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# Technical Assurance of Metering Systems

## Annual Report: BSC Year 2017/18

### Non-Confidential

# Document Control

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## References

No	Title
1	TAA Agreement

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# 1 Glossary of terms and acronyms

Term/Acronym	Definition
100kW Metering System	As defined in Section X, Annex X-1. Section L2.2 requires the Metering Equipment for a 100kW Metering System to be Half Hourly Metering Equipment.
BMU	Balancing Mechanism Unit
BSC	Balancing and Settlement Code
BSCP	Balancing and Settlement Code Procedure
Category 1 non-compliance	A non-compliance that is deemed to be currently affecting the quality of data for Settlement purposes
Category 2 non-compliance	A non-compliance that is deemed to have the potential to affect the quality of data for Settlement purposes
CDCA	Central Data Collection Agent
CDCC	Consumption Data Comparison Check
Commissioning	A process to ensure that the energy flowing across a Defined Metering Point is accurately recorded by the associated Metering System
CoP	Code of Practice
CT	Current Transformer
CVA	Central Volume Allocation
DC	Data Collector
DMP	Defined Metering Point
ECOES	Electricity Central Online Enquiry Service
EFR	Error and Failure Resolution
HV	High Voltage
LDSO	Licensed Distribution System Operator
LV	Low Voltage
MAR	Meter Advance Reconciliation
MC	Measurement Class
MC 'C'	Measurement Class C – Half Hourly metered at 100kW premises
MC 'E'	Measurement Class E – Half Hourly metered at below 100kW premises with current transformer
ME	Metering Equipment
MOA	Meter Operator Agent
MRM	Meter Register Multiplier
MSID	Metering System Identifier
MTD	Meter Technical Details
NC non-compliance	Consumption data held by Data Collector outside tolerance when compared with metered energy data
NMTES	National Measurement Transformer Error Statement
Observation	A non-compliance that is deemed neither to affect nor have the potential to affect the quality of data for Settlement purposes
PAB	Performance Assurance Board
SAP	Senior Authorised Person
SVA	Supplier Volume Allocation
TAA	Technical Assurance Agent
TAAMT	TAA Management Tool
TAM	Technical Assurance of Metering
TAMEG	Technical Assurance of Metering Expert Group
TAPAP	Technical Assurance of Performance Assurance Parties
UTC	Co-ordinated Universal Time
VT	Voltage Transformer

## 2 Introduction

### 2.1 The purpose of the Technical Assurance Agent (TAA) Annual Report

The Technical Assurance of Metering (TAM) technique monitors compliance of metered 100kW Metering Systems registered in Settlement, as documented in the Balancing and Settlement Code (BSC) and its Code Subsidiary Documents (CSDs).

The TAA Annual Report provides our opinion as the TAA on the *health* of the metered 100KW Metering System population. The report is based on our findings from the audit undertaken during the 2017/18 audit year (and trends over the previous three audit years).

We have interpreted the data detailed in Appendix 1 – 2017/18 Audit Statistics.

### 2.2 The Scope of the 2017/18 audit

During the 2017/18 audit year we audited a total of 1,704 metered 100kW Metering Systems:

- Supplier Volume Allocation (SVA) HH Metering Systems – 1,595 broken down as:
  - Main Sample<sup>1</sup> – 1,480
  - Re-inspection - 3
  - Specific Sample<sup>2</sup> – 100
  - Targeted<sup>3</sup> – 12
- Central Volume Allocation (CVA) Metering Systems – 109<sup>4</sup> broken down as:
  - Main Sample – 105
  - Targeted – 4

Our selection criteria is sites that are equipped with Meters and are identified as energised at the time of Metering System selection.

### 2.3 No Access

A ‘No Access’ Inspection Visit is one which is attended by the TAA but where, due to individual circumstances, the Inspection Visit could not take place.

### 2.4 Specific Sample

It is intended that a Specific Sample will focus on SVA Metering Systems registered against Measurement Class C where there is perceived risk to Settlement. The Performance Assurance Board (PAB) will determine the size of the Specific Sample. It is anticipated the Specific Sample will account for no more than 20% of the total number of visits agreed by the PAB to be performed each year.

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<sup>1</sup> A representative sample of Metering Systems.

<sup>2</sup> A specific sample will focus on Metering Systems where there is perceived risk to Settlement.

<sup>3</sup> Where non-compliance is suspected.

<sup>4</sup> This year’s sample was a minimum of 5% of the CVA Metering System population.

For the 2017/18 audit year, the PAB requested a specific sample on Metering Systems post P283<sup>5</sup>. This was to ascertain if there had been any improvement to Commissioning processes since the 2015/16 Specific Sample.

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<sup>5</sup> 'Reinforcing the Commissioning of Metering Equipment Processes'. P283 was approved by Ofgem on 31 July 2013 and was implemented on 6 November 2014 as part of the November 2014 BSC Systems Release.



### 3 Executive Summary

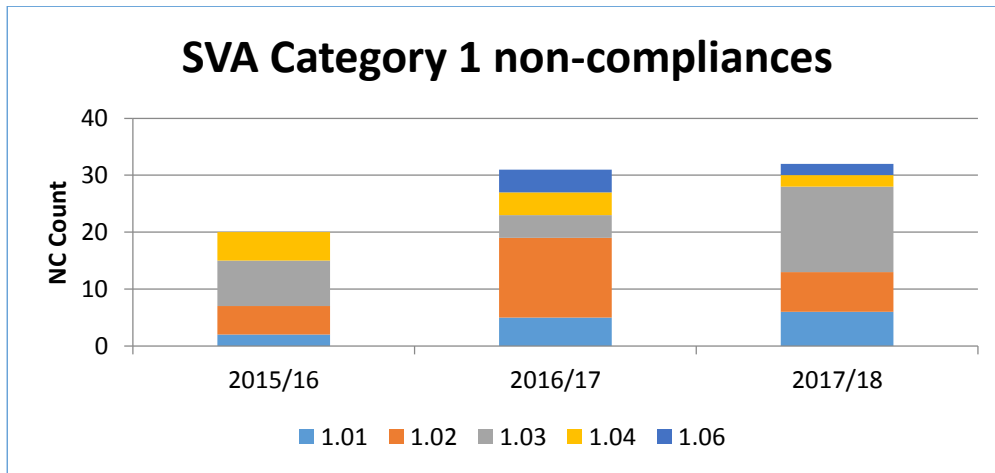
#### 3.1 Category 1 non-compliances<sup>6</sup>

##### 3.1.1 SVA Category 1 non-compliances

The 2017/18 audit results indicate a general stabilisation in the number of SVA Category 1 non-compliances recorded.

The number of non-compliances recorded for major time drifts<sup>7</sup> has increased.

Figure 2 – SVA Category 1 non-compliances identified in the previous three audit years

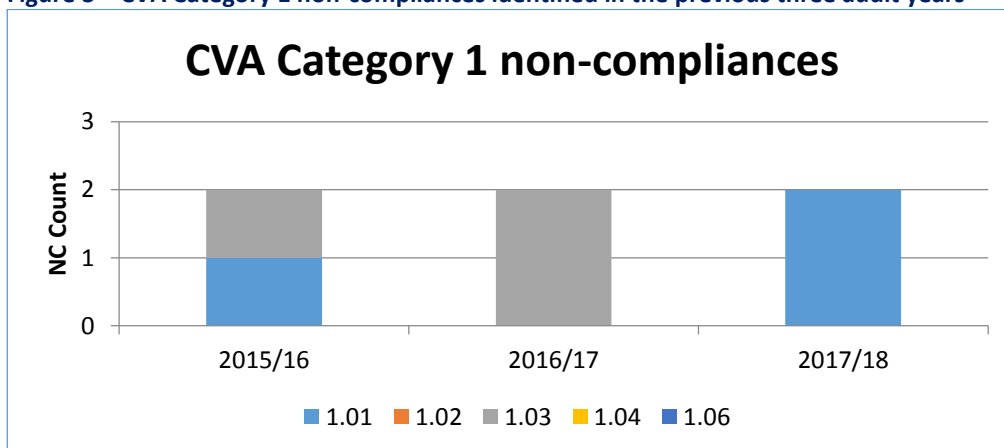


##### 3.1.2 CVA Category 1 non-compliances

As with the SVA market, we have seen no increase in the numbers of Category 1 non-compliances recorded for the CVA market in this audit period.

We detected two Category 1 non-compliances which were attributed to the Central Data Collection Agent (CDCA) in recognition of its failure to submit complete current Aggregation Rules for the audit.

Figure 3 – CVA Category 1 non-compliances identified in the previous three audit years



<sup>6</sup> A non-compliance against the BSC or CSD, which is deemed to be currently affecting the quality of data for Settlement purposes.

<sup>7</sup> Detailed descriptions of all TAA non-compliance types can be found in Appendix 2 of this document.

### 3.1.3 CVA Category CDCC NC non-compliances

We identified one CDCC non-compliance in the CVA market which was attributed to a communications fault with the Metering System. We can confirm that this non-compliance has been resolved.

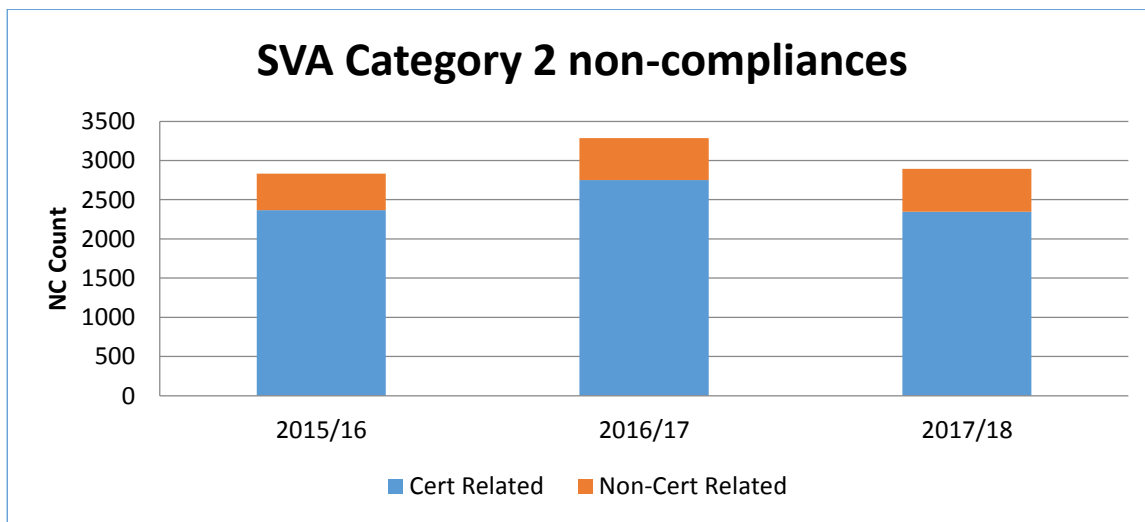
### Category 2 non-compliances

#### 3.1.4 SVA Category 2 non-compliances

We are pleased to be able to report an improvement in the Category 2 non-compliance count in comparison to last year, the reduction is centered on the individual reduction in Commissioning and certificate related non-compliances. We have recorded 549 non-certificate related non-compliances this year and recorded 534 in the last audit period.

Figure 4 below shows the number of Category 2 non-compliances identified over the past three audit years split by certificate/commissioning related and other non-compliances.

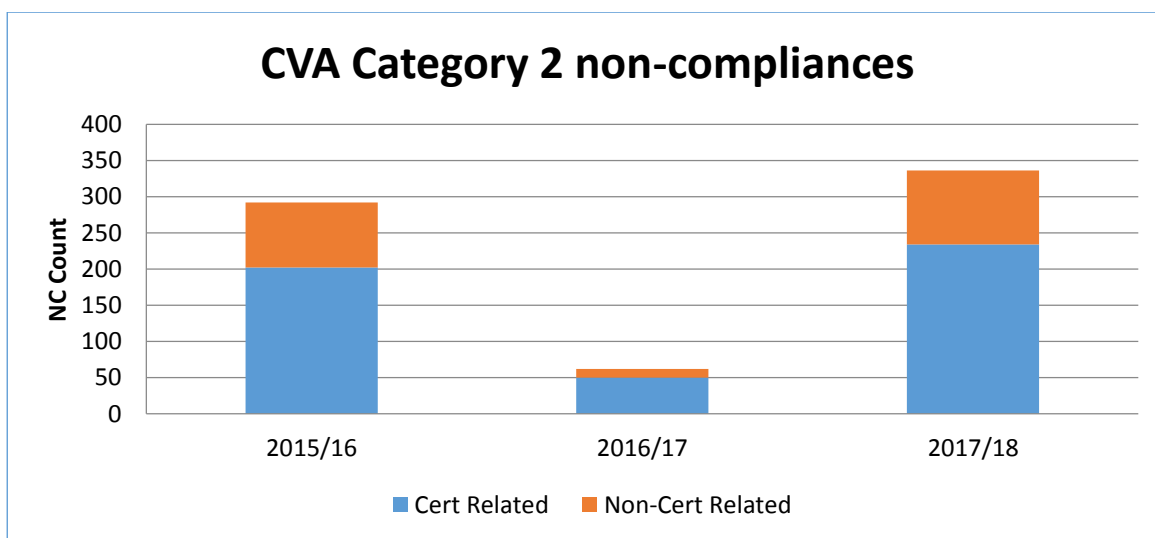
Figure 4 - SVA Category 2 non-compliances identified



#### 3.1.5 CVA Category 2 non-compliances

The number of CVA Category 2 non-compliances in comparison to the last two years has increased. If we discount the figures for 2016/17 due to a low Inspection Visit rate, we see the uplift being attributed to Commissioning records and certificates.

Figure 5 – CVA Category 2 non-compliances identified



## 4 Statement on the health of the Metering System population

This section gives our opinion on the health of the SVA and CVA markets based upon our audit findings in 2017/18. We have formulated our opinion by looking at trends in non-compliances reported over the previous years and through discussions with key Market Participants whilst undertaking our TAA activities.

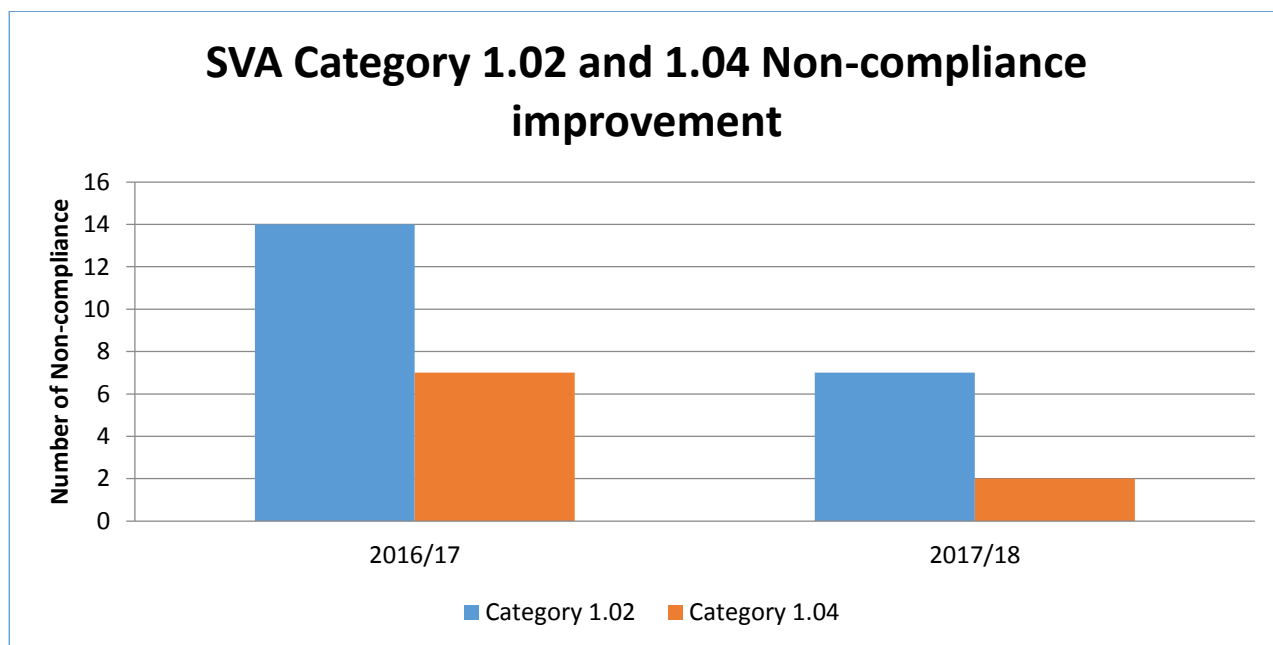
### 4.1 The SVA market

#### 4.1.1 Good news

There has been a stabilisation in the number of Category 1 non-compliances raised in 2017/18. The number of non-compliances raised for major time drift has increased. The ELEXON Trading Disputes team has deemed that these non-compliances had no material impact on Settlement.

We have recorded 50% fewer Metering Equipment related faults (Category 1.02 non-compliance) in comparison to last year, and similarly a decline in errors introduced to Settlement due to incorrect Current transformer (CT) ratio selection (Category 1.04 non-compliance), all of which is encouraging.

Figure 7 - Non-compliance improvement



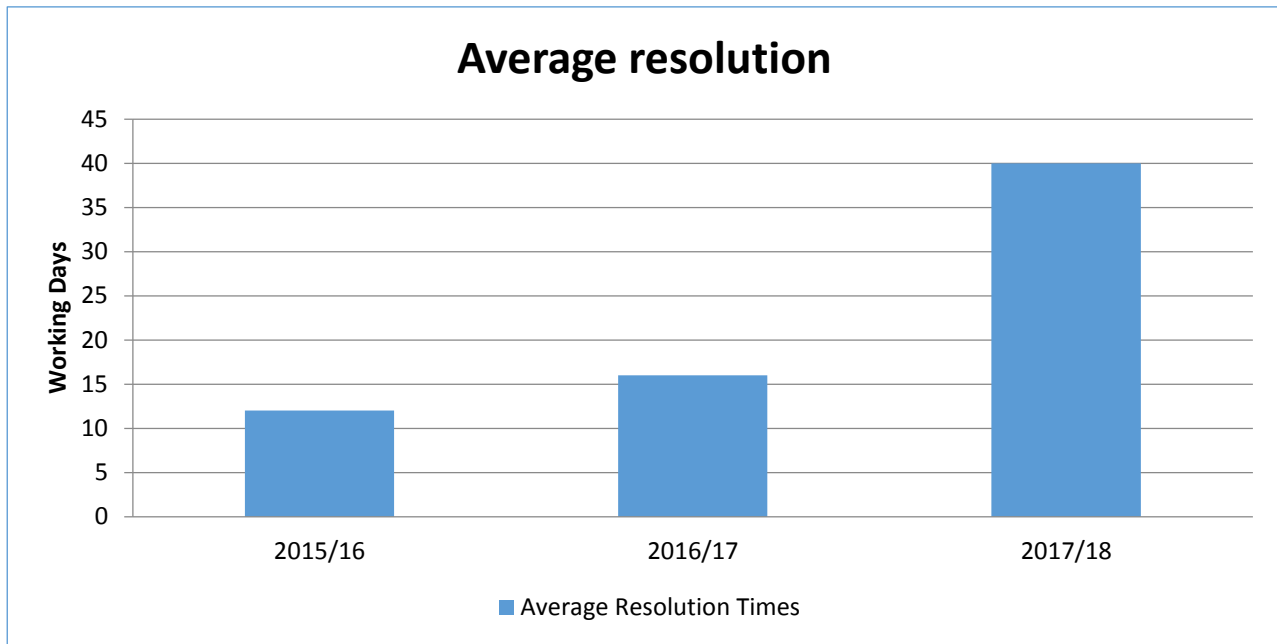
Last year the ELEXON Trading Disputes team estimated Settlement was in error by some 2,055MWh. This year, the ELEXON Trading Disputes team has identified the material impact on Settlement as 321.85MWh for those Category 1 non-compliances they have reviewed to date.

#### 4.1.2 Bad news

Around 1.2% of SVA Sample Inspection Visits, where the Metering Equipment was accessed, had associated Category 1 non-compliances recorded against those Metering Systems. Extrapolating this across the current SVA Metering System population, we estimate that approximately 1800 SVA Metering Systems could be materially impacting Settlement (when time drift non-compliance is removed).

Figure 8 shows that although the non-compliance count was less, it took more than twice as long to resolve the non-compliances found. We have a concern as to the time taken to rectify Category 1 non-compliances and understand ELEXON is looking at taking measures to address this via TAA (automated reporting of the failure to implement a rectification plan in accordance with BSCP27).

Figure 8 – Resolution of Category 1 non-compliances



At the time of preparing our report, a number of Category 1 non-compliances identified this year have not been rectified. Details of rectification timescales can be seen in Table 8 of Appendix 1.

## 4.2 The CVA market

### 4.2.1 Good news

The two Category 1 non-compliances identified in the 2017/18 audit relate to CDCA error in information submission to the TAA. Metering Equipment Aggregation Rules are requested for each Inspection Visit in line with the TAA working instructions. On two occasions the information submitted was found not to correctly reflect the Metering System activity. On further investigation we concluded that Settlement was not impacted as archive material had been submitted in error for review.

Though we have correctly reported the Category 1 non-compliances detected for 2017/18 we have also explained that further investigation confirms Settlement was not put at risk. Setting aside the CDCA error our Main Sample audit activities indicate the health of the CVA market remains good.

### 4.2.2 Bad News

Of the 96 Metering Systems accessed, over 40 had no Commissioning records available for the TAA to review. It is concerning that around 60% of the non-compliances recorded for non-provision of a Commissioning record are for MSIDs with sequence numbers of 8000 and above (ie. sites registered and located in Scotland).

## 5 Key Issues

We would like to draw attention to the following key issues as documented in the 'Statement on the health of the Metering System population' section of this report.

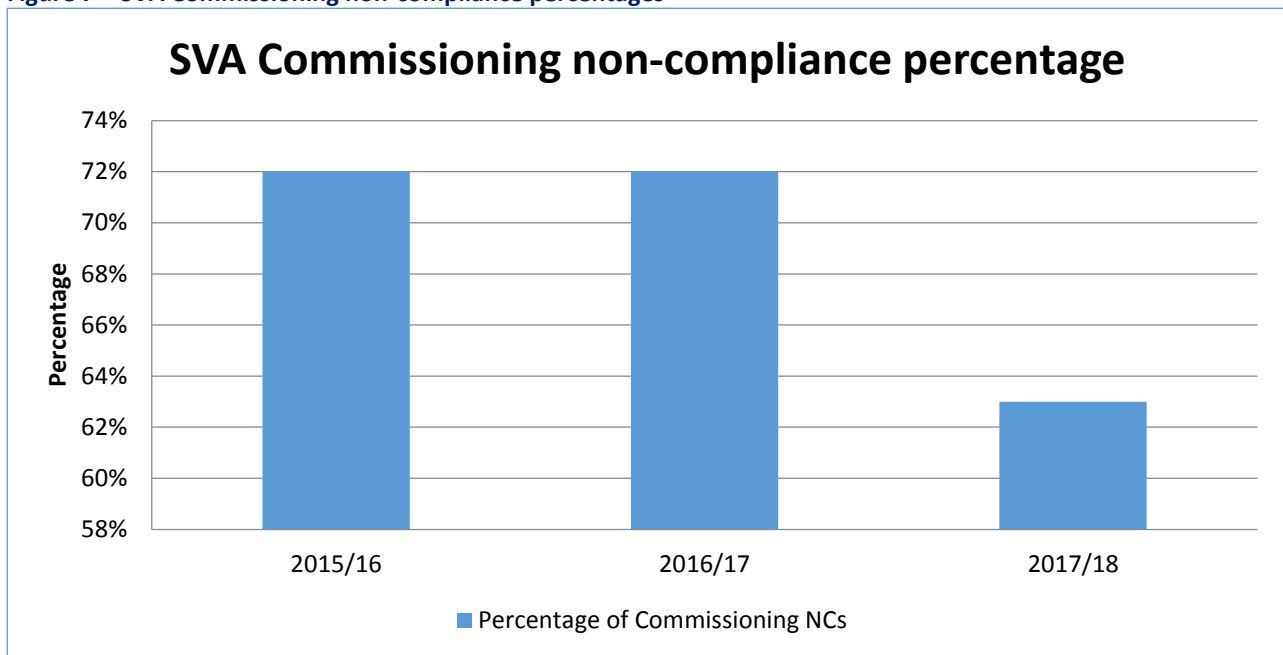
### 5.1 Commissioning

#### 5.1.1 The issue

Overall the 2017/18 reporting figures indicate some improvement in relation to the Commissioning of SVA Metering Systems. Last year, as with previous audit years, over 70% of Metering Systems had missing, incorrect or incomplete Commissioning records. In 2017/18 the number of Commissioning non-compliances has reduced to 63%.

As per previous Annual Reports, in 2017/18 the majority of Metering Systems where Category 1 non-compliances have been raised also recorded Commissioning related non-compliances.

Figure 7 – SVA Commissioning non-compliance percentages



#### 5.1.2 Our recommendations

ELEXON has instructed us to make changes to the TAA process which, as of the 1<sup>st</sup> April 2018, now means data will be available for post and pre P283 SVA Metering Systems whilst also monitoring LDSO engagement with the Commissioning process. We will continue to monitor the results of the forthcoming audit year to confirm whether P283 is delivering/maintaining the improvements witnessed and required by the industry.

From our observations we are concerned that Suppliers do not know who owns (and therefore is responsible for) commissioning CTs and Voltage Transformers (VTs). We recommend that ELEXON issues guidance or training to assist Suppliers in understanding the importance of Commissioning in accordance with CoP4<sup>8</sup>.

P283 does not address historic Commissioning non-compliances. Last year we tabled the recommendation for ELEXON to consider a cleansing of historical Commissioning non-compliances. If ELEXON should decide

<sup>8</sup> Code of Practice 4 'The Calibration, testing and Commissioning Requirements of Metering Equipment for Settlement Purposes'

to cleanse historic Commissioning non-compliances then we should consider undertaking a Specific Sample for those Metering Systems where a non-compliance has been closed, to understand if commissioning has subsequently taken place.

## 5.2 Measurement transformer calibration certificates

### 5.2.1 The issue

In 2017/18 we continue to report the lack of measurement transformer calibration certificates as a key issue.

Each CoP requires calibration certificates be made available to the TAA for review at a TAA Inspection Visit. The number of non-compliances recorded would indicate that certificates are no longer readily available to be presented to the TAA auditor, possibly due to the age of many 100kW Metering System installations.

In 2017/18 we recorded a further 538 non-compliances which will be added to the escalating number of outstanding measurement transformer certificate non-compliances, which now runs into the thousands.

### 5.2.2 The future

The Technical Assurance of Metering Expert Group (TAMEG) continues to work on this issue. A Working Group which consists mostly of TAMEG members is developing a process to confirm overall accuracy is maintained within CoP error limits, where certificates are not available.

### 5.2.3 Our recommendations

We recommend a concerted effort by all industry participants to establish what is now deemed as satisfactory evidence in maintaining Metering System overall accuracy in order to reduce the number of new non-compliances being raised.

We also recommend that the historic non-compliances are cleared in a way which is acceptable to ELEXON and the PAB.

## 6 SVA Specific Sample

The PAB instructed us to repeat the scope of the Specific Sample audit of 2015/16 for the 2017/18 audit year (Metering Systems registered post the introduction of P283). Of those Metering Systems accessed in 2015/16, 74% were found to have Commissioning related non-compliances. To date 54% of those non-compliances remain unresolved.

The results of the 2017/18 Specific Sample has provided an indication of whether the aims of P283 are having a beneficial impact on Commissioning. The sample scope was modified to ascertain how knowledgeable the Supplier is in regards to Metering Equipment asset ownership, and if documentation confirming CT/VT ratio was made available to the TAA for inspection.

Of the 86<sup>9</sup> Metering Systems accessed, we found two installations that were Category 1 non-compliant. The non-compliances comprised major time drift (not rectified) and shorted CTs (resolved at time of the Inspection Visit).

Of those Metering Systems accessed we reported;

- 34 Category 2.15<sup>10</sup> non-compliances
- Comment was made against the LDSO on 50 instances where Commissioning was not provided

Of the initial 102 Inspection Visits planned (2 Cancelled by Supplier), 48 Suppliers did not know who owned the Metering Equipment asset and 48 failed to respond. Four Visit Inspections identified Metering Equipment as belonging to the LDSO. A separate report providing greater detail has been shared with ELEXON for analysis.

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<sup>9</sup> We visited 100 Metering Systems but could only gain access to 86 Metering Systems.

<sup>10</sup> Category 2.15 non-compliances are for commissioning related issues and can be raised for records not being provided, incomplete or incorrect information.

## 7 Audit Planning Performance

### 7.1 Planned Inspection Visits vs cancellations

In total we planned 1,641 SVA Inspection Visits during this 2017/18, of which 46 were cancelled at the request of Market Participants due to a range of issues. This equates to 3% of those visits planned in the SVA market.

The cancellation rate for CVA Inspection visits rose from zero last year to 5% this year<sup>11</sup>.

### 7.2 No Access performance

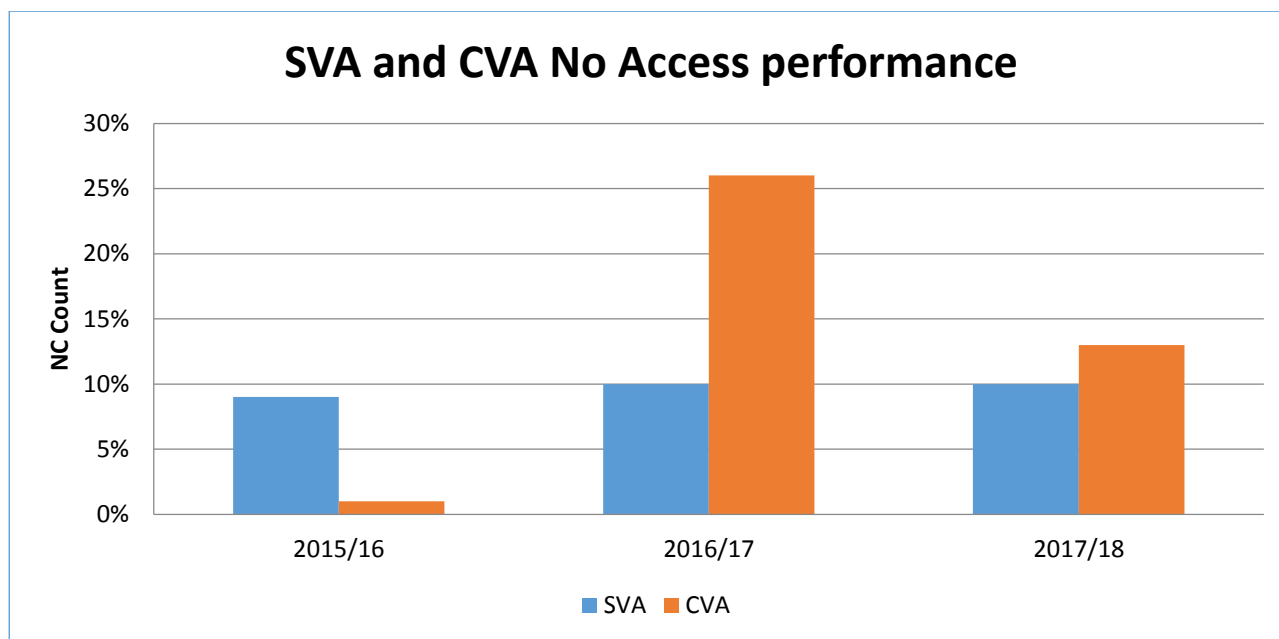
The No Access rate for SVA Inspection Visits was 10% this year which is in line to that reported for the previous two years.

A detailed breakdown of the common reasons for No Access is in Table 2 of Appendix 1 of this report.

The No Access rate for CVA Inspection Visits was for 2017/18 was 13%. This is a 50% improvement on the No Access rate achieved last year; however this is significantly higher than the 3% achieved in 2015/16.

The 13% No Access rate this year is not weighted to one particular party as we reported in the previous year. No Access this year was attributed to a mixture of MOA non-attendance, availability of personnel to provide access, weather issues and illness.

Figure 6 – No Access performance for previous three audit periods



### 7.3 LDSO attendance at Inspection Visits

Audit procedure requires that we try and establish if the overall accuracy of the Metering System is being maintained. In order to complete this function we are required to be in receipt of Metering Equipment calibration certificates which we need to verify against the Metering Equipment rating plates. For High Voltage (HV) installations where we cannot readily access CT/VT rating plates, the LDSO is required to attend.

<sup>11</sup> 50% of CVA cancellation made at the request of ELEXON, Target inspections.



BSCP27 obligates the Registrant to ensure the LDSO attends Inspection Visits for HV Metering Systems. Our high level analysis continues to suggest that this BSCP obligation is still not being met by the Registrant in many cases. A breakdown of performance for each Supplier Company Group can be seen in Table 3 of Appendix 1.

## 8 Appendix 1 – 2017/18 Audit Findings

### 8.1 Introduction

This appendix details the results of our TAA audit findings for the 2017/18 TAA audit year, which are referred to throughout this report.

#### 8.1.1 Important notes and assumptions

All percentage totals identified in this document may not equal exactly 100% if summed, due to rounding. Some non-compliances are categorised as miscellaneous categories, due to the fact that the issues are too disparate to group and report on effectively.

### 8.2 SVA audits (Main/Specific Sample/Target)

#### 8.2.1 Appointment statistics summary

**Table 1: Total number of SVA visits planned and outcome by visit type**

SVA visits by type	Visits planned	Of those planned		Of those visited	
		Visits Cancelled	Visited	Access gained	No Access
Main Sample	1,523	43	1,480	1,331	149
Re-inspection	4	1	3	2	1
Specific Sample	102	2	100	86	14
Targeted	12	0	12	12	0
<b>Totals</b>	<b>1,641</b>	<b>46</b>	<b>1,595</b>	<b>1,431</b>	<b>164</b>
<b>Percentages</b>		<b>3%</b>	<b>97%</b>	<b>90%</b>	<b>10%</b>

**Table 2: Top five SVA Main and Specific Sample reasons for No Access<sup>12</sup>**

Appointment Status	Count
No Access - Site visited customer unable to provide access.	<b>43</b>
No Access - Site visited customer unavailable to provide access	<b>33</b>
No Access - Customer unable to find keys.	<b>19</b>
No Access - Premises closed/unoccupied and no-one available to provide access.	<b>17</b>
No Access – Severe Weather Conditions	<b>12</b>

<sup>12</sup> A No Access visit is one which was attended by the TAA Auditor; however due to individual circumstances the audit could not take place.

**Table 3: No access to CT/VT rating plates by Supplier Company Group**

At Visit Supplier Company Group	Inspections Affected	Total Inspections	% of Inspections Affected
SCG	2	2	100%
SCG	8	20	40%
SCG	3	9	33%
SCG	30	118	25%
SCG	3	12	25%
SCG	37	180	21%
SCG	1	5	20%
SCG	55	294	19%
SCG	14	83	17%
SCG	9	54	17%
SCG	9	58	16%
SCG	3	20	15%
SCG	15	106	14%
SCG	30	219	14%
SCG	22	165	13%
SCG	1	9	11%
SCG	5	54	9%

## 8.2.2 CDCC Performance

**Table 4: CDCC summary for those SVA visits where access has been provided**

Visit Type	Not-performed	Compliant	Non-compliant	Metering Systems accessed
Main Sample	8	1,317	6	1,331
Re-inspection	0	2	0	2
Specific Sample	1	85	0	86
Targeted	1	11	0	12
<b>Totals</b>	<b>10</b>	<b>1,415</b>	<b>6</b>	<b>1,431</b>

### 8.2.3 SVA non-compliances identified during 2017-2018 audit year

Table 5: Number and % of SVA visits where non-compliances are identified by Category

Visit Type	%	Number of Visits	No NCs	Has Cat1	Has Cat2	Has NC	Has Observations
Main Sample	75.58%	1006			✓		
Main Sample	18.63%	248	✓				
Main Sample	1.58%	21		✓	✓		
Main Sample	1.50%	20			✓		
Main Sample	0.75%	10			✓	✓	
Main Sample	0.53%	7			✓		✓
Main Sample	0.53%	7				✓	
Main Sample	0.38%	5		✓			
Main Sample	0.23%	3		✓	✓	✓	
Main Sample	0.15%	2		✓	✓	✓	
Main Sample	0.08%	1		✓	✓	✓	
Main Sample	0.08%	1		✓	✓	✓	
Re-inspection	50.00%	1	✓				
Re-inspection	50.00%	1			✓		
Specific Sample	87.36%	76			✓		
Specific Sample	3.45%	3					
Specific Sample	3.45%	3		✓	✓		
Specific Sample	2.30%	2			✓		
Specific Sample	2.30%	2			✓	✓	✓
Specific Sample	1.15%	1			✓		✓
Targeted	66.67%	2		✓	✓		
Targeted	33.33	1			✓		

**Table 6: Summary SVA Main, Re-inspection Specific and Target Sample Category 1 non-compliances by Supplier and HHMOA**

Supplier	HHMOA	1.01	1.02	1.03	1.04	1.06	Total
SCG	MCG		1				1
SCG	MCG	2		1			3
SCG	MCG			1			1
SCG	MCG			1		1	2
SCG	MCG			1			1
SCG	MCG		1				1
SCG	MCG			1		1	2
SCG	MCG			2			2
SCG	MCG	1		1			2
SCG	MCG			1			1
SCG	MCG	1		1			2
SCG	MCG			1			1
SCG	MCG		1				1
SCG	MCG			1	1		2
SCG	MCG			1			1
SCG	MCG				1		1
SCG	MCG			1			1
SCG	MCG	1					1
SCG	MCG		1				1
SCG	MCG		1				1
SCG	MCG		1				1
SCG	MCG	1	1				2
SCG	MCG			1			1
<b>Total</b>		<b>6</b>	<b>7</b>	<b>15</b>	<b>2</b>	<b>2</b>	<b>32</b>

## 8.2.4 Potential settlement impacting materiality calculations for Category 1 non-compliances identified.

Table 7 data is an indication of materiality impact that could result from those Category 1 non-compliances identified in the SVA market. Volumes are calculated by the ELEXON Trading Disputes team;

**Table 7: SVA visits where there has been a material error identified**

Visit Reference	Potential metered Errors MWh	Non-compliance status
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	0	Open
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	321.85	Resolved
XXXX	0	Open
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	TBC	Open
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	0	Resolved
XXXX	TBC	Open
XXXX	TBC	Resolved
XXXX	0	Resolved
XXXX	TBC	Open
XXXX	TBC	Open
XXXX	TBC	Open
XXXX	TBC	Open
XXXX	TBC	Open
XXXX	TBC	Open
XXXX	TBC	Open
XXXX	0	Resolved
XXXX	TBC	Resolved
XXXX	0	Resolved
XXXX	TBC	Resolved

Visit Reference	Potential metered Errors MWh	Non-compliance status
XXXX	TBC	Open
XXXX	TBC	Open

## 8.2.5 Rectification of Category 1 non-compliances

Table 8: SVA Main, Re-inspection, Specific and Target Sample Category 1 non-compliances average number of days to resolution

Notified Month	Number of NCs Identified	Average WD to resolve				
		1.01	1.02	1.03	1.04	1.06
Apr 2017	0	0	0	0	0	0
May 2017	3	206	0	1	0	0
Jun 2017	3	0	0	178	0	0
Jul 2017	0	0	0	0	0	0
Aug 2017	2	0	85	0	0	0
Sep 2017	6	0	0	174	0	0
Oct 2017	2	57	0	0	0	0
Nov 2017	2	0	0	9	0	0
Dec 2017	3	0	0	40	0	1
Jan 2018	4	0	0	19	48	0
Feb 2018	4	33	0	26	0	0
Mar 2018	3	0	0	1	0	0
<b>Total identified</b>	<b>32</b>	<b>6</b>	<b>7</b>	<b>15</b>	<b>2</b>	<b>2</b>
<b>Unresolved</b>	<b>10</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>1</b>
<b>Resolved</b>	<b>22</b>	<b>5</b>	<b>2</b>	<b>13</b>	<b>1</b>	<b>1</b>
<b>Average days to resolve</b>	<b>40</b>	<b>59</b>	<b>43</b>	<b>34</b>	<b>48</b>	<b>1</b>

## 8.2.6 Category 2 Non-compliances

Table 9: Summary of SVA Category 2 (non-cert) non-compliances by Supplier

Supplier	2.01	2.02	2.03	2.08	2.09	2.10	2.11	2.13	2.14	Total
SCG	4	5	7		2	5	9	81	11	124
SCG	3	4	4		3		12	33	7	66
SCG	8	9	2		2		5	34	4	64
SCG		2	1				11	35	6	55
SCG	1	3	3				4	35	7	53
SCG	2	4	1			5	6	21	5	44
SCG	1	3	2				3	20	3	32
SCG			2		2	3	4	14	1	26
SCG		1	1				3	14		19
SCG			4				2	9	1	16
SCG		3			2		2	8	1	16
SCG			1			3	2	9		15
SCG		2						3	1	6
SCG			1				1	3		5
SCG								2		2
SCG							1		1	2
SCG								1		1
SCG								1		1
SCG								1		1
SCG										0
SCG										0
SCG										0
<b>Total</b>	<b>19</b>	<b>36</b>	<b>29</b>	<b>0</b>	<b>11</b>	<b>16</b>	<b>65</b>	<b>325</b>	<b>48</b>	<b>549</b>



**Table 10: Summary of SVA category 2 (non-cert) non-compliances by HHMOA**

HHMOA	2.01	2.02	2.03	2.08	2.09	2.10	2.11	2.13	2.14	Total
MCG	2	3	5		1	5	13	121	2	<b>152</b>
MCG	8	10	8		6	9	12	60	15	<b>128</b>
MCG		2					7	81	7	<b>97</b>
MCG	4	3			3	1	15	30	4	<b>60</b>
MCG	4	6	2		1	1	1	8	5	<b>28</b>
MCG		1					1	13	9	<b>24</b>
MCG	1	8	1				4	3	3	<b>20</b>
MCG			13						1	<b>14</b>
MCG		2					3	6	2	<b>13</b>
MCG		1					4	2		<b>7</b>
MCG							5	1		<b>6</b>
<b>Total</b>	<b>19</b>	<b>36</b>	<b>29</b>	<b>0</b>	<b>11</b>	<b>16</b>	<b>65</b>	<b>325</b>	<b>48</b>	<b>549</b>

**Table 11: Summary of SVA category 2 (cert related) non-compliances by Supplier**

Supplier Company Group	2.06	2.15	2.16	2.17	Total
SCG	76	177	90	90	433
SCG	58	147	73	83	361
SCG	57	111	82	63	313
SCG	43	88	67	65	263
SCG	38	93	48	52	231
SCG	23	79	27	56	185
SCG	18	48	34	32	132
SCG	21	35	33	21	110
SCG	17	29	20	11	77
SCG	10	17	19	14	60
SCG	12	28	14	5	59
SCG	6	14	10	8	38
SCG	4	10	6	4	24
SCG	1	5	2	7	15
SCG	2	3	5	4	14
SCG	2	3	4	3	12
SCG	2	1	4	1	8
SCG		2		2	4
SCG		2			2
SCG	1	1			2
SCG	1				1
SCG		1			1
SCG					0
<b>Total</b>	<b>392</b>	<b>894</b>	<b>538</b>	<b>521</b>	<b>2,345</b>

**Table12: Summary of SVA category 2 (cert related) non-compliances by HHMOA**

<b>HHMOA</b>	<b>2.06</b>	<b>2.15</b>	<b>2.16</b>	<b>2.17</b>	<b>Total</b>
MCG	78	185	99	160	<b>522</b>
MCG	59	183	95	76	<b>413</b>
MCG	50	89	63	60	<b>262</b>
MCG	44	114	61	38	<b>257</b>
MCG	47	66	80	60	<b>253</b>
MCG	29	88	38	63	<b>218</b>
MCG	42	45	47	7	<b>141</b>
MCG	23	61	27	17	<b>128</b>
MCG	14	42	24	28	<b>108</b>
MCG	4	10	4	11	<b>29</b>
MCG	2	11		1	<b>14</b>
<b>Total</b>	<b>392</b>	<b>894</b>	<b>538</b>	<b>521</b>	<b>2,345</b>

## 8.3 CVA Audits

### 8.3.1 Appointments planned and cancelled

Table 13: Total number of CVA visits planned and outcome by visit type

CVA Visits by Type	Visits Planned	Of those planned		Of those visited	
		Visits Cancelled	Visited	Access Gained	No Access
Main Sample	108	3	105	92	13
Targeted	7	3	4	4	0
<b>Totals</b>	<b>115</b>	<b>6</b>	<b>109</b>	<b>96</b>	<b>13</b>
<b>Percentages</b>		<b>5%</b>	<b>95%</b>	<b>87%</b>	<b>13%</b>

### 8.3.2 CDCC Performance

Table 14: CDCC summary for those CVA visits where access has been provided

Visit Type	Compliant	Non-compliant	Check not performed	Metering Systems accessed
Main Sample	91	1	0	92
Targeted	3	0	1	4
<b>Totals</b>	<b>94</b>	<b>1</b>	<b>1</b>	<b>96</b>

### 8.3.3 CVA non-compliances identified during 2017-2018 audit year

Table 15: Number and % of CVA visits where non-compliances were identified by category

Visit Type	%	Number of Visits	No NCs	Has Cat1	Has Cat2	Has NC	Has Observations
Main Sample	70.7%	65			✓		
Main Sample	23.9%	22	✓				
Main Sample	2.2%	2			✓		✓
Main Sample	2.2%	2		✓	✓		
Main Sample	1.1%	1			✓	✓	
Target	100%	4			✓		

**Table 16: Summary of CVA Category 1 and 2 non-compliances identified during the 2017-2018 audit year**

Non-compliance identified	1.01	2.01	2.02	2.06	2.09	2.10	2.11	2.13	2.14	2.15	2.16	2.17	Total
Commissioning incomplete, incorrect or not provided										62			62
Overall accuracy may not be being maintained				32									32
VT certificates not provided											50		50
Miscellaneous								75					75
CT certificates not provided											66		66
Fusing					1								1
Alarms						5							5
Meter calibration certificate not provided												24	24
Valid Aggregation Rule not received/incorrect	2												2
Time drift									1				1
Error in MTD's		4	9										13
Metering seals not intact							7						7
<b>Total</b>	<b>2</b>	<b>4</b>	<b>9</b>	<b>32</b>	<b>1</b>	<b>5</b>	<b>7</b>	<b>75</b>	<b>1</b>	<b>62</b>	<b>116</b>	<b>24</b>	<b>338</b>

### 8.3.4 Potential Settlement impacting non-compliance calculations

Table 17 data is an indication of materiality impact that could result from those Category 1 non-compliances identified in the CVA market. Volumes are calculated by the ELEXON Trading Disputes team.

**Table 17: CVA visits where there has been a material error identified**

Visit Reference	Potential metered Errors MWh	Non-compliance status
2017-1130	TBC	Resolved
2017-1535	TBC	Resolved
<b>Totals</b>		

## 9 Appendix 2 – Category 1 and 2 non-compliance descriptions

### 1.01 Inaccuracy of Standing Data (Key MTD fields) held by Data Collector

- Outstation serial number
- Meter ID (serial number)
- Outstation number of channels
- Measurement Quantity ID
- Pulse multiplier
- Channel configuration
- Outstation multiplier/Outstation channel multiplier
- Complex Site Supplementary Information Form (SVA only)

### 1.02 Metering Equipment Incorrect or Unsatisfactory

- Metering Equipment not functioning correctly
- Metering Equipment not programmed correctly
- Overall accuracy of Metering System not maintained
- Summation CTs used
- Correct Energy Measurement Check (Primary/Secondary conductor prevailing load test) indicates an error in the Metered Volume
- Measurement Transformers not located at Defined Metering Point

### 1.03 Timing Error (Major)

- Outstation clock outside agreed tolerance

### 1.04 Measurement Transformer Ratios Physically Incorrect

- Measurement transformer ratios different from those set up in Meter (except for any difference being consistent with a measurement error compensation applied within the Metering Equipment)

### 1.05 Compensation Calculations Incorrect

- Meter compensation for Measurement Transformers Incorrectly applied or not applied
- Meter compensation for Power Transformers incorrectly applied or not applied

### 1.06 Miscellaneous

- Other non-compliance not covered elsewhere

## **2.01 Inaccuracy of Standing Data held by HHMOA**

- Outstation serial number
- Meter ID (serial number)
- Outstation number of channels
- Measurement Quantity ID
- Meter Register Multiplier
- Pulse multiplier
- Channel configuration
- Outstation multiplier/Outstation channel multiplier
- Measurement Transformer Ratios
- Complex Site Supplementary Information Form (SVA only)

## **2.02 Inaccuracy of Standing Data (non-Key MTD fields) held by Data Collector**

- Data Collector's Meter Technical Details do not match on site equipment due to recent Meter Exchange
- Other non-Key fields (e.g. Measurement Transformer Ratios, Meter Register Multiplier)

## **2.03 Non-provision of Standing Data**

- Meter Technical Details not provided – HHMOA and Data Collector
- Complex Site Supplementary Information Form not provided (SVA only)

## **2.06 Metering Equipment Incorrect or Unsatisfactory**

- Incorrect CoP applied
- Check Meter missing
- Main Meter missing, Check Meter present and accurate
- Voltage selection relay not installed/working when Summation CTs used
- Meter accuracy class incorrect
- CT accuracy class incorrect
- VT accuracy class incorrect
- Unapproved data format and protocol in use
- Possibility that overall accuracy of Metering System not maintained

## **2.07 Measurement Transformer and/or Meter Certificates<sup>13</sup>**

- Certificates not provided
- Certificates do not match on-site equipment

## **2.08 Unsuitable Environment**

- Environmental conditions likely to cause Metering Equipment failure

## **2.09 Inadequate Over-current Protection**

- Insufficient discrimination between source and local fusing
- No local isolation
- Main and check Meters not separately fused
- Other Metering Equipment not separately fused
- Non-settlement Meters not separately fused

## **2.10 Separate Phase Failure Alarms not Installed or Inadequate/Failed – Local and Remote**

- Alarm not fitted where required

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<sup>13</sup> Category 2.07 non-compliance was replaced by Category 2.16 and 2.17 in February 2009.

- Alarm not functioning

#### **2.11 Inadequate Metering Equipment Integrity**

- Settlement Metering Equipment not sealed
- Password functionality not included in Outstation

#### **2.12 Metering Equipment Test Facilities**

- Lack of adequate Metering Equipment test facilities

#### **2.13 Miscellaneous**

- Other non-compliance not covered elsewhere

#### **2.14 Timing Error (Minor)**

- Outstation clock outside agreed tolerance

#### **2.15 Commissioning Records**

- Commissioning records not provided
- Commissioning records incorrect
- Commissioning records incomplete

#### **2.16 Measurement Transformer Certificates not provided or incorrect**

- Measurement Transformer Certificates not provided
- Measurement Transformer Certificates do not match site equipment

#### **2.17 Meter Certificates not provided or incorrect**

- **Meter Certificates not provided**
- Meter Certificates do not match site equipment



# 10 Appendix 3 - The Performance Assurance Framework (PAF)<sup>14</sup>

The Performance Assurance Framework (PAF) provides assurance that:

- Energy is allocated between Suppliers efficiently, correctly and accurately
- Suppliers and Supplier Agents transfer Metering System data efficiently and accurately
- Calculations and allocations of energy and the associated Trading Charges are performed in line with the requirements detailed in the Balancing and Settlement Code (BSC)

The PAF process is used to identify and evaluate risks to Settlement. As a result of the PAF, a number of assurance techniques have been developed to monitor Suppliers', Supplier Agents' and Licensed Distribution System Operators' (LDSO) compliance.

ELEXON prepares and monitors a register of all risks to Settlement as identified by the PAF. These risks are continually evaluated and monitored via a Risk Operating Plan (ROP) which is made up of a number of Risk Management Plans (RMP) identified for individual areas of concern.

As a result of the PAF process and the development of the subsequent ROP, a number of Settlement Risks (SR) have been identified that are in relation to the installation and management of Half Hourly Metering Systems (HHMS), and recording of Settlement data from the HHMS; the Technical Assurance of Metering (TAM) technique was designed to detect, monitor and manage these specific risks and provide a platform from which to look for improvements to industry processes.

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<sup>14</sup> Information is derived from ELEXON guidance notes and training materials.