q48	The Scheduled Lite Visibility Model to provide visibility to AEMO of the output in the form of five-minute data may be required by mid-2022 and this may need to be accommodated in the Standard.	Are changes to Standard required now to accommodate the first stage of the Scheduled Lite Project? If so, what changes are required?	No comment.
Q49	The Scheduled Lite Dispatchability Model is expected in 2024-25 to enable distribution connected aggregated DER to participate in central dispatch.	What future changes to the Standard are likely to be required to accommodate the second stage of the Scheduled Lite Project?	No comment.

Id	Issue Raised	AEMO Question	Delta Electricity Comments
Q50	In the future there may be a requirement for AEMO to also provide real time data to participants.	Is it likely that future changes to the Standard will be required to also cover provision of real time data from AEMO to participants?	
Q51	Whilst provision of real time to NSPs from Generators and others is not within the scope of the Standard, it remains part of the overall data communications process in the NEM. For instance even if, say, a generator was to provide real time data directly to AEMO, there may still be a requirement for the generator to provide data separately to its NSP.	Regardless of provision of data to AEMO, does the Standard need to incorporate or reference requirements for generators and others to provide real time power system data to their NSPs?	
Q52	Enhancements to the Standard will bring benefits but also may result in increased costs to the industry and ultimately consumers. It is possible that costs may be disproportionate in the case of enhanced requirements for smaller participants, however the necessity for those requirements may increase as the relative numbers of smaller participants increase.	Are there any specific factors AEMO should take into account in assessing the costs and benefits of a proposed enhancement to the requirements of the Standard?	

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SECTION 3.2.2: Architectural Requirements			
Q53	In the near future, a growing number of embedded battery generation, aggregated DER and VPP connections will need to be accommodated. Some stakeholders believe that this will mean that the current data communications structure will be no longer fit for purpose.	What changes to the current NEM power system data communications structure are likely to be required? Are there different options for such changes?	
SECTION 3.2.3: Data Protocols			
Q54a	Under the current architecture as described in Section 3.2.2, the only communication protocol support for connection to AEMO is the ICCP protocol. If a change in the data communications structure is required, then it may be necessary for the Standard to accommodate alternative protocols for connection to AEMO. The ICCP protocol is designed for data communication between control centres and would not be suitable if a generating unit were to communicate directly with AEMO.	If generators and other participants were permitted to communicate directly with AEMO, then what types of data protocols would be preferred?	
Q54b		If for cyber security and other reasons, only a single protocol can be accommodated in addition to secure ICCP, what criteria should AEMO use to determine the most suitable protocol?	