003 SVA RISK: METERING EQUIPMENT INSTALLATION, PROGRAMMING, MAINTENANCE AND COMMISSIONING

This document outlines the methodology used to assess the Settlement Risk related to Metering Equipment installation, programming, maintenance and Commissioning. We are not seeking to exhaustively outline all aspects considered during this assessment; our aim is to draw out the main data items considered and any key assumptions when estimating a future impact range.

The risk that... SVA Metering Equipment is installed, programmed or maintained incorrectly where commissioning is performed incorrectly or not at all **resulting in...** erroneous or estimated data in Settlement

Category: Metering

Sub category: Metering Equipment installation, programming, maintenance and commissioning

Covers: Initial installation and subsequent physical works including maintenance and maintaining data records

Estimated impact in 2019/20

Market	Lower	Middle	Upper
HH	£8.7m	£34.0m	£71.0m
NHH	£6.0m	£8.9m	£13.3m

Please note: This risk assessment has relied on the findings from the annual audit of Half Hourly (HH) Metering Systems undertaken by the Technical Assurance Agent (TAA) which provides a representative sample of Measurement Class C (100 kW). The most recent annual audit equated to 1,480 inspections which is approximately 1% of the market segment.

At risk population

As part of this assessment, we seek to understand the population at risk in the upcoming period, i.e. how many times will the underlying process occur where the risk can manifest.

The at risk population for this risk is all Metering Equipment currently installed or that will be installed for Supplier Volume Allocation (SVA) Metering Systems.

Data point considered

To identify Metering System numbers, we analysed quarterly snapshots of the Supplier Meter Registration Service (SMRS) to which we have access. The below table provides counts of energised Metering Systems as per quarterly SMRS snapshots.

Market	2015/16	2016/17	2017/18
HH 100 kW	133.9k	140.4k	145.4k
HH sub 100 kW	16.2k	119.2k	204.0k
NHH PC1-4	30.1m	30.3m	30.4m

➢ Growth has been relatively consistent for NHH and HH 100 kW in the last 3 years

➢ Growth in the HH sub 100 kW market in the previous 3 years will have been heavily impacted by the migration to HH Settlement required under Modification P272

Forecast

Below are the key considerations and assumptions when forecasting the at risk population in the 2019/20 period:

- To estimate future growth in the HH sub 100 kW market, we assessed the normal growth observed in HH 100 kW and applied it proportionally to the HH sub 100 kW market
- The residual Profile Class 5-8 sites registered as NHH are not considered as part of this assessment as we are expecting the population to continue to diminish

Failure rate

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From the population at risk, we need to estimate the proportion where the risk will manifest, i.e. the failure rate. To do this, we assess historical performance in the area and consider any upcoming changes that have the potential to impact future performance.

Data points considered

When assessing historical performance in the area, we considered Settlement impacting non-compliances (Category 1 – Cat1) and non-Settlement impacting (Category 2 - Cat2) non-compliances related to commissioning records raised by the Technical Assurance Agent during its annual audit. The below table provides the count of Cat1 and commissioning related Cat2 non-compliances and the proportion they relate to from the TAA's annual audit sample:

	2015/16	2016/17	2017/18
Cat 1[1]	6 (0.45%)	13 (0.92%)	8 (0.60%)
Cat 2 (comm.)	963 (72%)	978 (69%)	892 (67%)

> ➢ As previously noted, the TAA's annual audit covers approx. 1% of the HH 100 kW market equating to approx. 1,500 inspections
>
> ➢ We excluded non-compliance category 1.03 'Timing Error (Major)' as the investigations by ELEXON's disputes team has found them to be less material as the total volume settled over the period will be correct
>
> ➢ Whilst the proportion of the TAA audit sample with a Commissioning related Cat2 non-compliance has come down in recent years, it is still very high. However, a missing or incomplete Commissioning record does not mean that Commissioning was never performed

Forecast

Below are the key considerations and assumptions when forecasting failure rates in the 2019/20 period:

- By using the TAA annual audit as a random sample of the wider population, we can extrapolate the likely failure rate of all Measurement Class C installations. As the basis for potential impact in the upcoming period, we applied a margin-of-error calculation (using a 95% confidence interval) to the proportion of Cat1 non-compliances in the latest audit period

- We assumed a comparable range of Settlement impacting issues for Metering Systems in Measurement Class E as they share a similar level of metering complexity, i.e. metered through measurement transformers

- For Measurement Class G we applied the same range, but excluded cat 1 non-compliances related to measurement transformers (1.04) as they're not applicable

- For the NHH market, due to lack of quantitative data around the risk, we have had to estimate relative to what we have seen in HH. As the vast majority of NHH Metering Systems are whole current and therefore less technically complex, we have assumed lower failure rates than in HH. However, we considered that increased install activity in the NHH market due to the smart Meter rollout could see increased levels of installation issues

Impact

To estimate the impact of a risk we need to understand the days impacted and error volume on average per instance.

Average days impacted

For the days impacted, we assessed the HH data to which we have access through Data Transfer Network (DTN) extracts. We picked a sample of Settlement Days that had been subject to final reconciliation (RF) and assessed

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[1] We included non-compliance categories 1.02 'Metering Equipment Incorrect or Unsatisfactory', 1.04 'Measurement Transformer Ratios Physically Incorrect' and 1.06 'Misc' as relevant for this risk

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whether any retrospective corrections to HH data had occurred on a Metering System Identifier (MSID) level. These back dated corrections, for the most part, will be caused by manifestations of this Settlement Risk. For each MSID with a back dated correction, we assessed how many Settlement Days were impacted and annualised where the issue spanned longer than a year. This provided an average of **151** days.

Average error per day

For this risk, we considered the primary Settlement impact to be erroneous actual consumption data, i.e. if there is a physical issue with the installation on the Metering Equipment, the Meter will not be recording consumption correctly.

When estimating the error per day, we used the standard rate card related to average daily error for erroneous actual consumption values. This rate card is derived by assessing a sample of HH and NHH consumption data flows and determining whether any retrospective corrections to actual consumption values occur. Please see the erroneous actuals rate card for more details.

We convert the error volume into a monetary value by the forecast system buy and sell price for the upcoming period.

Other considerations for this risk

- There were 13 Trading Disputes raised in the 2017/18 period related to this risk. These disputes presented an estimated total materiality of £5.3m
- Non-compliance with Commissioning processes was raised as a significant issue in the 2017/18 BSC Audit
- Due to on-going issues related to this risk, a number of Technical Assurance checks related to Commissioning processes have been undertaken in previous years each finding widespread non-compliance
- Due to the introduction of new Commissioning data flows in November 2018 (CP1496 and CP1497), we could see this risk reduce in future

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