Commissioning of measurement transformers for Settlement purposes (Code of Practice 4)

This guidance provides information regarding the Balancing and Settlement Code (BSC) requirements for the commissioning of Half Hourly Metering Equipment in accordance with Code of Practice 4 'The calibration, testing and commissioning requirements of Metering Equipment for Settlement Purposes' (CoP4).

1. Background

CoP4 sets out the requirement for commissioning, testing and the calibration of all Metering Equipment for Settlement purposes. A BSC Modification, P283 'Reinforcing the Commissioning of Metering Equipment Processes', made changes to the BSC and CoP4 on 6 November 2014 with respect to the commissioning and testing of Metering Equipment responsibilities.

The roles and responsibilities for all commissioning and calibration requirements as set out in the BSC and CoP4, the overall responsibly rests with the Registrant[1]. Commissioning under CoP4 is required when new equipment is installed.

P283 has introduced a distinction where measurement transformers (Current Transformers and Voltage Transformers (CTs and VTs)) which are under the ownership of a Party to the BSC (typically the Distribution System Operator or the National Electricity Transmission System Operator (NETSO)), that Party will become responsible for the commissioning and calibration requirements of its own equipment leaving the remainder of the Metering Equipment to be completed by the MOA. The MOA, having been provided the notification of Commissioning Information Dataflow "DA" from the equipment owner would use this information to enable it to complete it's own commissioning obligations under CoP4. The MOA is then required to notify the Registrant that commissioning of the Metering System is completed and provide notification of any defects or omissions in that process[2]. It should be noted that this process applies to all CT operated Half Hourly Metering Equipment including, for the avoidance of doubt, CoP10 Metering Systems.

Where CTs and/or VTs are not under the ownership of a BSC Party (for example a customer may own this equipment) then all of the requirements for Commissioning, testing and calibrations are the responsibility of the MOA to carry out on behalf of the Registrant. In some cases, especially high voltage Metering Systems, it may be necessary for the MOA to seek the assistance of the relevant system operator in carrying out these functions. As with the above process the MOA is required to inform the Registrant of the outcome of this process.

In all cases, irrespective of equipment ownership, the Registrant remains responsible for the Metering System as a whole including overall accuracy and the assessment thereof.

This guidance describes the processes that may be followed to ensure compliance with CoP4 following the implementation of P283. In the event of any inconsistency between this guidance and CoP4 then CoP4 shall prevail.

[1] A Registrant is a Party to the BSC who registers Metering Systems in either the Supplier or Central Meter Registration Systems (SMRS or CMRS) and is responsible for it.
[2] This notification should be undertaken through use of the Notification of Commissioning Status Dataflow "D0384" as described in BSCP514

2. Process

The process to be put in to place should cover at least the following requirements:

Where measurement transformers are owned by a BSC Party then, in respect of those measurement transformers and including Test Facilities, that Party shall:

a) Establish a commissioning process which verifies through testing:

- The ratios and polarities of all measurement transformers used for Settlement purposes in accordance with CoP4;
- Confirms the location of measurement transformers in relation to the Defined Metering Point;
- The relationship between voltages and currents are correct; and
- Establish the burden on measurement transformers up to and including the Test Facility.

b) Establish a process which calibrates measurement transformers and maintains records of such tests in accordance with CoP4; and

c) Maintains calibration and commissioning records for provision to the relevant MOA and Supplier as required from time to time.

d) The MOA shall:

- Receive the Notification of Commissioning Information Dataflow "D0383 dataflow";
- Ensure that the D0383 Dataflow is sufficiently populated to allow the MOA to complete its own Commissioning obligations
- Confirm that Meters are set to actual ratios of the installed measurement transformers;
- Confirm that all voltages and currents are of the correct relationship and that standard phase rotation exists at the Meter terminals;
- Confirm that the overall burden on measurement transformers are within limits;
- Where compensations are to be applied that they are correct;
- Any phase failure alarms operate correctly;
- The output of the Metering System correctly records the energy in the primary circuit at the Defined Metering Point;
- Establish a commissioning process which verifies through testing the correct operation of the Meters in accordance with CoP4;
- Assess the overall accuracy of the Metering System for compliance with the relevant CoP; and
- Provide notification (via the D0384 Dataflow) to the Supplier that the commissioning process is successfully completed in accordance with CoP4 or that commissioning is not successful or complete together with notification of any defects or omissions in that process.

Where measurement transformers are not owned by a BSC Party then, the MOA shall carry out all the procedures identified in Section 2. It will remain the responsibility of the Registrant to ensure that the requirements of CoP4 are met irrespective of the owner of certain Metering Equipment.

e) The Registrant shall:

- Receive the Notification of Commissioning Status Dataflow "D0384" from the MOA.

- Assess the notification from the MOA and determine whether they believe that there is a risk to Settlement.

- Where there is deemed to be a risk to Settlement, consult with the relevant network operator and agree the appropriate steps to be taken to minimise such risk.

CoP4 commissioning is required for all newly installed Metering Equipment which includes Metering Equipment that is has been replaced such as measurement transformers or Meters Etc.

Where individual items of Metering Equipment are to be replaced then only those items are required to be Commissioned. For clarification, Metering Systems in their entirety need not be re-Commissioned when items are replaced within that system. However it is necessary to re-evaluate the overall accuracy of the Metering System as part of the commissioning process and a notification is to be sent to the Registrant of the commissioning results.

3. Scenarios

The following non-exhaustive scenarios are provided for assistance in meeting the requirements of CoP4:

Scenario 1

New HV Site – A BSC Party owns the measurement transformers

In this scenario a Licenced Distribution System Operator (LDSO) or the NETSO has installed HV switchgear containing CTs and VTs which it owns[3]

LDSO/NETSO Process

Ensure that calibration records for CTs and VTs showing actual test errors are available.

Record the CTs and VTs serial numbers, class accuracy, burden and makes and models.

Using appropriately calibrated test equipment in accordance with CoP4 5.5.1 to:

1. Carry out tests and record the results of the CTs and VTs to establish they are of the correct ratio and polarity (CT pole face P1 should face toward the distribution or transmission system in all cases however the orientation of each CT must be clearly indicated on the commissioning record). All ratios of multi ratio equipment must be tested and verified. Clearly record the CT and VT ratios that have been selected. The test record should describe the methods used to establish ratios and polarities at the Test Facility;
2. Note and record the location of the CTs and VTs in relation to the Defined Metering Point as set out in Appendix A of the relevant CoP;
3. Establish and record the correct relationships between voltages and currents and that the phase sequence at the Test Facility is correct;
4. Establish and record any measurement transformer burdens at the Test Facility; and
5. Provide a copy of the commissioning record form part 1 together with copies of the CT and VT calibration records to the relevant MOA and Supplier[4] via the Notification of Commissioning Information "D0383" Dataflow.

MOA Process

When required[5], request copies of the LDSO/NETSO part 1 commissioning and calibration records and assess for completeness and accuracy. Query and clarify anything which is unclear or incorrect. Using appropriately calibrated test equipment, in accordance with CoP4 5.5.1, carry out tests and make records which demonstrate that:

1. The relationships between voltages and current are correct at the Meter terminals and are in the correct phase sequence;
2. Establish and record the burdens on the measurement transformers and also confirm they are within limits;
3. The Meters are set to the same ratios as the measurement transformers as notified by LDSO/NETSO via the D0383 Dataflow;
4. Where relevant, Meters have the correct compensation values to account for system losses;
5. Record any compensations applied to Meters for measurement transformer errors;
6. Verify that the Metering System correctly records the energy of the primary system at the Defined Metering Point;
7. Where possible, confirm that the recorded consumption is of the correct magnitude using an alternative data source (e.g. clamp ammeter, telemetry data, panel ammeter)[6];

[3] This may include assets in the process of being adopted by the LDSO or NETSO from Independent Connections Providers (ICP) under pre-agreed contracts for adoption. In such cases testing may be conducted by the ICP as condition of and in advance of adoption by the LDSO or NETSO.
[4] This step may be met on request from the MOA. Consideration as to whether it is practical to leave a copy of test results on site should be considered.
5 Where the MOA has reason to doubt the information provided in the D0383 dataflow, or the D0383 dataflow does not provide enough information to enable the MOA to complete Commissioning then they shall request the Commissioning Record from the LDSO.

8. The Metering Equipment detects phase failure and operates the required alarms;
9. Confirm that the Meter will record Active energy flows from the LDSO or NETSO to an installation will be recorded as Import (AI) and, where relevant, and flow in the opposite direction will be recorded as an Export (AE);
10. Note any defect or omission in the above processes and inform the relevant Supplier (via the D0384 Dataflow) of the potential impact; and
11. Carry out a proving test in accordance with BSCP514 or BSCP02 as appropriate.

Registrant process

1. Receive the Notification of Commissioning Status Dataflow "D0384" from the MOA

2. Assess the notification from the MOA and determine whether they believe that there is a risk to Settlement

3. Where there is deemed to be a risk to Settlement, consult with the relevant network operator and agree the appropriate steps to be taken to minimise such risk.

[6] It is recommended that this test is performed in the interest of good industry practice however it is not an obligation on the MOA.

Scenario 2

New LV Site – A BSC Party owns the measurement transformers

In this scenario the LDSO has installed LV CTs which it owns[7]

LDSO Process

Ensure that calibration records for CTs and VTs, showing actual test errors are available.

Record the CT serial numbers, class accuracy, burden and makes and models.

Using appropriately calibrated test equipment in accordance with CoP4 5.5.1 to:

1. Carry out tests and record the results on the CTs to establish they are of the correct ratio and polarity (CT pole face P1 should face toward the distribution or transmission system in all cases however the orientation of each CT must be clearly indicated on the commissioning record). All ratios of multi ratio equipment must be tested and verified. Clearly record the CT ratios that have been selected. The test record should describe the methods used to establish ratios and polarities at the Test Facility;
2. Note and record the location of the CTs and VTs in relation to the Defined Metering Point as set out in Appendix A of the relevant CoP;
3. Establish and record the correct relationships between voltages and currents and that the phase sequence at the Test Facility is correct;
4. Establish and record any measurement transformer burdens at the Test Facility; and
5. Provide a copy of the commissioning record form part 1 together with copies of the CT calibration records to the relevant MOA and Supplier[4] via the Notification of Commissioning Information "D0383" Dataflow.

MOA Process

When required, request copies of the LDSO/NETSO part 1 commissioning and calibration records and assess for completeness and accuracy.

Using appropriately calibrated test equipment, in accordance with CoP4 5.5.1, carry out tests and make records which demonstrate that:

1. The relationships between voltages and current are correct at the Meter terminals and are in the correct phase sequence;
2. Establish and record the burdens on the measurement transformers and also confirm they are within limits;
3. The Meters are set to the same ratios as the measurement transformers as notified by LDSO/NETSO via the Notification of Commissioning Information "D0383" Dataflow.
4. Where relevant, Meters have the correct compensation values to account for system losses;
5. Record any compensations applied to Meters for measurement transformer errors;
6. Verify that the Metering System correctly records the energy of the primary system at the Defined Metering Point;
7. The Metering Equipment detects phase failure and operates the required alarms;

[7] This may include assets in the process of being adopted by the LDSO or NETSO from Independent Connections Providers (ICP) under pre-agreed contracts for adoption. In such cases testing may be conducted by the ICP as condition of and in advance of adoption by the LDSO or NETSO.

8. Confirm that the Meter will record Active energy flows from the LDSO or NETSO to an installation will be recorded as Import (AI) and, where relevant, and flow in the opposite direction will be recorded as an Export (AE);
9. Note any defect or omission in the above processes and inform the relevant Supplier (via the D0384 Dataflow) of the potential impact; and
10. Carry out a proving test in accordance with BSCP514 or BSCP02 as appropriate.

Registrant process

1. Receive the Notification of Commissioning Status Dataflow "D0384" from the MOA
2. Assess the notification from the MOA and determine whether they believe that there is a risk to Settlement
3. Where there is deemed to be a risk to Settlement, consult with the relevant network operator and agree the appropriate steps to be taken to minimise such risk.

Scenario 3

New Site HV – A non BSC Party (the Equipment Owner) owns the measurement transformers

In this scenario the Equipment Owner has installed HV switchgear containing CTs and VTs which it owns.

System Operator Process

1. The system operator should liaise with the MOA to ensure that the MOA is informed in advance of making live, that Metering Equipment is available to test.

MOA Process

Using appropriately calibrated test equipment in accordance with CoP4 5.5.1 to:

1. Carry out tests and record the results of the CTs and VTs to establish they are of the correct ratio and polarity (CT pole faceP1 should face toward the distribution or transmission system in all cases however the orientation of each CT must be clearly indicated on the commissioning record). All ratios of multi ratio equipment must be tested and verified. Clearly record the CT ratios that have been selected. The test record should describe the methods used to establish ratios and polarities;
2. Note and record the location of the CTs and VTs in relation to the Defined Metering Point as set out in Appendix A of the relevant CoP;
3. Establish and record the correct relationships between voltages and currents and that the phase sequence at the Meters are correct;
4. Establish and record the burdens on the measurement transformers and also confirm they are within limits;
5. Confirm that the Meters are set to the same ratios as the measurement transformers;
6. Where relevant, Meters have the correct compensation values to account for system losses;
7. Record any compensations applied to Meters for measurement transformer errors;
8. Verify that the Metering System correctly records the energy of the primary system at the Defined Metering Point;
9. The Metering Equipment detects phase failure and operates the required alarms;
10. Confirm that the Meter will record Active energy flows from the transmission or distribution system, as appropriate, to an installation as an Import (AI) and, where relevant, a flow in the opposite direction will be recorded as an Export (AE);
11. Note any defect or omission in the above processes and inform the relevant Supplier via the D0384 Dataflow of the potential impact; and
12. Carry out a proving test in accordance with BSCP514 or BSCP02 as appropriate.

Registrant process

1. Receive the Notification of Commissioning Status Dataflow "D0384" from the MOA
2. Assess the notification from the MOA and determine whether they believe that there is a risk to Settlement
3. Where there is deemed to be a risk to Settlement, consult with the relevant network operator and agree the appropriate steps to be taken to minimise such risk.

Scenario 4

New Site LV – A non BSC Party (the Equipment Owner) owns the CTs

In this scenario the Equipment Owner has installed CTs which it owns.

LDSO Process

1. The LDSO should liaise with the MOA to ensure that the MOA is informed in advance of making live, that Metering Equipment is available to test.[8]

MOA Process

Obtain copies of calibration records for the CTs, showing actual test errors.

Record the CTs serial numbers, class accuracy, burden, make and model.

Using appropriately calibrated test equipment in accordance with CoP4 5.5.1 to:

1. Carry out tests and record the results of the CTs to establish they are of the correct ratio and polarity (CT pole faceP1 should face toward the distribution or transmission system in all cases however the orientation of each CT must be clearly indicated on the commissioning record). All ratios of multi ratio equipment must be tested and verified. Clearly record the CT ratios that have been selected. The test record should describe the methods used to establish ratios and polarities;
2. Note and record the location of the CTs in relation to the Defined Metering Point as set out in Appendix A of the relevant CoP;
3. Establish and record the correct relationships between voltages and currents and that the phase sequence at the Meters are correct;
4. Establish and record the burdens on the measurement transformers and also confirm they are within limits;
5. Confirm that the Meters are set to the same ratios as the measurement transformers;
6. Where relevant, Meters have the correct compensation values to account for system losses;
7. Record any compensations applied to Meters for measurement transformer errors;
8. Verify that the Metering System correctly records the energy of the primary system at the Defined Metering Point;
9. The Metering Equipment detects phase failure and operates the required alarms;
10. Confirm that the Meter will record Active energy flows from the transmission or distribution system, as appropriate, to an installation as an Import (AI) and, where relevant, a flow in the opposite direction will be recorded as an Export (AE);
11. Note any defect or omission in the above processes and inform the relevant Supplier (via the D0384 Dataflow) of the potential impact; and
12. Carry out a proving test in accordance with BSCP514 or BSCP02 as appropriate.

Registrant process

1. Receive the Notification of Commissioning Status Dataflow "D0384" from the MOA

2. Assess the notification from the MOA and determine whether they believe that there is a risk to Settlement

3. Where there is deemed to be a risk to Settlement, consult with the relevant network operator and agree the appropriate steps to be taken to minimise such risk.

[8] It should be noted that the Meter Operations Code of Practice Agreement (MOCOPA®) Schedule 5 para 5 requires the Distribution Business and the Meter Operator to liaise with each other to ensure that new metering work and energisation is completed with the minimum delay.

Scenario 5

Existing SVA Site LV – A BSC Party (the Equipment Owner) owns the CTs.

In this scenario the Equipment Owner has installed new CTs. This scenario equally applies where the ratio is changed on multi ratio CTs and/or VTs.

LDSO Process

1. Where this work is not urgent, and is therefore scheduled, the LDSO should contact the MOA and Supplier to inform them that measurement CTs are to be replaced before the event. For urgent works notification is to be provided as soon as possible[9]
2. The LDSO installs the new CTs,
3. Carry out tests and record the results of the CTs to establish they are of the correct ratio and polarity (CT pole face P1 should face toward the distribution or transmission system in all cases however the orientation of each CT must be clearly indicated on the commissioning record). All ratios of multi ratio equipment must be tested and verified. Clearly record the CT ratios that have been selected. The test record should describe the methods used to establish ratios and polarities
4. Note and record the location of the CTs in relation to the Defined Metering Point as set out in Appendix A of the relevant CoP;
5. Record the CTs serial numbers, class accuracy, burden, make and model.
6. Establish and record the burdens on the measurement transformers and also confirm they are within limits;
7. Send a new D0215 flow 'Provision of Site Technical Details', calibration records and a new commissioning form Part 1 to the MOA via the Notification of Commissioning Information "D0383" Dataflow.

MOA Process

When required, request copies of the LDSO/NETSO part 1 commissioning and calibration records for the new CTs and the D0215.

1. Arrange site visit site to:
2. Confirm that the Meters are set to the same ratios as the measurement transformers;
3. Verify that the Metering System correctly records the energy of the primary system at the Defined Metering Point;
4. The Metering Equipment detects phase failure and operates the required alarms;
5. Confirm that the Meter will record Active energy flows from the transmission or distribution system, as appropriate, to an installation as an Import (AI) and, where relevant, a flow in the opposite direction will be recorded as an Export (AE);
6. Note any defects or omissions in the above processes and inform the relevant Supplier (via the D0384 Dataflow) of the potential impact; and
7. Carry out a proving test in accordance with BSCP514 or BSCP02 as appropriate.

Registrant process

1. Receive the D0215 flow from the LDSO and the Notification of Commissioning Status "D0384" Dataflow from the MOA
2. Assess the notification from the MOA and determine whether they believe that there is a risk to Settlement
3. Where there is deemed to be a risk to Settlement, consult with the relevant network operator and agree the appropriate steps to be taken to minimise such risk.

[9] MOCOPA® Schedule 5 para 6.3.1 requires at least 15 business day notice for planned work, and as soon as possible for unplanned work

Scenario 6

Existing Site LV – A BSC Party (the Equipment Owner) owns the CTs

In this scenario the Meter Operator Agent replaces a Meter and there are no commissioning records for the CTs.

MOA Process

1. If not already received request a D0215 from the LDSO;
2. MOA visits site to replace a Meter;
3. Ensure that the CT ratio of the D0215 matches that of the CT labels – Note any discrepancies;
4. Based on the CT labels, if visible, confirm that the Meters are set to the same ratios as the measurement transformers;
5. Verify that the Metering System correctly records the energy of the primary system at the Defined Metering Point;
6. The Metering Equipment detects phase failure and operates the required alarms;
7. Confirm that the Meter will record Active energy flows from the transmission or distribution system, as appropriate, to an installation as an Import (AI) and, where relevant, a flow in the opposite direction will be recorded as an Export (AE);
8. Note any defects or omissions in the above processes and inform the relevant Supplier (via the D0384 Dataflow) of the potential impact; and
9. Carry out a proving test in accordance with BSCP514 or BSCP02 as appropriate.

Registrant process

1. Assess the Notification of Commissioning Status "D0384" Dataflow from the MOA and determine whether they believe that there is a risk to Settlement
2. Where there is deemed to be a risk to Settlement, consult with the relevant network operator and agree the appropriate steps to be taken to minimise such risk.

Sample Measurement Transformers Commissioning Record

Metering Equipment Commissioning Record Part 1 (Measurement Transformers)

For HV systems - Switchgear Serial Number(s).....Details

Primary System configuration:

3 phase 3 wire / 3 phase 4 wire / Single phase 2 wire / other..... (specify)*

Current Transformer	L1	L2[10]	L3
Location of CTs with respect to the Defined Metering Point			
Serial Number			
Burden			
Accuracy Class			
Make			
Type			
Available Ratios (in Amps)			
Ratio Selected (in Amps)			
CT pole face P1 facing Distribution/ Transmission System?	**Yes/No***	**Yes/No***	**Yes/No***

Voltage Transformer	Feeder 1	Feeder 2	Feeder 3
Location of VTs with respect to the Defined Metering Point			
Serial Number			
Burden			
Accuracy Class			
Make			
Type			
Available Ratios (in Volts)			
Ratio Selected (in Volts)			

[10] If applicable

L1 CT associated with L1 voltage?	**Yes/No***
L2 CT associated with L2 voltage?[10]	**Yes/No***
L3 CT associated with L3 voltage?	**Yes/No***
Standard Phase sequence at Testing Facility (L1, L2, L3)?	**Yes/No***
CT shorting links left closed?	**Yes/No***
CTs and VTs Calibration Records attached?	**Yes/No***
CT secondary cable run	VA
Other …*description*……..	VA
Total CT Burden to Testing Facility	VA
VT secondary cable run…….	VA
Other …*description*……..	VA
Total VT Burden to Testing Facilities	VA
All connections tight?	**Yes/No***

Meter potential fuse ratings……...Amps

Local fuse rating, as informed by the MOA……...Amps

Ratio Verification

Test performed: Primary Injection/Prevailing load tests*

Test Results:

Primary Injection Tests

Instruments Used:…… *Include description and serial Nos* ……

Calibration expiry dates:…….

Voltage Transformers	L1 – L2 (Volts)	L2 – L3 (Volts)	
Primary Volts Injected			
Secondary Volts measured High Ratio			
Secondary Volts measured Low Ratio			
Ratio Calculation			
High Ratio			
Ratio Calculation			
Low Ratio			

Current Transformers	L1 (Amps)	L2[10] (Amps)	L3 (Amps)
Primary Current Injected			
Secondary Current measured Hi Ratio			
Secondary Current measured Mid Ratio			
Secondary Current measured Low Ratio			
Ratio Calculation High Ratio			
Ratio Calculation Middle Ratio			
Ratio Calculation Low Ratio			

Prevailing Load Tests

Instruments Used:……*Include description and serial Nos*……

Calibration expiry dates:……..

	L1 (Amps)	L2[10] (Amps)	L3 (Amps)
Primary Current Measurement			
Secondary Current measurement			
Ratio Calculation			

CT Polarity Verification

Description of Tests performed……

For example, verification with known standard CT(buck & boost tests) or DC flick test.

Instruments Used:…… *Include description and serial Nos* ……

Calibration expiry dates:……..

Field notes:

All tests performed and are correct **Yes/No***

Tests performed by: …… Date of Tests:……..

*Delete as appropriate

Metering Equipment Commissioning Record Part 2 (Meters)

Site arrangement **LV/HV***

Test Undertaken **Primary Injection/Secondary Injection/Prevailing Load***

Meters			
Serial Number			
Manufacturer			
Type Reference			
Meter CT ratio			
Meter VT ratio			
Register Readings			
Date & Time			
KW demand			

Correct phase sequence at Meter terminals? **Yes/No***

Current and Voltages have correct relationship? **Yes/No***

Overall Burden on CTs is within limits? **Yes/No***

Total CT Burden to Testing Facility .....VA

Meters ....VA

Other .....VA *description* .....

Total CT Burden..... .....VA

Overall Burden on VTs is within limits? **Yes/No***

Total VT Burden to Testing Facilities .....VA

Meters .....VA

Other .....VA *description* .....

Total VT Burden.....VA

Confirm that the Meter is set to the actual ratios of the CTs and VTs **Yes/No***

Meter Compensations:

Purpose of compensations:.....

Compensations applied.....L1.....L2[10].....L3.....

If not already indicated on Form Part 1

Are the CTs and VTs located at the Defined Metering Point? **Yes/No***

If No state location and reason if known……
……

Phase fail alarms operating correctly? **Yes/No***

AI register advances when Active energy flows from the Distribution/Transmission system? **Yes/No***

CT shorting links left open? **Yes/No***

Meter potential fuse ratings……Amps Indicate how verified…Visual inspection/ as informed by system operator*

Local fuse rating……...Amps

Commissioning form Part 1 verified and correct **Yes/No***

All connections tight? **Yes/No***

Confirm that the Meter/s are recording the energy in the primary circuit/s correctly Yes/No* and

Identify the tests and the results used for this confirmation……
……..

Field Notes:

Tests performed by: …… Date of Tests:……..

*Delete as appropriate

Sample: Notification of Defect/Omission of Meter Equipment Commissioning

From: the MOA

To: the Registrant

MSID:……..

Date:……

Customer:……

Address……

Metering Equipment Commissioning Issue

The Metering Equipment associated with the above Metering Systems has undergone commissioning in accordance with Code of Practice 4. However we have identified an error/omission* in the process which cannot be immediately remedied.

The error/omission* is:

……
……

This means that we are not able to verify the accuracy of the Metering Systems and there remains a potential for the Metering System to:

……
……

We recommend that the following steps are necessary to assure the Metering System accuracy:

……
……

Print Name……

Signed……..

Date……

Sample: Notification of Correct and Complete Commissioning of Metering Equipment

From: the MOA

To: the Registrant

MSID:……..

Date:……

Customer:……..

Address……

Metering Equipment Commissioning

This is to advise you that the above Metering System has been successfully commissioned in accordance with CoP4 and we have not identified any issues with the Metering Equipment.

The Metering Equipment associated with the above Metering Systems has undergone commissioning in accordance with Code of Practice 4 and there are no defects, omissions or errors identified.

Print Name……

Signed……..

Date……

Risk Matrix

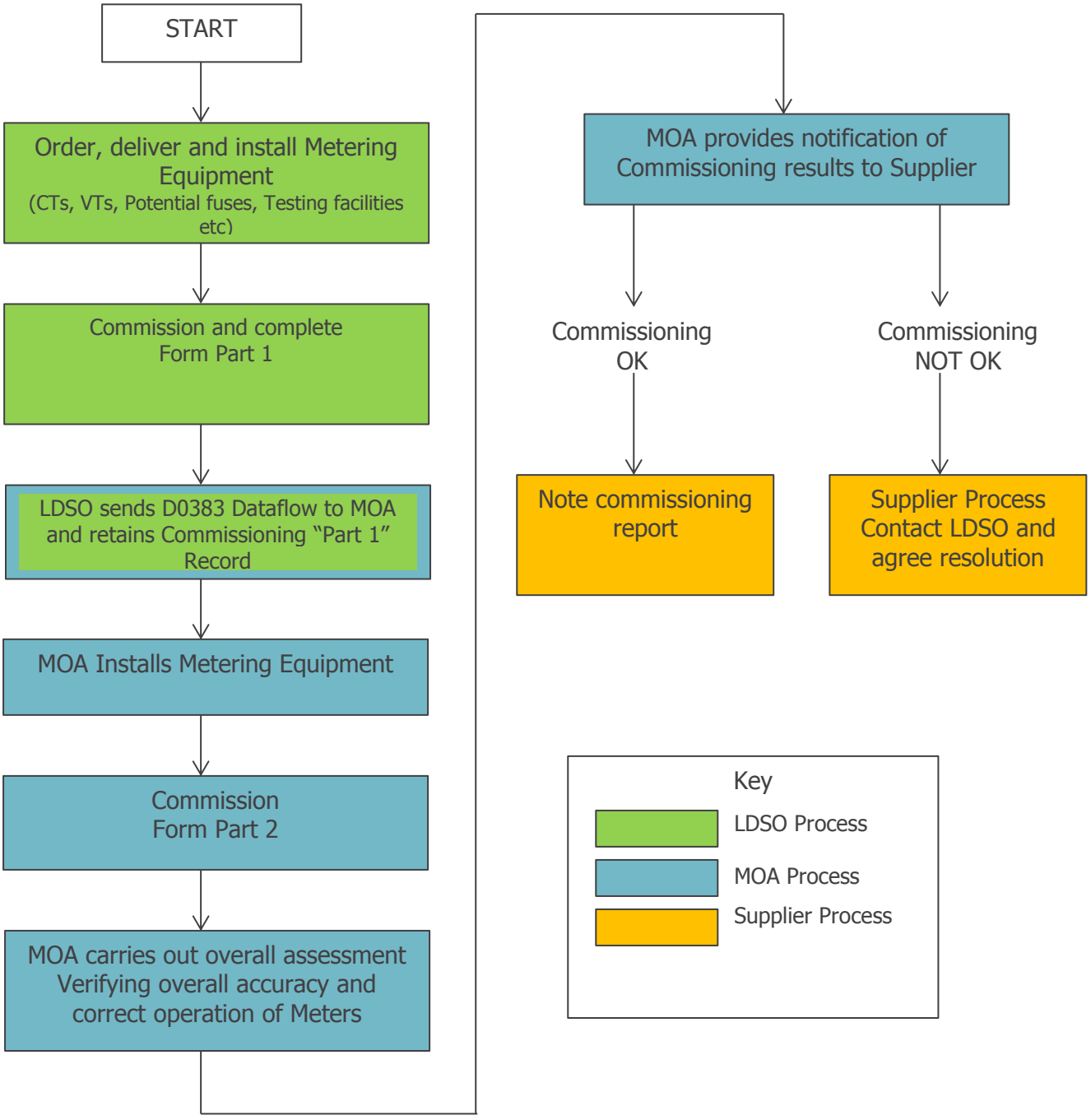
This information is provided to assist in the evaluation of risks arising from defects or omissions in the commission processes. Where the commissioning process is not complete there can be no certainty about the accuracy of the Meter/s and this risk matrix is designed to help MOAs classify and Suppliers understand the potential risks involved. Suppliers should note that where a risk has been identified through this process it means there may be a problem with the accuracy of the Metering System. Where the risk is high it means that the materiality of an error (should one exist) is high.

Defect/omission	Potential Settlement error	Risk	Advice for Suppliers
No LDSO commissioning record (Form Pt 1)	**>100% error**	High	Ask the LDSO to carry out a commissioning test ASAP.
Incomplete information in Form Pt 1	**>100% error**	High	Ask the LDSO to complete the commissioning test ASAP.
No CT/VT calibration certificates	**Error could be up to 10%**	Low	Ask the LDSO to provide certificates.
Missing or incomplete information in CT/VT calibration certificates	**Error could be up to 10%**	Low	Ask the LDSO to provide certificates.
No MOA commissioning record (Form Pt 2)	**>100% error**	High	Ask the MOA to carry out a commissioning test ASAP.
Incomplete information in Form Pt 2	**>100% error**	High	Ask the MOA to complete a commissioning test ASAP.
No Meter calibration certificates	**Error could be up to 2%**	Low	Ask the MOA to obtain Meter calibration certificate.
Incomplete information in meter calibration records	**Error could be up to 2%**	Low	Ask the MOA to obtain complete Meter calibration certificate.

The MOA may consider reducing high risks to medium if there is other evidence which suggests that the risk is reduced. For example: Where there is no part 1 commissioning information then the CT ratio and polarity are unknown causing a high risk as set out in the above matrix. If the MOA is able to physically see the labels on the CTs (as installed by the CT manufacturer) showing ratio and polarity then the risk may be reduced from high to medium. Independent alternative measurement sources can also be used for this purpose.

Process flow diagram

The following diagram shows a typical process flow for a new distribution system connected Metering System.



Useful Links

- BSCP02
- BSCP514
- Code of Practice 4
- BSC Guidance Notes
- ELEXON Ltd

Need more information?

For more information please contact the **BSC Service Desk** at bscservicedesk@cgi.com or call **0370 0106950.**