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Appendix B
SVA and CVA Desktop, CVA Main Sample Findings including Cat 1 NC Rectification

Document Control

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References

No	Title

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Contents

1 Desktop Audit Findings

1.1 Measurement Class – Incorrect Registration

1.1.1 Requirement

All Metering Systems are allocated to a Measurement Class by Suppliers within their registration, which indicates how consumption is measured. The full list of Measurement Classes is shown below.

Measurement Class	Description
A	Non-Half Hourly Metered
B	Non-Half Hourly Unmetered
C	HH Metered in 100kW Premises
D	Half Hourly Unmetered
E	Half Hourly Metering at below 100kW Premises with CT
F	Half Hourly Metering at below 100kW Premises with CT or whole current, and at Domestic Premises
G	Half Hourly Metering at below 100kW Premises with whole current, and not at Domestic Premises

P339 Implementation Guide advises that "Measurement Classes are defined in terms of the premises at which the Metering Equipment is installed. Therefore, an Export Metering System should be allocated to the same Measurement Class as the Import Metering System at the same premises."[1]

1.1.2 Incorrect Measurement Class registered

During the operational year, the TAA completed 1592 Desktop Audits on Measurement Class C and E Metering Systems. In 5% (82 instances) we found that Suppliers had incorrectly registered the Metering System in the wrong Measurement Class.

Figure below provides a breakdown per Supplier MPID where this occurred.

[1] https://www.Elexon.co.uk/wp-content/uploads/2017/03/P339_Implementation_Guide_v1.0.pdf

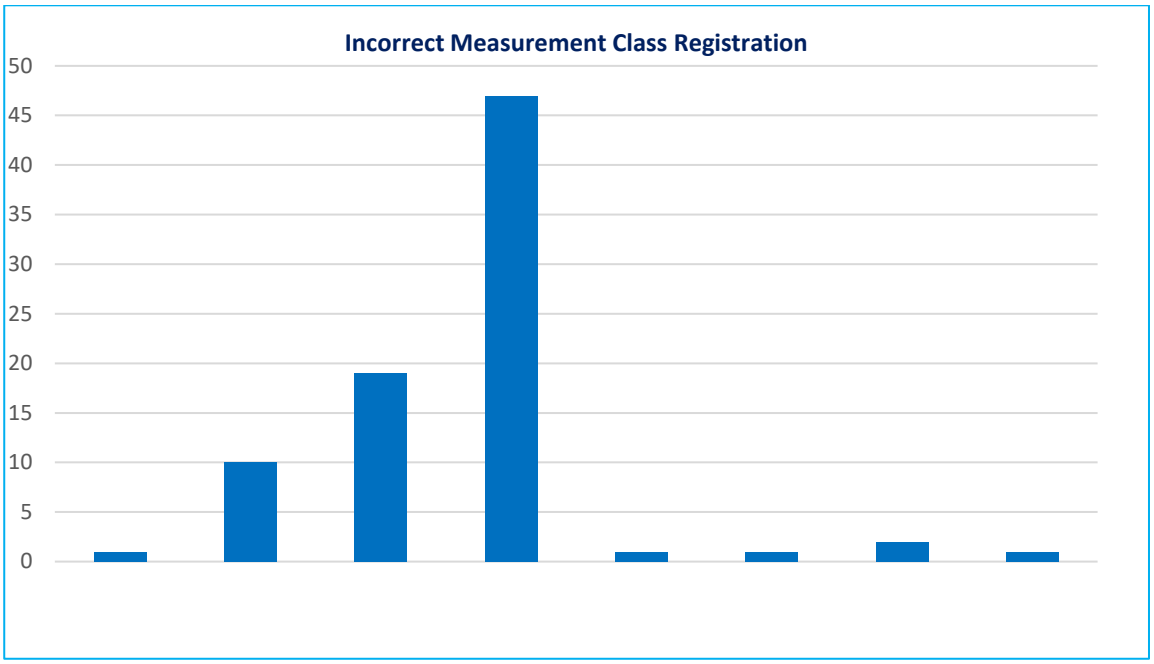

Figure 1 Distribution of Desktop Audits where an incorrect Measurement Class was identified within the Suppliers' registration

Measurement Class E

At the outset the TAA did not envisage Metering Systems incorrect Measurement Class registration would be a prevailing issue. However, due to conflicting evidence from respective Parties' submissions it became apparent that further analysis on Measurement Classes registration was required.

Utilising the Electricity Central Online Enquiry Service (ECOES) as a central industry look up and validation application, the TAA observed 82 cases where the Measurement Class E Import Meter Point Administration Number (MPAN) had a corresponding Export MPAN incorrectly registered as Measurement Class C. This is contrary to obligations introduced in P339 and the Elexon issued guidance.

Measurement Class C

Unlike the Measurement Class E population, the TAA did not identify prevailing Measurement Class registration non-compliances in the Measurement Class C population.

The TAA reports four Metering Systems that had an incorrect Measurement Class C registered, all of which were registered by the same Supplier at the time of audit.

1.1.3 Conclusion

As part of the non-compliance notification process, it became apparent that the vast majority of Suppliers were unaware of the Measurement Class inconsistency between Import and Export MPANs. At the time of writing, the TAA has not been in receipt of any rectification plans that address incorrect Measurement Class registration.

The TAA will continue to review Measurement Class registration for allied MPANs in the forthcoming year as part of the Desktop Audit process.

1.2 Provision of Site Technical Details – D0215 Dataflow

1.2.1 Requirement

In order to Commission a Metering System, the MOA requires measurement transformer related information from the LDSO. This is requested by the Meter Operator by sending a D0170[2] 'Request for Metering System Related Details' data flow, which the LDSO responds with a D0215 data flow, containing site information.

If the Meter Operator does not receive the information from the LDSO it can impact the efficiency of the Commissioning process. Due to commercial pressures, it is likely that the MOA will continue to attend site, without the required information, meaning that the integrity of the Commissioning may be compromised.

Measurement Class findings

The TAA observed that in 86% of Measurement Class E Desktop Audits incomplete D0215 data was provided, or was missing in its entirety.

The TAA also observed that in 80% of Measurement Class C Related Desktop Audits the audit had failed in the requisite check. For additional granularity, the TAA observed that 43% of audits had no D0215 data at all and a further 37% had inaccurate or incomplete dataset.

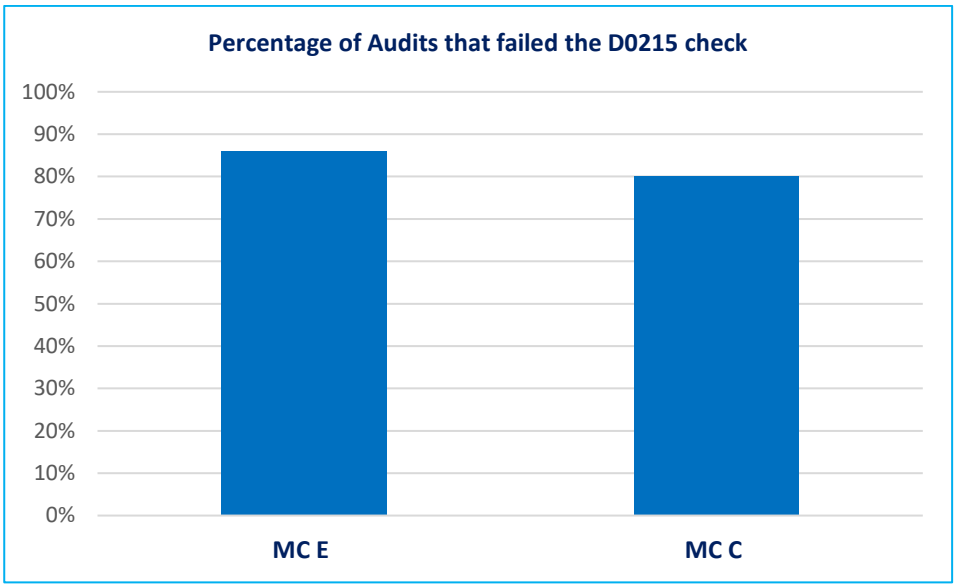

Figure 2 The percentage of Desktop Audits that failed the D0215 DTC file check, split by Measurement Class

1.2.2 Conclusion

This is the first operational year which the TAA has reviewed the D0215[3], as such there is no historic data to compare. However, this year's analysis supports the issues discussed by the TAMEG, which at the time of writing looks to raise a D0215 issue group.

The selection criteria for Desktop Audits targeted Metering System that had been energised post P283[4] implementation (6 November 2014). This aimed to increase the likelihood that records would be available

[2] https://dtc.mrasco.com/DataFlow.aspx?FlowCounter=0170&FlowVers=1&searchMockFlows=False

[3] https://dtc.mrasco.com/DataFlow.aspx?FlowCounter=0215&FlowVers=1&searchMockFlows=False

[4] P283: Reinforcing the Commissioning of Metering Equipment Processes

and to reduce the accumulation of non-compliances. However, the audit results indicate residual and ongoing issues with D0215 exchange and Commissioning related processes.

In November 2018, the D0383[5] 'Notification of Commissioning Information' data flow was introduced, which is sent by the LDSO to the MOA.

Through conversations with LDSOs, the TAA understands that there may be some data reliability issues with the D0215 when they issue it. The TAA has been advised that at the point that the D0215 is issued, there may still be negotiations taking place with the customer with regards to the supply being provided. LDSOs have advised that the D0383 'Notification of Commissioning Information' provides more reliable information, as this is sent after on-site works have been completed.

[5] https://dtc.mrasco.com/DataFlow.aspx?FlowCounter=0383&FlowVers=1&searchMockFlows=False

1.3 Overall Accuracy

1.3.1 Requirement

The requirements for Metering Equipment are defined in Section L of the BSC along with the Codes of Practice (CoP). The CoPs require the MOA to establish and record that the Overall Accuracy of the Metering System is being maintained and is within the acceptance limit. The limits of error vary for each CoP and for different values of current and power factor.

Overall Accuracy percentage is calculated by summing the errors for each of the Metering components as shown below in Figure 3.

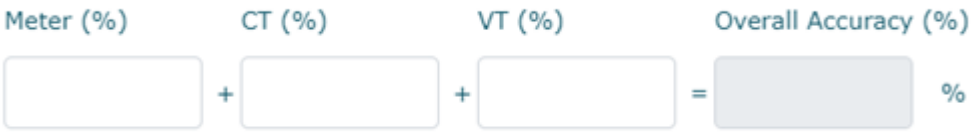

Figure 3 Overall Accuracy calculation

Metering Equipment should be supported by the appropriate calibration certificates and/or other records detailing Metering Equipment error. In the absence of the Metering Equipment's calibration certificates other supporting documentation may be used, such as photographs of the physical equipment showing the necessary technical information. See Figure for an example.

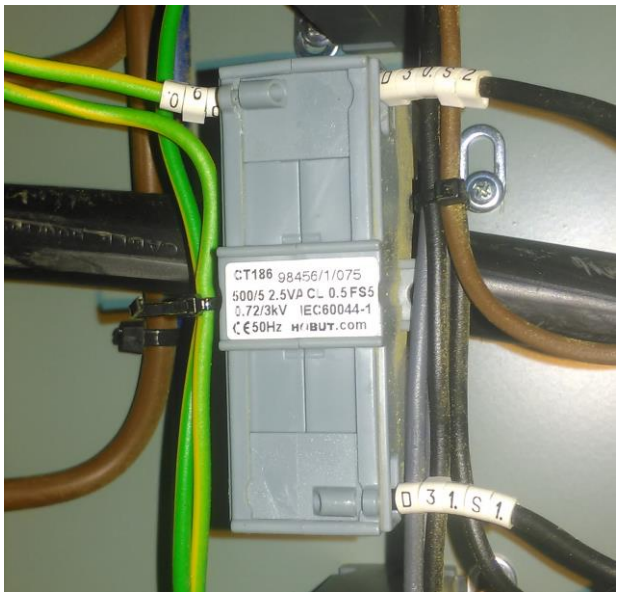

Figure 4 An example of a label on a Current Transformer (CT) in situ, provided as supporting evidence

In previous years, for onsite Inspection Visits the MOA has presented certificates on request so that the TAA can calculate the limits of error. With the Desktop Audit process, Elexon sought to establish not only the availability of certificates, but for the MOA to demonstrate knowledge and experience in calculating the Metering System Overall Accuracy.

1.3.2 Findings

Measurement Class E

Out of a total of 1103 Measurement Class E Desktop Audits, only 14% (157) were reported as being within allowable error tolerance.

86% (946) failed to report as being within an allowable error tolerance, which was due to any combination of non-provision of calculation data (855), lack of supporting certificates (907) or certificate data not matching the calculation data provided.

Measurement Class C

Out of a total of 366 Measurement Class E Desktop Audits, 9% (33) were reported as being within allowable error tolerance.

The other 91% (333) failed to report as being within an allowable error tolerance, which was due to any combination of non-provision of calculation data (315), lack of supporting certificates (295) or certificate data not matching the calculation data provided.

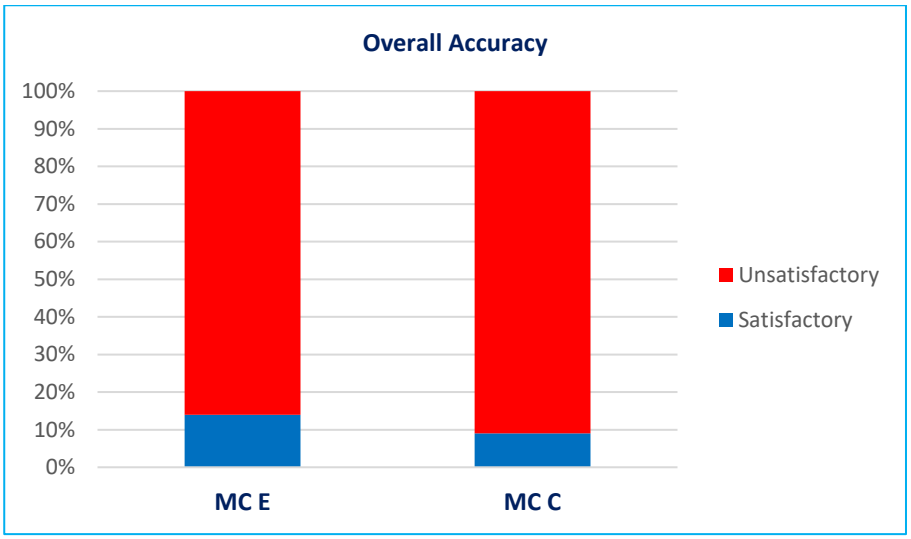

Figure 5 The percentages of Desktop Audits where the Overall Accuracy calculation check was satisfactory or not

1.3.3 Comparison with the previous operational year

In the last operational year (2019/20), 40% of onsite Audits (all Measurement Class C) allowed us to confirm that Overall Accuracy was maintained. This compares with this operational year (2020/21), where confirmation could be provided for 14% of Measurement Class E sites and 9% of Measurement Class C sites. See Figure below.

A key factor differentiating the two operational years (and processes) is that in operational year 2019/20, the TAA performed the calculation (rather than the Meter Operator) using a combination of supporting evidence provided by the Meter Operator and information physically available on site.

This year no onsite evidence could be sought or utilised, as it was a desktop exercise.

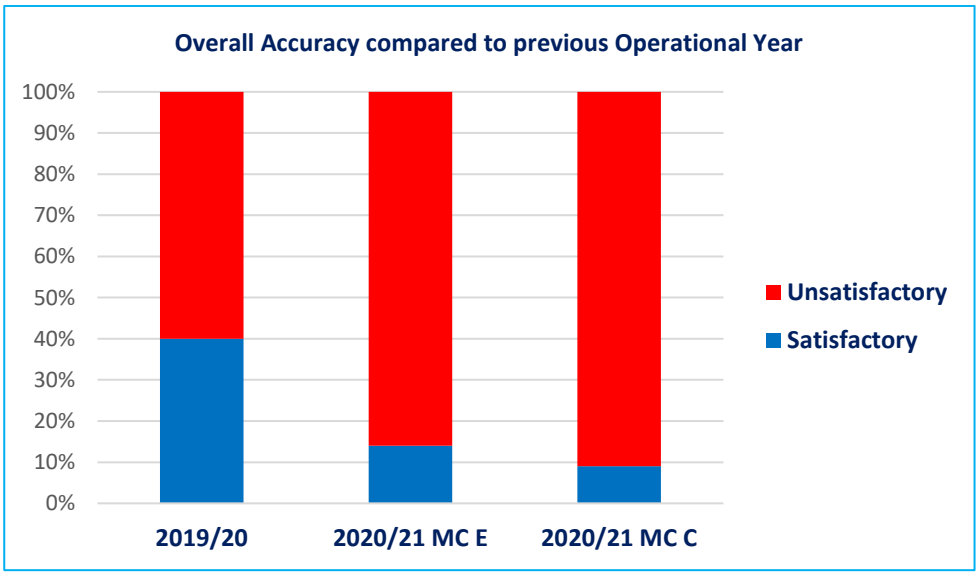

Figure 6 Comparison of Overall Accuracy check for operational years 13 (2019/20) and 14 (2020/21)

1.3.4 Conclusion

The fact that such a large percentage of Desktop Audits failed the Overall Accuracy check does not mean that a similar percentage of Metering Systems will be providing inaccurate data into Settlements. However, the inability to confirm that levels of accuracy are being maintained represents another control failure that looks to ensure the accuracy of data entering Settlement. As such, this represents a risk to Settlement, particularly when taking into account high rates of similar control failures, such as Commissioning.

A significant proportion of Desktop Audits resulted in non-compliances for failure to provide supporting evidence for the Overall Accuracy calculation. It is worth noting, the TAA has observed that LDSOs appear to retain certificates for a large number of installations. As such, there is potential that a proportion of the issues are derived from either the Meter Operator not requesting the measurement transformer certificates, or the LDSO is failing to progress the request.

There have been several incentives to overcome the low availability of calibration certificates, including:

- CT Measurement Class level utilised for Low Voltage Metering System,
- Acceptance of records for similar age, make and model, and;
- National Measurement Transformer Error Statement.

We understand that each of these incentives has a degree of improvement and therefore the industry should be encouraged to continue to use them. Elexon continues to work alongside the TAMEG to further enhance the process to confirm Overall Accuracy of Metering Systems in the absence of calibration certificates, which we fully support.

1.4 Commissioning

1.4.1 Requirement

Correct Commissioning of Metering Equipment is an essential control which ensures the data recorded for Settlement is true and accurate.

End to end Commissioning establishes the following:

- Measurement transformer ratios and polarities,
- Confirms the relationship between voltage and current are correct, and;
- Confirms the Actual Metering Point and Defined Metering Point relationship.

The Desktop Audit requires the MOAs and LDSOs to provide full and satisfactory Commissioning records, which demonstrate that the Metering Equipment setup is accurate for Settlement purposes.

Note: Following the introduction of BSC Modification P283, if the Metering System was registered prior to 6 November 2014 the MOA has the obligation to provide all Commissioning certificates. For any Metering System registered after this date, the responsibility for the Commissioning is shared between the MOA and LDSO. Operational year 2020/21 focussed on Metering Systems registered on or after 6 November 2014.

1.4.2 Findings

The TAA reports that during this operational year we have found issues with Commissioning for both the MOA and LDSO. Figure provides a summary of the findings for each of the LDSO and MOA for the operational year.

	LDSO				**MOA**		
Commissioning outcome	MC E	MC C	Combined		MC E	MC C	Combined
Compliant	38%	52%	41%		19%	8%	17%
Incomplete	11%	7%	10%		11%	9%	10%
Incorrect	4%	8%	5%		4%	8%	5%
Not provided	47%	34%	44%		66%	75%	68%

Figure 7 Summary of Commissioning information outcome for both LDSO and MOA

- Incomplete: The information contained within the Commissioning certificate is insufficient
- Incorrect: The Commissioning certificate provided does not match the Metering System being audited
- Not provided: No Commissioning certificate was presented for the audit

The TAA reports that for the LDSO, combined across both Measurement Class E and C, failure rate of 59%. Similarly, for MOA the failure rate is 83%.

1.4.3 Comparison with previous operational years

The audit process between onsite Inspection Visits and Desktop Audits is very similar, so allows for strong comparison to be drawn to previous operational years. Figure provides a comparison between the Commissioning results (both LDSO and MOA) across operational years 2018/19, 2019/20 and 2020/21. All data within the graph relates to Metering Systems registered post 6 November 2014.

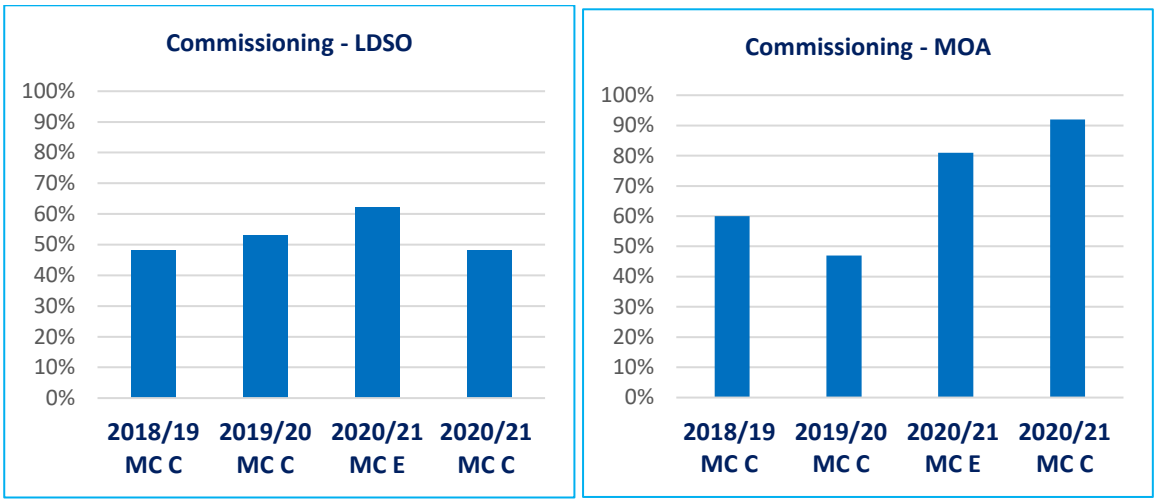

Figure 8 Comparison of Commissioning Part 1 (LDSO) and Part 2 (Meter Operator) over the past three operational years

Across both Measurement Classes, the results show a steady state for LDSOs. However, there is a concerning step increase amongst MOAs with a failure rate of 83%.

1.4.4 Conclusion

The very high percentage of non-compliance reported for Commissioning is concerning, especially given the anticipated improvements following the introduction of P283. Furthermore, the data suggests there is a significantly increasing risk to Settlement.

This is because Commissioning represents a major control which identifies where a Metering System may not be set up correctly.

1.5 Settlement Data

1.5.1 Requirement

A check that the TAA performs is to compare three consecutive days of Half Hourly Settlement data provided to the TAA by the registered Meter Operator and Data Collector. The data should be identical for all 144 Half Hour periods.

Parties are required to provide the data to the TAA in a prescribed format.

1.5.2 Findings

The TAA reports that out of 1469 Desktop Audits they were only able to perform the Settlement data check for 4% (57) audits.

Of the 54 checks, 28 passed the check and 26 failed the check.

Common examples of where the check failed include:

- Date mismatches
- Volumes are the same but the unit of measurement differs
- Formatting issues
- No traceability joining the data to the Metering System

On 68% (1001) occasions no data was provided by either (or both) the DC or MOA.

On 28% (411) of occasions there was data provided by both the DC and MOA, however one (or both) of the data submissions was of poor data quality or in an incorrect format, therefore the check could not be performed.

Check outcome	Count	Percentage
Data not provided	1001	68%
Performed (fail)	26	2%
Performed (pass)	28	2%
Poor quality data	414	28%
Total	**1469**	**100%**

Figure 9 Settlement data check outcome

The TAA reports that 42% (615) of Desktop Audits received data from DC, however no data was provided by the MOA and so the check was unable to be performed.

	Meter Operator	
Data Collector	Not Sent	Has been sent
Not Sent	24%	2%
Has been sent	42%	32%

Figure 10 Percentage of Desktop Audits and whether data was provided to the TAA or not

1.5.3 Conclusion

The TAA is concerned to report that only 4% of Desktop Audits were able to have the check performed. This is principally due to lack of provision and poor quality submission.

Due to the very low volume of checks that were able to be performed, the TAA is not able to provide an opinion as to whether there is a risk to Settlement.

1.6 Known Faults and Resolution

1.6.1 Requirement

As part of the Desktop Audit pre-audit questions, Suppliers must advise whether there is a known fault with Metering System. The options available to the Supplier are:

- Yes - There is a known fault
- No - There is not a known fault
- Unknown - The Supplier does not know whether there is a known fault or not

If the Supplier answers Yes, then the DC and MOA are required to submit to the TAA the D0001[6] or D0002[7] data flows respectively, that they have issued to each other. The D0001 is sent by the DC to the MOA to report the fault. The D0002 is sent by the MOA to the DC, in response to the D0001, to keep them updated of the resolution progress.

1.6.2 Findings

In response to the question, Suppliers advised on the following percentages of audits that there were known faults with the Metering System.

- Measurement Class E - 4% (43)
- Measurement Class C - 5% (18)

For each of these Metering Systems, the TAA requested the DC and MOA to provide copies of the data flows that they have issued to each other. It is expected that both the DC and MOA have issued their respective data flows.

Measurement Class E

	Meter Operator	
Data Collector	Not Sent	Has been sent
Not Sent	17	16
Has been sent	4	6

It can be seen from the figures above that out of the 43 reported by the Supplier, only 6 Metering Systems have had a communication issued by both the DC and MOA to each other.

Measurement Class C

	Meter Operator	
Data Collector	Not Sent	Has been sent
Not Sent	8	8
Has been sent		2

[6] https://dtc.mrasco.com/DataFlow.aspx?FlowCounter=0001&FlowVers=1&searchMockFlows=False
[7] https://dtc.mrasco.com/DataFlow.aspx?FlowCounter=0002&FlowVers=1&searchMockFlows=False

It can be seen from the figures above that out of the 18 reported by the Supplier, only 2 Metering Systems have had communication issued by both the DC and MOA to each other.

Combined Measurement Class E and C

	Meter Operator	
Data Collector	Not Sent	Has been sent
Not Sent	41%	39%
Has been sent	7%	13%

Looking at all 61 cases across both Measurement Classes, based on the evidence submitted, both the DC and MOA exchanged messages with each other in only 13% of audits.

1.6.3 Conclusion

It is of concern to the TAA that such low percentages (13%) of Metering Systems exist where good communication has been reported between the respective DC and MOA.

If the overall low percentage is representative across all Metering Systems, this would support the view that communication between Parties is poor.

However, it is pleasing to report that the numbers of Metering Systems where a known fault is present is relatively low. This means that the sample set available to determine the health of communications between Parties is also relatively low. As such it is not possible to determine whether the figures reported are representative across all Metering Systems and Parties.

A sample set focussing on Metering Systems where a known fault is known to be present would be required in order to determine if the reported low compliance figure is representative.

1.7 Desktop Audits recommended for an onsite inspection

Where the TAA has observed mismatches, which in its experience have a high likelihood of resulting in a Settlement impacting error, an onsite Inspection Visit may be recommended. Examples include where there are mismatches on key data items, such as with Commissioning records, or mismatches within a D0268[8] key fields. Once recommended, it is at Elexon's discretion to approve the Inspection Visit.

This year a total of 27 Metering Systems have been recommended for onsite Inspection Visits. These have not yet been progressed or carried out due to COVID-19 related TAM suspensions.

Measurement Class	Count	Breakdown
E	19	16 x CT Ratio mismatch 2 x Site Activity Status 1 x Commissioning related
C	8	8 x Site Activity Status

The TAA believes these issues can only satisfactorily be resolved by accessing the Metering Equipment via an onsite Inspection Visit.

2 CVA Main Sample Findings

2.1 Category 1 failure to report

The TAA identified a Category 1 non-compliance for an anomaly in an Aggregation Rule, identified during a CVA Main Sample Inspection Visit. Aggregation rules typically result in highly material Settlement errors.

Fortunately, the reserve supply had not been utilised resulting in no material error and no impact to Settlement.

The potential severity of this type of non-compliance is a serious concern. Potentially there could be many more hidden Aggregation Rule errors that will only come to light via more Targeted Inspections.

2.2 High rate of Commissioning failures

The TAA performed 21 Inspection Visits, comprising 61 circuits.

57% of the 61 circuits were found to have Commissioning related failures. These are due to no Commissioning records being provided, or records that were incomplete or incorrect.

Considering the high volume of energy associated with CVA sites and the potential impact an incorrectly Commissioned CVA site can have, this figure is alarming and of concern.

Taking into consideration the findings of the CVA Targeted sample along with this CVA Main Sample, the reported failure rate further supports the view and concerns noted in section **Error! Reference source not found.**.

[8] https://dtc.mrasco.com/DataFlow.aspx?FlowCounter=0268&FlowVers=2&searchMockFlows=False

2.3 CVA observations

Engineer with incorrect authorisation unable to reseal Metering Equipment

An observation the TAA has made is that on one occasion a Representative from National Grid who attended the Inspection Visit did not hold the correct authorisations to reseal the Metering Equipment, post Audit Inspection. The seal was broken as part of the Inspection Visit, however the National Grid representative had to leave a note in the onsite sealing register that the equipment remains to be resealed.

This process creates an avoidable Settlement Risk, as unless the equipment is immediately resealed there is no way of knowing upon return if the unsealed equipment has been tampered with, negating the reason for having seals in place.

The TAA auditor raised a non-compliance to record this fact and at the time of preparing this report remains open.

The TAA will monitor for similar issues in the forthcoming year and bring to Elexon's attention if the issue becomes more prevalent.

Prior notification of known issues

The TAA has encountered issues where there were known errors onsite which have not been communicated at the time of the visit. Improving communication of known issues would reduce MOA resource overheads and also ensure more efficient use of time spent onsite for the MOA and the TAA.

Provision of documentation

CVA sites in particular result in large amounts of documentation for the TAA to review. Relevant certificates etc. are not always filtered out which results in an inefficient use of time. For example, reviewing documents relating to redundant equipment.

3 Elexon Category 1 Non-Compliance Rectification

Obligations to rectify Category 1 non-compliances were suspended in April 2020, in line with TAM suspensions due to the COVID-19 pandemic restrictions. The PAB agreed to a lifting of the suspension at its July 2020 meeting. This enabled Elexon and the TAA to re-open communications with all Parties where a Category 1 non-compliance was still outstanding.

However, similar to earlier in the year, during the winter lockdown, follow up activity on Category 1 non-compliances was suspended in order to assist Parties with BAU activities.

- At the beginning of the operational year there were 34 Category 1 non-compliances outstanding of which four were closed in April and May.
- A further eight Category 1 non-compliances were closed from the period of August 2020 through to March 2021.
- At the time of writing, 22 Category 1 non-compliances are still outstanding and will be progressed during the course of the next audit year.

Throughout the year, both Elexon and the TAA have noted extremely positive engagement with Parties. Furthermore, we are very happy with the number of Category 1 non-compliances closed and the efforts made by all involved.