4 Appendices

4.1 Description of Inspection Checks

This appendix describes the tests & checks that may be required to be carried out by the TAA as part of an Inspection Visit, as determined by the PAB. This is not an exhaustive list.

4.1.1 Measurement Transformer Specification (where appropriate)

Where possible check the:

(a) Ratio, class, rated burden and polarity from the labels physically attached to the measurement transformers and/or the identification plates attached to switchgear or other enclosures containing measurement transformers (in practice this will not always be practical for safety reasons). And

(b) Test records/certificates detailing specific measured errors held by the LDSO, or equipment owner, associated with the measurement transformers on site or from agreed Generic CT/VT certificates (SVA) in the case of CTs and VTs.

4.1.2 Meter Technical Details

Check to ensure that the actual Meter Technical Details conform to those recorded in Settlement Systems using:

(a) Information provided by the CDCA (CVA), Registrant (SVA) or Party Agent in accordance with Section 1.14 of this BSCP, including any measurement transformer error offsets & commissioning details.

(b) Information supplied to the CDCA, HHDC and MOA.

(This may require a remote/local interrogation of data for comparison purposes).

4.1.3 Accuracy

The following checks should be performed to verify the overall accuracy requirements of the Metering System:

(a) Measurement transformers relate to test certificates provided;

(b) Meter - test certificate calibration details are in accordance with requirements in CoP Four;

(c) Metering Equipment installed is in accordance with the relevant CoP and where required the Main and Check Meters are correctly identified.

The overall accuracy is to be determined by the TAA and shall be within the requirements of the applicable CoP.

4.1.4 Correct Energy Measurement Check

To verify that the Metering System is recording the correct amount of energy, checks shall be carried out that compare the primary load with that being recorded by the Metering System. However, due to the possible restrictive physical location of the primary conductors and Plant at an installation, access may be limited. Where this is the case, other suitable methods may be used to determine correct measurement.

For SVA sites installations can be divided up into the following three categories:

(a) LV whole current;

(b) LV, CT operated;

(c) HV, CT & VT operated.

Sites that fall into categories (a) and (b) will prove to be the most accessible for prevailing load checks. Sites in category (c) may be more difficult to access, but it is often possible to use a clip-on ammeter around the current transformer cables where access to switchgear is restricted.

Note: When all preferred methods of checking the prevailing load fails, other suitable engineering methods may be adopted to establish correct measurement.

Methods of establishing primary load (in order of preference):

1. The demand (derived from independently measured primary values) shall be compared to the Meter’s instantaneous demand reading for the same period; or

2. The demand (derived from independently measured secondary values where the primary/secondary ratios can be established) shall be compared to the Meter’s demand reading for the same period; or

3. Where appropriate an alternative measurement device shall be used for comparison with that of the Settlement Meter; or

4. The MOA shall provide the TAA with appropriate commissioning records. The TAA is required to establish that these details sufficiently verify that the Meter has been proven to be operating correctly during commissioning; or

5. In the event that none of the above is possible, the TAA will notify BSCCo giving the reasons. (This recognises that if 1 to 4 are not possible additional checks do not add value.)

4.1.5 Consumption Data Comparison Check

The TAA shall compare the metered energy data for one half hour recorded at the time of the Inspection Visit with the consumption data held by the HHDC or CDCA for that same half-hour period. If the values differ by more than agreed tolerances the TAA will issue a non-compliance. This check can take place on site or off site at the discretion of the TAA and either method forms part of the Inspection Visit.

The tolerances will be agreed from time to time by the PAB.

In order to obtain and verify stored Meter data values that are eventually transferred to the HHDC or CDCA, it will be necessary to use a Hand Held Unit running relevant approved Hand Held Unit protocol to download data from the Meter or Outstation. This process will also provide engineering units (e.g. kW half hours) or raw pulses and some standing data. Once the pulse multiplier or constant (e.g. a multiplication constant of 0.5 is required to convert kW/MW half hour values to kWh/MWh half hour values) is applied the kWh/MWh value can be compared with the consumption data held by the CDCA or HHDC and the Meter’s (displayed) cumulative advance over the same half hour period. The kWh/MWh value will also be compared with the measured value obtained from the Correct Energy Measurement Check.

This Consumption Data Comparison Check shall take the following format:

1. Compare the Meter Technical Details provided by both the HHDC or CDCA and MOA with that observed on-site. Consideration should also be given to Commissioning and historic proving test information.

2. Take a reading (for the dominant Active Energy flow direction at the time) of the cumulative register on the Meter’s display at the beginning and end of the same half hour period that is to be downloaded from the Meter’s Outstation and requested from the CDCA or HHDC.

3. Using the Meter Register Multiplier, calculate the true Meter register half hour advance for that half hour period.

This cumulative Meter register half hour advance shall also be used to confirm the findings from the Correct Energy Measurement Check where, ideally, the readings for that check were taken within the same half hour period and the load (or generation) was relatively constant during that period. The TAA shall use its discretion, bearing in mind the predictability of the load (or generation), where the readings weren’t taken in the same half hour period.

4. Download a half hour reading from the Meter’s Outstation and convert the value (raw pulses or engineering units) into a kWh half hour reading (for SVA registered Metering Systems) or

5. Request the current actual consumption data held by the CDCA or HHDC for the same half hour period and compare the energy recorded by the Settlement Meter (cumulative Meter register half hour advance) and its associated Outstation(s) (half hour value) with the energy value held in the CDCA or HHDC systems which will be submitted to Settlement.

One Active Energy channel will be requested unless a non-compliance is identified.

4.1.6 Code of Practice Compliance

All points to be checked as specified in the appropriate CoP.

4.1.7 Quality of Installation

All points to be checked as specified in the applicable CoP, including:

(a) Labelling of equipment.

(b) General standard of installation i.e. good working practice.

4.1.8 ELEXON will perform an estimated metered error calculation, to be included in the Annual Report to the PAB, to provide an indication of the impact of errors on Settlement, in particular the impact that category 1 non-compliances may be having, this will mean that ELEXON will need to record the estimated materiality for all category 1 non-compliances.

This estimated net error calculation shall take the following format:

(a) Calculate the percentage error.

(b) Using the percentage error, calculate what would have been in Settlement if the error had not occurred.

(c) Calculate the difference between what should have been in Settlement and what is actually in Settlement to provide a materiality in MWh.

4.2 Not Used

4.3 Provision of Measurement Transformer Certificates for Metering Equipment

4.3.1 Objective

BSC Parties require assurance that Metering Equipment operates within the accuracy limits defined in the appropriate CoP. As part of the process of establishing this assurance, evidence is required of the measurement transformer errors associated with the Metering System. This section explains the process involved in achieving such assurance.

4.3.2 Ownership

In the context of this BSCP, Equipment Owner is defined as the owner of the measurement transformers which form part of the Metering System.

4.3.3 Responsibilities

The MOA responsibilities are as stated in the Code and Code Subsidiary Documents.

The Equipment Owners responsibilities regarding the provision of measurement transformer certificates and co-operation with the MOA, are stated in the Code and Code Subsidiary Documents.

The MOA should request the measurement transformer certificates from the Equipment Owner. The Equipment Owner should provide these certificates to MOA within the required timescales. Consistent failure to do so may lead to the Equipment Owner being requested to explain why to the PAB.

4.3.4 Procedures for CoP1, CoP2, S1 and S2

The MOA should obtain the necessary measurement transformer test certificates from the Equipment Owner. This should be provided within 10 WD of the request.

If the necessary test certificates are not immediately available, the Equipment Owner shall advise the MOA of that situation (**within 10 WD of the request**) and state what steps are being taken to obtain the test certificates associated with the measurement transformers for that circuit/Site.

If the Equipment Owner does not have the necessary test certificates readily available, the Equipment Owner should request copies of the original test certificates. Where these are obtained, they should then be supplied to the MOA as soon as possible after the request from the MOA.

If the required test certificates are not available, the Equipment Owner must either:

(a) Quote errors for a measurement transformer of similar characteristics, e.g. accuracy class, ratio, burden rating, manufacturer, type, age, etc; or

(b) Obtain measurement transformer errors by testing; or

(c) Replace the installed units by units with known errors at the earliest opportunity.

In either of (a) or (b) above, the Equipment Owner shall provide evidence to support the errors provided. This information shall be passed to the MOA within a further period of 10 WD of the errors being established.

The MOA will, as required, provide to the TAA the information supplied by the Equipment Owner.

4.3.5 Procedures for CoP3, CoP5, S3 and S5

The MOA should obtain the necessary measurement transformer error certificates from the Equipment Owner. This should be provided within 10 WD of the request[[1]](#footnote-1).

If the necessary error certificates are not readily available the Equipment Owner must provide the MOA, (**still within the 10 WD of the request**), with one of the following:

* + - * Copies of the original certificates
			* A generic certificate.

A generic certificate needs to be approved by the Panel. In order to approve a generic certificate, the Panel requires evidence that the statistical analysis method used is robust. The statistical analysis needs to be specific to ratio, make, rating, class and type.

When carrying out an audit the TAA will ask the MOA for the measurement transformer error certificates. The MOA will provide to the TAA, the information provided by the LDSO.

4.4 Details of Forms for use in Technical Assurance

For the purposes of Technical Assurance the following forms can be utilised. However all exchange of information required[[2]](#footnote-2) is encouraged through the use of the software system, as used by the TAA:

BSCP27/01 - Notification of an Inspection Visit.

BSCP27/02 **-** Confirmation of Attendance at Technical Assurance Inspection Visit.

BSCP27/03 – No longer used

BSCP27/04 – No longer used

BSCP27/05 **-** Rectification Plan

4.4.1 Notice of Inspection Visit – BSCP27/01

This form, BSCP27/01, is used by the TAA to inform the Registrant of impending Inspection Visits. It contains the date, time and site address for the Inspection Visit. The Registrant is required to respond (by acknowledgement) to this notice in a timely manner; failure to do so may result in the matter being escalated to the PAB.

4.4.2 Confirmation of Attendance – BSCP27/02

This form, BSCP27/02, is used by the Registrant to confirm attendance at an impending Inspection Visit and acceptance of the arrangements requested by the TAA. It is sent in response to a BSCP27/01 form. Failure to respond to this confirmation in a timely manner may be reported to the PAB.

4.4.3 Inspection Schedule for Half Hourly Metering Systems – Part 1 – BSCP27/03

No longer used.

4.4.4 Inspection Schedule for Half Hourly Metering Systems – Part 2 – BSCP27/04

No longer used.

4.4.5 Rectification Plan – BSCP27/05

This form is used by the Registrant, MOA and HHDC / CDCA to provide details to the TAA and/or BSCCo of the action that the party intends to take in order to rectify the non-compliance. Details of all relevant milestones should also be included.

4.5 Forms

Details of all forms follow below in section 4.5.1.

All forms must contain the information stipulated.

4.5.1 BSCP27/01 - Notification of Inspection Visit SVA / CVA

The form must contain the following data items:

Contact Details:

* To
* From
* Email address

Date

Number of Pages (only if Faxing)

List of planned Inspection Visits with the following details:

* Date
* Time
* MSID
* Visit Ref
* Site Name / Address
* Attendees

Details that the Registrant must send or facilitate sending prior to the Inspection Visit:

* Meter Test Certificates for all listed MSIDs
* Test Certificates for all Measurement Transformers for all listed MSIDs
* Commissioning documentation
* Compensation calculations (including Transformer Losses, etc), on a circuit by circuit basis
* Metering Equipment Alarm reporting procedure
* And all other reasonable requests made by the TAA

The TAA must stipulate which areas it will require access to, e.g. Metering Equipment Room, Central Control Room, Gen Alternator Pit, Gen VT Chamber, CT / VT’s, substations (this list is not exhaustive).

4.5.2 BSCP27/02 - Confirmation of Attendance at Technical Assurance Visit

The form must contain the following data items:

Contact Details:

* To
* From
* Email address

Date

Number of Pages (only if Faxing)

Written confirmation of Attendance at the TAA visit

Contact details for the site (per MSID):

* MSID
* Contact
* Company
* Telephone Number
* TAA visit Reference

Attending Parties:

* Meter Operator Agent Contact
* Registrant Contact
* LDSO Contact
* Customer Contact

4.5.3 BSCP27/03 - Not used

4.5.4 BSCP27/04 - Not used

4.5.5 BSCP27/05 - Rectification Plan Proforma

The form must contain the following data items:

Registrant

MOA

HHDC

LDSO

Contact Details:

* Telephone number
* Email address

MSID

TAA Site Visit Reference

Registrant Ref Number

Site Name & Address

Non Compliances - 1 rectification plan per non compliance:

* Category
* Associated Rectification Action
* Target date for completion
* Key Milestones (e.g. MTDs provided by specific date)
* Where the responsibility is for completing the action
1. Where the LV CTs are of accuracy class 0.5 or below the TAA will not require the MOA to obtain the CT certificates and the error shall be deemed that of the accuracy class in both directions for the purpose of establishing the overall error. [↑](#footnote-ref-1)
2. The TAA is able to request any additional information in relation to any Metering System, and is not restricted to the Metering Systems which are being physically audited. [↑](#footnote-ref-2)