

Section	Issue raised	Questions	AGL Response
3.1.1	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?	No comment.
3.1.1	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?	No comment.
3.1.1	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?	No comment.
3.1.1	Definition of RCE and RME - this definition is 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?	No comment.
3.1.1	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 4.11.1 of the NER, does the Standard need to extend or specify other participants or sub-groups within a category. If so, how and why?	No comment.
3.1.2	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?	AGL believes that the requirements under the Standard should be varied according to how critical the data is. The data should be classified as critical if a non-conformance is required to be submitted after an unplanned outage.
3.1.2	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?	No comment.
3.1.2	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 developments in data communications technology?	No comment.

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3.1.2	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?	No comment.
3.1.2	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?	AGL has been making efforts to submit non-conformances where there have been issues with transmission of SCADA data. It would be appreciated if the obligations were defined/explained more clearly.
3.1.3	<p>The requirements specified for DNSPs may be unclear in a number of areas. Possible examples are:</p> <ul style="list-style-type: none"> • 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. 	What changes to the current Standard are required to clarify the requirements for DNSPs?	No comment.
3.1.3	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.

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3.1.3	It is reported that wholesale demand response providers are finding it very difficult to be connected for data communications under current arrangements.	What difficulties are wholesale demand response providers finding to be connected for data communications under current arrangements?	No comment.
3.1.3	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.
3.1.4	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?	No comment.
3.1.4	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 WAN?	No comment.
3.1.5	The Standard should provide more clarity on the boundary of both operational and financial responsibility between <ul style="list-style-type: none"> • 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?	No comment.
3.1.5	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?	No comment.

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3.1.5	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?	No comment.
3.1.6	The Standard needs a specific requirement that data sent is of good quality. It is possible for a connection to be available and the data to be unusable due to quality.	Should the Standard include a specific requirement that data sent should be of good quality? If so, what would be implications for stakeholders?	<p>AGL does not support this change. AGL believes this would require logic changes to be implemented at multiple sites to prevent data being sent if quality flags are set to bad.</p> <p>AGL would prefer AEMO, TNSP and DNSP systems discard bad quality data on an individual use basis. AGL understands this is the current practise.</p>
3.1.6	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?	AGL believes data should be sent with quality flags. If quality flags are not available from a source device, the quality flag should be artificially set to 'good'.
3.1.7	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 may be problematic (e.g. kV measurements at some stations can vary by over 10kV).	Should the Standard include a more specific requirement regarding data accuracy? If so, what would be implications for stakeholders?	No comment.
3.1.7	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?	AGL would support a change for telemetered MW values to allow negative values. Many of AGL's wind farms consume energy from the grid during very low wind times (i.e. 0MW TOTALCleared). Often sites are at -4MW for significant periods, resulting in unavoidable impacts to causer pays factors.

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3.1.8	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?	No comment.
3.1.8	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?	No comment.
3.1.8	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?	<p>AGL would support an end-to-end monitoring scheme. AGL hopes such monitoring would allow DNP3 interfaces to be recognised as suitable to be used as the “primary interface for energy dispatch”.</p> <p>AGL would support this as a mandatory signal if the TNSP and DNSP costs to implement were not passed onto the generator.</p>
3.1.9	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. 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.	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?	AGL supports a specification of a maximum delay for control commands but does not offer a suggested maximum value.

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3.1.9	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.	Is there a material issue associated with reliability of the connection to AEMO's market portal?	<p>AGL has not had material issue with reliability of the connection to the AEMO market portal.</p> <p>AGL has had material issues with the reliability of the remote networks, provided by 3rd parties, to remote locations. Whether dispatch instructions are received by SCADA or Market Portal, without highly available network connections, there is a risk of not being able to comply with dispatch instructions.</p> <p>AGL would welcome the ability to leverage the highly available, highly secure, highly managed TNSP and DNSP SCADA networks.</p>
3.1.9	The specification of maximum delays may not adequately take into account the number of intervening facilities through which the command signal needs to be relayed.	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?	<p>AGL supports a specification of a maximum delay for control commands but does not offer a suggested maximum value.</p> <p>If, due to location and the necessity to have multiple intervening facilities, the delay exceeds the maximum specified by the standard, an exemption should be formally raised and reviewed periodically to ensure the exemption is still valid with regards to improvements to technology.</p>
3.1.10	The current standard is not clear on obligations of the parties to the security of the data (physical, personnel and cyber) and of control protocols at the level required for critical infrastructure.	What specific obligations regarding maintenance of security should be included in the Standard, and what would be the implications of this?	No comment.

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3.1.10	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.
3.1.10	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?	No comment.