

PUBLIC

Technique review recommendations

Technical Assurance of Metering

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TECHNIQUE REVIEW RECOMMENDATIONS

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EXECUTIVE SUMMARY

The Performance Assurance Framework (PAF) manages risks to the Settlement processes. The BSC Panel initiated the PAF Review in March 2017. The review is being delivered through four workstreams: smart metering risks (complete), PAF Procedures (complete), data provision (in progress) and PAF techniques (in progress).

This report provides the conclusions from the review of the Technical Assurance of Metering (TAM) technique, which forms part of the PAF techniques workstream.

TAM background

The primary objective of TAM is to monitor compliance with BSC obligations to ensure Half Hourly (HH) metered data is complete and accurate. The secondary objective of TAM is to assess the overall health of all the HH Metering System population. The technique is delivered through onsite inspections of a sample of HH Metering Systems where the installation of the Metering Equipment and associated standing data are assessed against BSC requirements.

In accordance with strategy and risk appetite of the Performance Assurance Board (PAB), the scope and approach for each TAM audit is determined in the Risk Operating Plan (ROP), which outlines out how techniques will be deployed to mitigate Settlement Risks.

Overview of review

The stakeholder engagement exercise undertaken prior to commencing the PAF Review did not highlight any fundamental issues with the TAM technique. This feedback was reflected in the scope of the review, which was focused around the sampling methodology and size, the way in which we scope, deliver and resource the technique, and its interaction with other auditing techniques.

The review activities have largely confirmed the initial view from stakeholders; we did not find any evidence that the TAM technique is not effective at providing assurance or that it is not a required element within the assurance framework. Due to on-going issues related to metering, TAM remains an important technique to monitor the quality of physical Metering System installations and associated standing data. However, we identified a number of opportunities for improvement related to how we scope, deploy and deliver the technique.

Recommendations

The following recommendations seek to support the continued assessment and mitigation of Settlement Risks related to metering and achieve the objectives of the TAM technique.

Key recommendations

Our key recommendations are:

- Greater flexibility is provided for when setting the TAM audit scope (for all sample types) with consideration given to targeting market segments deemed to be of higher risk
- Introduction of lower intensity desktop audits to supplement or replace onsite inspections as directed within the annual scope
- An annual exercise is undertaken to assess the sample size required to deliver the scope which follows good statistical practice
- Consideration is given to auditing techniques that cover metering processes to ensure the level of expertise required to undertake the testing is deployed

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- Greater emphasis is given to identifying and addressing the root cause of non-compliance, including those deemed to not be currently material but still considered to be of risk

Other recommendations

- Greater focus is given to rectification of Settlement impacting non-compliances with escalation considered where non-compliances are not rectified within a timeframe considered reasonable for the nature of the issue
- We investigate other data sources that would support building a risk profile for each participant, such as audits outside the BSC, e.g. MOCOPA (Meter Operation Code of Practice Agreement) and the Capacity Market

Next steps

The TAM review has been planned such that its findings can inform the upcoming re-procurement of the service, which is due to expire following the 2019/20 audit. Following the PAB's approval of the recommended changes, an exercise will be undertaken to translate these into a set of service requirements for use in the re-procurement.

In addition, we are proposing that the PAB recommends to the Panel that a Modification to the BSC be raised to extend the scope of TAM to include lower intensity desktop audits. Following PAB approval, we will present this recommendation to the BSC Panel.

INTRODUCTION

In March 2017, the BSC Panel approved the following scope for the TAM review.

Review the sampling methodology and sample size currently used for the TAM

The way in which we scope, resource and deliver the TAM

Review the relationship between the three audit techniques to determine if they collectively continue to provide efficient and cost-effective assurance

In preparation for the review, we revisited previous stakeholder views and the approved scope in order to develop a set of initial ideas for change. These ideas were further developed by internal subject matter experts and subsequently presented to an Issue 69 Working Group in November 2018. The working group provided valuable input on the ideas and other areas for consideration during the detailed review. The main themes from the workshop discussions, which were considered in detail during the review, were as follows:

- Strengthening the technique's relationship to risk
- Introducing new specific samples to improve understanding of issues
- Introducing lower intensity audits
- Introducing more flexible sampling
- Gaining a view on optimal CVA sample size
- Coordination across other audit techniques
- Considering new data sources
- Increasing overall engagement with the technique, particularly with distribution businesses

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- Public Peer Comparison of audit results
- Reviewing the rectification of non-compliances

FINDINGS AND RECOMMENDATIONS

This section outlines the key areas we considered during the review, the findings from our assessment of those areas and recommendations for change.

Why do we need TAM?

As outlined in this section, we continue to be aware of significant impacts to Settlement caused by metering errors. In addition, due to the nature of metering errors, i.e. they can be introduced through business as usual activities (e.g. new connections and Meter exchanges) and routine operation of Metering Systems (e.g. blown fuses), there is an on-going opportunity for them to manifest. Therefore, the TAM technique is important to monitor compliance and assess the overall health of the market as the risk landscape changes in future. However, the deployment of the technique should always be proportionate to the perceived risk.

Associated Settlement Risks

A Settlement Risk is a risk of a failure or error in a step or process required under the BSC. The PAB identifies and evaluates the significance of Settlement Risks in terms of both the probability of the failure or error and its impact on Settlement. The findings of this evaluation are documented in the [Risk Evaluation Register](#) (hereafter referred to as the "risk register").

The below table is an extract from the risk register of the Settlement Risks that the TAM technique assesses compliance against and the estimated annual Settlement impact from April 2019.¹

Id No.	Risk Sub-Category	Market	Impact	Impact band	Upper Impact
003	Metering Equipment installation and Commissioning	SVA	£43.0m	5	£84.3m
020	Metering Equipment installation and Commissioning	CVA	£14.0m	4	£21.2m
006	Meter Technical Details transfer and processing	SVA	£8.0m	3	£17.0m
004	Notification of change to Metering Equipment	SVA	£7.7m	3	£19.4m
012	Metering Equipment technical detail quality	SVA	£6.2m	3	£17.1m
022	Notification of change to Metering Equipment	CVA	£5.2m	3	£16.0m
024	Metering Equipment technical detail quality	CVA	£1.1m	2	£4.0m
026	Aggregation Rules	CVA	£0.1m	2	£39.8m

The risk deemed most significant on the current risk register (003) is one of the key risks in focus for the ROP for the 2019/20 period.

Trading Disputes

¹ Please note, for risks in the Supplier Volume Allocation (SVA) market, the impact values include that estimated in Non-Half Hourly (NHH) which is not within the scope of TAM

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When a Settlement Risk occurs and presents a material impact on Settlement, if it is unable to be corrected through normal reconciliation processes, a Trading Dispute can be raised to correct error within the relevant Dispute Deadline and minimum materiality threshold. The below table provides the number of Trading Disputes related to the Settlement Risks referenced above, the total estimated materiality of the Settlement Errors and the materiality corrected through the Trading Disputes process.

Category	Period	No. of disputes	Total materiality	Dispute materiality
CVA	2015/16	1	£0.5m	£0.1m
	2016/17	2	£28.9m	£23.6m
	2017/18	1	£6.3m	£2.5m
CVA Total		4	£35.7m	£26.2m
HH SVA	2015/16	21	£11.0m	£1.2m
	2016/17	23	£4.5m	£0.9m
	2017/18	16	£8.2m	£1.6m
HH SVA Total		60	£23.7m	£3.6m
Grand Total		64	£59.3m	£29.8m

Errors corrected through normal reconciliation

The Trading Disputes process is only for Settlement Errors that persist outside of normal reconciliation timescales and meet the minimum materiality threshold. As such, there is a volume of error corrected through normal reconciliation where we are not centrally involved in rectification through the Trading Disputes process.

During the assessment of risks on the risk register, we sought to understand the impact of erroneous consumption values entered into Settlement processes. Such erroneous consumption values will be primarily caused by issues with metering and associated standing data. To provide a view of this for HH, we assessed consumption flows sent over the Data Transfer Network (DTN) on a Metering System level and identified if there were any subsequent corrections.² A summary of the findings from this assessment is as follows.

We assessed HH data for Measurement Class C Metering Systems for 10 Settlement Days subject to final reconciliation (RF). We noted that an average of 360 metered Measurement Class C MSIDs underwent a volume correction equating to a total volume change per Settlement Day of 16.4k kWh or roughly £80.7k of Settlement amendments. Extrapolating this daily view to an annual view provides a Settlement impact of approx. £29.5m.

In addition, our assessment highlighted large variances in the volume correction per Metering System, i.e. a small number of Metering Systems presented significant impacts. For example, we investigated one of these errors and identified that it was caused by a current transformer (CT) upgrade which resulted in the Meters being programmed incorrectly. This error resulted in only half the sites consumption to be recorded by the Meter. The 332 Settlement Days subsequently corrected equated to a volume of 54.26m kWh or approx. £2.66m of Settlement impact. There was no associated Trading Dispute for this Metering System.

² <https://www.elexon.co.uk/documents/groups/pab/2018-meetings-pab/214-november/pab214-05-risk-evaluation-register-rer-2019-20-rate-card-erroneous-actuals/>

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It should be noted that the above data on Trading Disputes and normal reconciliation corrections does not include unidentified errors that currently impact Settlement.

Wider benefits of deploying TAM

Considering the understood Settlement impacts related to metering risks, our review activities identified the following key benefits of the TAM technique.

Assurance on quality

TAM is seen as one of the few techniques that provides robust assurance on quality in regards to physical Metering System installations and associated standing data. A limitation identified with other techniques is that they focus on compliance with sending data items within prescribed timescales and don't provide adequate assurance over the quality of those data items. As such, we identified little to no cross over between other assurance techniques for assessing the quality of physical Metering System installations.

Assessing overall health

Assessing the overall health of all HH Metering Systems allows us to understand the likely volumes of error and direct other assurance techniques proportionate to that error. The findings from previous TAM audits were an important input in the assessment exercise for Settlement Risks related to metering. Without such a view, our understanding of the impact of the associated risks and how they change in future would be limited.

Error identified

During onsite inspections, non-compliances are identified that are materially impacting the accuracy of Settlement. In the last three annual TAM audits, following investigations into each non-compliance by the Trading Disputes team at ELEXON, we estimate that £1.7m of Settlement Error was identified through the main and specific samples. The average length of time we assessed each error to be present prior to the TAM inspection was 2.5 years. However, there was a large variance in error length where small subsets of errors were present for in excess of 10 years each presenting hundreds of thousands of pounds of Settlement impact.

Incentivising compliance

Deployment of the technique acts as an incentive for participants to meet their obligations in regards to metering. Whilst it is difficult to quantify the exact impact of such an incentive, it is reasonable to assume that non-compliance levels would be greater if the technique had not been deployed.

When assessing different options for future delivery of the TAM technique, we considered the potential impact on the benefits outlined above.

Scope

The scope of each TAM audit is determined annually in accordance with the ROP. This section assesses how we currently set the scope of each annual TAM audit and what changes could be made to better meet the objectives of the technique.

Main sample

We recommend that greater flexibility is provided for when setting the main sample scope with consideration given to any specific objectives for the year, the relation to perceived or understood risk, and what (if any) generalisations we wish to make about the wider population. In addition, to ensure an efficient and timely process when determining the scope of each annual TAM audit, we recommend that the Panel is requested to delegate its discretion in Section L7.3.4 to vary the scope of TAM to the PAB.

Contractual costs (which include TAM) account for 60-70% of the PAF's annual budget. In regards to TAM, the main sample accounts for the majority of annual spend delivering the technique.

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The BSC directs that the main sample should be representative of all HH Metering Systems. This requirement can be linked to the two overarching objectives of the technique, i.e. a representative sample facilitates a view of market level compliance and overall health. With the risks related to metering currently being considered as some of the most significant risks to Settlement, it is important that we have a good understanding of the levels of error in the market to ensure that mitigation actions are appropriate and proportionate.

However, it has been acknowledged that the scope of the main sample, particularly in regards to SVA, has been relatively static for several years. Whilst the BSC provides the sample to be representative of all HH Metering Systems, it also allows for flexibility in the scope at the discretion of the Panel (which can be delegated to the PAB). Furthermore, we have identified that additional clarity could be given as to the desired outcomes from each main sample. For example, particular areas of interest we wish to track compliance against or any generalisations we wish to make about the wider population.

In future, we may want to revise the scope of the main sample to focus on market segments perceived to be of greatest risk. For example, Code of Practice (CoP) 1-3 Metering Systems in Measurement Class C account for just over 12% of total MSIDs numbers, however they account for approx. two thirds of energy in that Measurement Class. Focusing the resource of the main sample on that market segment would provide robust assurance over those Metering Systems and any identified Settlement Errors are likely to present significant impacts.

Specific sample

We recommend that consideration is given to increasing the use of specific samples for areas of greater risk when setting the scope of each TAM audit.

The PAB can direct a specific sample on SVA Metering Systems in a given audit year which will focus on where there is perceived risk to Settlement. Whilst the BSC envisages that a specific sample will account for no more than 20% of total inspections, the wording provides this as a guideline where the number undertaken is determined by the PAB. This element of the TAM technique provides flexibility to assure areas of concern.

Since 2012, we have undertaken four specific samples³ each equating to roughly 100 inspections. Whilst no concerns have been raised as to how specific samples have been used in the past, the consensus from feedback is that greater use of specific samples on priority risk areas would maximise the benefits from the technique.

If it is determined for the main sample to continue to provide a representative view of all HH Metering Systems, increased focus on specific samples could provide more detailed insights into areas of interest or concern. Whilst a specific sample is envisaged to run in parallel and independently of the main sample, if additional focus is given to specific samples, consideration should be given as to the interaction between the two activities to ensure there is no duplication of effort.

As previously noted, the main sample size can be amended if desired. If the PAB decided to focus more effort on a specific sample, the main sample could be reduced and the resource used elsewhere.

³ one on new installations, two on commissioning processes post Modification P283 'Reinforcing the Commissioning of Metering Equipment Processes' and one on multi ratio current transformers

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Targeting participants

We recommend that consideration is given to targeting participants when setting the scope of each TAM audit with thorough considerations given to the selection criteria and overall impact on the objectives of the technique.

It has been suggested that TAM audits could be targeted at participants where indicators suggest higher levels of non-compliance. This was seen as efficiently addressing non-compliance and acting as an incentive for participants to meet BSC obligations and therefore avoid being targeted. Whilst the provisions of the BSC envisage that a sample shall not be biased towards any one Registrant, Meter Operator Agent or GSP Group (i.e. Licenced Distribution System Operator), this is at the Panel's discretion when setting the scope. Therefore, the main or specific samples could be targeted at participants.

Careful considerations would need to be given to the criteria for selecting the participants for targeting to ensure equitability and transparency. In addition, as good performance in previous years does not guarantee good performance in future years, some mechanism would be needed to continually re-assess performance of all participants. An approach could be taken similar to the BSC Audit where "full", "medium" and "limited" scope audits are deployed on a rotational basis or based on previous audit findings. Under such an approach, the findings from each sample would need to be reviewed to determine whether participants needed to switch between sample size categories.

A further consideration under such an approach is that the sample would contain known bias, and therefore we may be limited in providing an assessment of the overall health of the market based on its findings. As previously noted, due to the current significance of risks related to metering, the assessment of overall health is an important aspect to track changes and deploy techniques appropriately. However, in future years if the related risks were to reduce, the assessment of overall health may be deemed less important.

Lower intensity audits

We recommend that the scope of TAM be extended through a Modification to the BSC to include lower intensity desktop audits. How desktop audits are used in an annual period should be outlined in the scope of each audit, to provide flexibility in deployment.

It was suggested that performing lower intensity desktop audits could provide a pragmatic and cost effective alternative to onsite inspections. Such audits would cover areas such as (but not limited to) documentation (e.g. Commissioning, measurement transformer Calibration Certificates etc.), alignment of Metering Equipment technical details across participant systems and any outstanding faults.

We note that a number of desktop-based activities (such as Metering Equipment technical detail alignment) are already undertaken as part of a TAM inspection. However, we feel that a clearly defined, structured desktop audit could supplement or provide an alternative to an onsite inspection, on the understanding that such an activity would not provide the level of assurance as an onsite inspection.

We envisage a number of potential uses for desktop audits. The first being if the main sample was directed towards a particular market segment (e.g. CoP 1-3); desktop audits could be undertaken to provide limited assurance over the remaining HH market. Another area could be to determine whether an onsite inspection is warranted. For example, an onsite inspection could be triggered if a Metering System fails the desktop audit and is deemed a risk. Under such a use, we would have to acknowledge that a Metering System may pass a desktop audit, but still have a non-compliance that is impacting Settlement. Finally, desktop audits could be used on a more exploratory basis where the risk is deemed low enough not to warrant onsite inspections at that time. For example, Measurement Classes E, F and G currently account for a low proportion of HH metered consumption (roughly 7%). We have not historically undertaken onsite inspections on these Measurement Classes due to the lower energy volumes involved. However, a desktop audit of these Metering Systems could be undertaken to provide initial insights into the health of the market segment.

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To formalise desktop audits within the TAM technique, a BSC Modification would be required. However, there is flexibility to undertake desktop audits, perhaps on a trial basis, through the Technical Assurance of Performance Assurance Parties (TAPAP) technique.

Sample size

As previously noted, the main sample accounts for the majority of TAM activity and the BSC provides that it should be representative of all HH Metering Systems. For SVA, we achieve this by sampling a random 1% of energised Metering Systems in Measurement Class C equating to roughly 1,500 inspections. For CVA, we have generally sampled at least 5% of energised Metering Systems equating to a minimum of 50 inspections. Aside from some fluctuations in the CVA sample size in the last few years to increase coverage, the proportional approach to sample size has not been reviewed or amended for several years. This has raised questions as to whether the current sampling approach and size are still fit for purpose.

Most forms of random sampling are time consuming and expensive, therefore careful consideration is given to the objective of the study to avoid unnecessary spend. Increasing sample size increases the certainty in the findings. However, there is a point of diminishing returns where further increases do not greatly impact the levels of certainty. In order to ensure value for money in delivery of this technique, we should avoid unnecessary sampling. The rest of this section considers existing sample sizes and alternative options.

SVA main sample size

We recommend that the SVA main sample size is reviewed each year in parallel with the scoping exercise to meet the objectives of the audit and level of certainty desired in the findings.

Stakeholders provided varying views on the existing SVA sample size, with some perceiving it to be too large, and others too small to achieve the desired results.

The sample size required for a study depends on a number of factors including the objective of the study, the estimated variability in the underlying population, and the degree of confidence desired in the conclusions.

The secondary objective of TAM to assess the overall health of all HH Metering Systems does not dictate what measure should be used in that assessment. Historically, as per the TAA's annual reports, inferences have been made as to the estimated proportion/number of Metering Systems in Measurement Class C with a Settlement impacting non-compliance. We will consider this measure in our assessment of sample size.

The main challenge regarding the sample size required for the annual TAM audit is that the item of interest (i.e. a HH Metering System with a Settlement impacting non-compliance) is a rare event. Pooling the findings from the last three annual TAM audits, it is likely⁴ that between 0.49% and 1.03% of Measurement Class C energised Metering Systems have a Settlement impacting non-compliance, i.e. between 1 in 200 and 1 in 100. The rarity of the event of interest has a material impact on the sample size required, as rare events require larger sample sizes to ensure proper observation.

The next key item to consider is how certain we wish to be in our inferences about the wider population. As provided in the previous paragraph, it is a common statistical practice to provide a range (called an interval estimate) that is thought to contain the population parameter of interest with an associated confidence level. Increasing a sample size will provide more certainty that the sample is representative and therefore decrease the

⁴ Based on a 95% confidence interval, i.e. we can be 95% certain that the interval quoted contains the true population proportion

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range, and conversely decreasing the sample size will provide less certainty that the sample is representative and therefore increase the range.

Therefore, the PAB can decide the range and level of confidence that is acceptable for the annual audit, which will determine the sample size required. For example, based on the 2017/18 audit sample of 1,331 inspections, 0.60% had a Settlement impacting issue as confirmed by the Trading Disputes team at ELEXON. Applying a standard margin of error calculation² provides a range between 0.21% and 1.01% equating to approx. 305 to 1,465 HH Metering Systems. Hypothetically, if we were to reduce the sample size by 200 and were to find the same proportion of Settlement impacting issues (0.60%), based on the same level of confidence, the range would increase to between 0.17% and 1.05% equating to approx. 247 to 1,523 HH Metering Systems. Such a reduction in the main sample size could be determined to not greatly impact the significance of the findings.

As discussed above, there are a range of options when determining a sample size, which depend on how reserved we wish to be in regards to estimating any population parameters and the acceptable margin of error and level of confidence. Once a sampling approach is decided, the BSC provides flexibility as to the number of inspections undertaken each year. However, it should be noted that any reduction in sample sizes would result in less identified Settlement Error (as previously noted, in the last three TAM audits, we estimate £1.7m of Settlement Error was identified). In addition, it was queried at the Issue 69 Working Group whether participants would scale back on compliance if the sample size was scaled back. These would be some of the considerations when determining to decrease or increase the TAM sample size.

CVA main sample size

We recommend that inspections of CVA Metering Systems continue at the current levels (as a minimum) and all arrangements be considered based on the significance of the related Settlement Risks.

All of the above principles for selecting a sample size are also applicable to CVA. However, there are a couple of key considerations for the CVA market that affect a random sampling approach. Firstly, there is a relatively small population size in the CVA market of approx. 900 MSIDs. Secondly, a Settlement impacting non-compliance for a CVA Metering System is considered an extremely rare event, i.e. it is likely to be rarer than that estimated in the SVA market. The last 3 years of TAA audits equating to roughly 250 inspections (or 28% of all CVA MSIDs) did not identify a single Settlement impacting non-compliance. A small number of Trading Disputes and other known issues in the last 5 years confirm that CVA Metering Systems are subject to Settlement impacting issues, but based on TAM audits, it is extremely rare – perhaps fewer than 1 in 400. With the population of CVA Metering Systems being around 900, it is plausible that there are between zero and three current Settlement impacting issues.

Based on historical instances, such issues become apparent at a market level through central assurance activities such as the monitoring ELEXON undertakes on Annual Demand Ratio (ADR), Transmission losses and GSP metered volumes. This is due to the high volumes associated with single CVA Metering Systems. Therefore, a purely random sample does not appear to be the best mechanism to assess the overall health of the CVA market, primarily due to the rareness of the event. It is likely that a significant proportion or all of the CVA market would need to be inspected to provide an acceptable view.

Some suggestions have been that all CVA Metering Systems should be inspected on a rotational basis, e.g. every 3, 6 or 10 years. Due to the risk presented by a single CVA Metering System issue, such an approach may be warranted. However, we would not want such an activity to give false assurances, as a CVA Metering System issue can be introduced at any point during site work or routine operation, and could go undetected for a number of years until an inspection (or re-inspection). Therefore, a CVA Metering System that was inspected within the previous year should not be deemed as a low risk. It could however be deemed as a lower risk relative to a CVA Metering System that has not undergone an inspection in several years. We would also need to consider the cost aspect of auditing all CVA Metering Systems on a rotational basis, as the effort required, particularly for multi circuit CVA sites, is considerably greater than for an SVA inspection.

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The findings of the review suggest that alternative arrangements for assuring CVA Metering Systems may be warranted. This could be through desktop audits, continued market monitoring activities or a combination of activities. However, due to the risk presented by an issue on a single CVA Metering System, we do not recommend that inspections of CVA Metering Systems should cease. A sample similar to that currently undertaken would provide some assurances that the health of the market does not worsen significantly.

Targeting participants

We recommend that if the scope of the TAM audit directed a targeted approach on a participant level, an assessment of the required sample size is undertaken.

This section considers sample size options if a targeted approach was undertaken on a participant level (as previously discussed in the scope section) in order to assess their compliance levels.

To identify participants for targeting, we would need a reasonable view of the existing performance per participant.

If the item of interest is Settlement impacting non-compliances, we encounter similar issues with sample size as we do with the SVA main sample, i.e. they are considered rare events, and therefore larger sample sizes are needed to provide a meaningful view of participant performance. For example, at the time of writing this report (February 2019), 12 Meter operators accounted for 99.89% of MSID counts in Measurement Class C. The current sample sizes for those Meter operators vary from 12 to 229 based on their portfolio size with an average of 111. As previously noted, there are a range of options when setting a sample size based on the levels of confidence and margin of error desired, but we estimate that for most failure rates, sample sizes of between 300 to 400 would be required to have a reasonable estimate of the failure rate. This would equate to between 3,600 and 4,800 inspections, which is significantly more than we currently undertake. However, as the individual sample sizes are smaller when compared to the collective main sample size and the event of interest is rare, whilst we may be able to identify participants that significantly deviate from wider industry performance, it may prove difficult to identify smaller deviations.

If the item of interest were to be broadened to include all forms of non-compliance except for missing records, i.e. including those deemed as not currently impacting Settlement (Category 2), such events are more common: approx. 50% of inspections have such an associated non-compliance. As such, smaller sample sizes would be required. We estimate that for most failure rates a sample size of no less than 200 would provide a reasonable estimate of the failure rate. Whilst the sample size is smaller than the previously discussed option, it would still be more than currently undertaken if we wanted to assess 12 Meter operators.

Once a baseline of performance has been assessed, a determination could be undertaken as to which participants warranted being targeted through increased sample sizes. A benefit of this approach is that a larger sample for an underperforming participant would allow us to more accurately assess its performance and where the non-compliances might be stemming from.

Interaction with other techniques

Alignment and collaboration

We recommend taking advantage of the existing flexibility within the audit techniques in order to switch PATs on or off as required

The scope for the review of TAM includes reviewing “the relationship between the three audit techniques to determine if they collectively continue to provide efficient and cost-effective assurance”

Some stakeholder feedback suggested that areas of concern could benefit from deployment of one of the other audit techniques (for instance, using TAPAP to gain a more detailed view of issues where TAM or BSC Audit may provide limited value).

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The Issue 69 Working Group thought it unnecessary to formally merge the operational processes and approaches of the audit techniques. They felt this had no value to PAPs and that this was a matter for internal management. In delivering the PAF, ELEXON seeks to avoid duplication and conflicting outcomes.

The audit techniques can each look at the same issue from a different angle, which is a clear advantage, but the PAA will be looking to switch techniques on or off where there is the possibility of unnecessary overlap, at the direction of the PAB.

Reporting

Non-compliance categorisation

We recommend that Category 1 non-compliances that are later found to not have had any material impact on Settlement be downgraded to Category 2 for reporting and analysis purposes. We also recommend further analysis of Category 2 non-compliances to understand the potential for Settlement impact and any trends in non-compliance.

The categorisation of non-compliance is markedly different across the three audit techniques; following discussions at the Issue 69 Working Group, we did not consider it was necessary to align them. We also believe the non-compliance categories for TAM remain broadly appropriate for the technique.

Discussion on this topic did, however, initiate a related discussion about the categorisation of TAM non-compliances. Category 1 TAM non-compliances are “deemed to be currently affecting the quality of data for Settlement purposes”. If there is any uncertainty whether a non-compliance is impacting Settlement following the inspection, the TAA will assign it as Category 1. We support this practice and recommend that it continue. However, after analysis by the Trading Disputes team at ELEXON, approx. 25% of category 1 non-compliances are confirmed to have not had any material impact on Settlement. The workshop discussed whether these should be downgraded to category 2 non-compliances. We do not currently downgrade but, for future reporting and analysis, we recommend doing so to be clear which are impacting Settlement. A clear record of non-compliance application and amendment would be required to support this.

There is also a possibility that those in category 2 could be affecting Settlement even though the TAA deems them only to have the potential to result in a material impact. However, as the TAA will assign a Category 1 if there is any doubt, we feel that this is an unlikely scenario.

Comparison of audit results

We recommend that Public Peer Comparison of TAM audit findings be considered as part of the Peer Comparison technique review starting later in 2019. In addition, if the PAB intends Peer Comparison (or peer comparison) to be deployed for TAM audit findings, an appropriate sample size should be determined as part of the annual scoping exercise.

The Issue 69 Working Group suggested that Public Peer Comparison of audit results could act as an incentive to improve performance. Such comparisons may be a useful way to improve participant engagement with the process and act as an incentive to meet BSC obligations. Review work of the current set of techniques identified that we may be under represented in techniques that act as incentives.

However, Public Peer Comparison can only be based on PARMS Serials, and there are no current PARMS Serials related to TAM audits. Therefore, a BSC change would be required to introduce Public Peer Comparison for TAM audit findings. Due to the lead times on such a BSC Change, we recommend that this avenue is considered during the detailed review of the Peer Comparison technique in October 2019.

Anonymised peer comparison could be undertaken outside of the formal Peer Comparison technique. We already perform such peer comparison as part of the BSC Audit. However, use of peer comparison may not be suited to TAM since the current sample sizes on a participant level are limited (as discussed in the sample size section above). We

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note that any future public or anonymised comparisons based on TAM audits would need to be supported by an appropriate sample size in order to provide a meaningful and equitable comparison.

Increasing engagement with the technique

We recommend that efforts are continued to increase engagement with the technique.

There are often difficulties in gaining buy-in from participants in relation to on-site attendance and rectification of issues. We also note concerns with current system limitations where certain non-compliances cannot be assigned to the responsible participant, e.g. those related to Commissioning documentation.

We are working to enable assigning Commissioning issues to the appropriate participant from April 2019. This change is being introduced following the implementation of [CP1496](#) and is a step in the right direction, although only applies to Category 2 non-compliances. Issue 73 working group is currently exploring introduction of fault resolution obligations for LDSOs.

As previously mentioned, comparison of audit results may encourage improved collaboration between Parties, the TAA and ELEXON.

Rectification

EFR and escalation

We recommend that Category 1 non-compliances are managed through EFR if there are delays in rectification or they present a significant impact on Settlement with consideration given to escalating to the PAB if necessary.

BSC Audit and TAPAP make use of EFR to manage the rectification of non-compliances. TAM differs in that rectification plans are managed by the TAA. In the interests of attempting to align processes where necessary we explored the possibility of ELEXON managing rectification plans.

ELEXON feels that the TAA is best placed to manage rectification plans as they have the relevant technical expertise. Non-compliances tend to be easily resolvable individual metering issues (i.e. connected to on-site works) rather than system and process-related issues that require identification of root cause and process change.

However, where non-compliance is likely to be a symptom of a wider system issue, EFR could be deployed to manage rectification plans and identify root causes, with a view to identifying stronger controls and best practice.

BSCP27 1.14 states, "Where BSCCo deems it necessary, non-compliances not rectified by the Registrant will be reported to the PAB who will decide on further action in accordance with BSCP538, Error and Failure Resolution."

Non-compliances have rarely been passed to EFR for further action as there are generally valid reasons for Parties and Party Agents not resolving issues for instance, asbestos on site.

When any non-compliance has not been rectified within the timescales set out in a rectification plan, ELEXON has the option to refer to the PAB for consideration. The PAB may choose to deploy EFR, and subsequently initiate the Removal of Qualification Process for a MOA and HH Data Collector or trigger Breach and Default for Suppliers and LDSOs. The BSCCo will make a value based judgement in deciding whether to inform the PAB. For example, where non-compliance remains unresolved due to a de-energised supply (non-Settlement impacting) preventing rectification ELEXON is unlikely to opt for escalation. Conversely, where non-compliance remains unresolved because responsible Parties or Party Agents do not take the necessary actions and there is an ongoing impact on Settlement, ELEXON may determine that escalation to the PAB is necessary. Using existing escalation routes at our disposal, ELEXON could increase opportunities to engage with participants and encourage speedier resolution consequently reducing the impact on other Parties.

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Risk profile

We recommend that ELEXON continue to explore the possibility of findings from the Capacity Market and MOCOPA audits being shared to support building a risk profile for each participant.

The Issue 69 Working Group suggested that there might be overlaps in or gaps between the purpose of TAM and MOCOPA⁵ audits.

There are marked differences between the purpose of the MOCOPA audit and TAM. MOCOPA audits tend to focus on health, safety, and local working instructions of the MOA. The TAA audits that all Metering System Identifiers (MSIDs) are compliant with the associated CoP and that all required BSCP and CoP processes have been completed within mandated timescales, from a Settlements perspective.

We have explored the possibility of MOCOPA sharing the results of their audits in an attempt to provide the Performance Assurance Framework with a view of MOA performance. The results could be used to support building a risk profile for each participant.

Issue 69 noted that it was worth exploring whether certain audits could be combined, as it can be expensive and time consuming for participants to support multiple cross-code audits. For example, The Issue 69 Working Group queried whether TAM and Capacity Market audits could be combined. Following a review of each audit, we identified that they have different purposes and selection criteria, which provided limited scope for combining. However, the findings from the Capacity Market audit findings could be another data source to help build a risk profile for each participant.

⁵ <https://mocopa.org.uk/>