WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Company Directive

STANDARD TECHNIQUE: TP14D/5

Commissioning of Distribution Business Provided Metering Facilities

Summary

This standard technique document details the tests to be undertaken and the test results & test certificates to be provided by the distribution business in order to enable the accurate measurement of electricity transfers at defined metering points.

Author: **Graham Brewster**

Implementation Date: **October 2018**

Approved By:

Policy Manager

Date: **25th October 2018**

IMPLEMENTATION PLAN

Introduction

This Standard Technique document details the tests to be undertaken by the distribution business, and the test results & test certificates to be provided to the Meter Operator, at customer connections where instrument transformer (i.e. CT & VT) operated metering systems are employed.

Main Changes

This is a revised version of an existing document. The main changes are:

(A) Extension of the "CT Metering" iPad Application (App) to include all types of customer connections i.e.

- LV Combined Cut-out, CT & Meter Cabinets
- LV CT & Meter Cabinets (Separate Cut-Out)
- LV Intake Circuit Breakers
- HV Metering Units
- HV Metering Circuit Breakers
- 25kV Metering Circuit Breakers
- EHV (33kV) Metering Circuit Breakers
- 66kV Metering Circuit Breakers
- 132kV Metering Circuit Breakers

(B) Revised testing regime for all types of customer connections to include an assessment of the connected burden on both metering CTs and VTs.

(C) Revised testing regime for LV Intake Circuit Breakers and HV Metering Units which have been modified to incorporate a 'plug-in' remote meter cabinet.

- Pre-energisation tests will be carried out off-site in a WPD Plant Centre (by Plant Centre staff)
- Energisation tests will be carried out on-site (by Network Services staff) when the asset has been fully installed and the incoming service cable has been energised, but with the customer's installation off load
- Post energisation tests are no longer required

NOTE: Where an LV Intake Circuit Breaker or HV Metering Unit does not incorporate a 'plug-in' remote meter cabinet the existing testing regime continues to apply i.e. post-energisation tests will be carried out on site (by WPD Smart Metering) with the customer's installation energised and on-load.

(D) Revised testing regime for LV CT & Meter Cabinets (Separate Cut-Out) where these have been supplied by the manufacturer with CTs pre-fitted.

- Pre-energisation tests will be carried out off-site in a WPD Depot (by Network Services staff)
- Energisation tests will be carried out on-site (by Network Services staff) when the asset has been fully installed and the incoming service cable has been energised, but with the customer's installation off load
- Post energisation tests are no longer required

NOTE: Where an LV CT & Meter Cabinet (Separate Cut-Out) has been supplied by the manufacturer without CTs pre-fitted the existing testing regime continues to apply i.e. post-energisation tests will be carried out on site (by WPD Smart Metering) with the customer's installation energised and on-load.

(E) Expansion of 'Quick Response' Codes (QR codes) to include all types of customer connections listed in (A) above.

(F) Transfer of commissioning information to the Meter Operator by email discontinued in favour of transfer by electronic dataflow.

(G) Introduction of a formal mechanism by which the Supplier can escalate a deficiency or an omission with WPD's commissioning information. Escalations will be received and responded to by the Records team on behalf of Network Services.

Impact of Changes

This Standard Technique is relevant to all staff who are involved with the planning, costing, design, installation, testing and modification of customer connections where instrument transformer operated metering is employed, including Network Services, Primary System Design, Plant Centre, Record and Inventory teams.

This standard technique is also relevant to Independent Connection Providers.

Implementation Actions

Managers should notify relevant staff that this Standard Technique has been revised and brief them on the changes.

Staff who use Crown and/or iPads should familiarise themselves with the changes described in the updated Crown & iPad User Guide.

Use of the iPad App is now mandatory.

Staff who carry out installation and testing activities must:

- Use the revised Guidance Notes with immediate effect
- Dispose of all Test Sheets and superseded Guidance Notes they may have in their possession.

Implementation Timetable

This revised Standard Technique shall be implemented with effect from Monday 15th October 2018.

REVISION HISTORY

DOCUMENT REVISION & REVIEW TABLE		
Date	**Comments**	**Author**
Oct 2018	Issue of Revision 5. The main changes are: • Extension of the "CT Metering" iPad Application (App) to include all types of customer connections. • Inclusion of an assessment of the connected burden on both metering CTs and VTs • Revised testing regime for LV Intake Circuit Breakers and HV Metering Units which have been modified to incorporate a 'plug-in' remote meter cabinet. • Revised testing regime for LV CT & Meter Cabinets (Separate Cut-Out) which have been supplied by the manufacturer with CTs pre-fitted. • Expansion of 'Quick Response' Codes' (QR codes) to cover all types of metering asset. • Transfer of commissioning information to the Meter Operator by email discontinued in favour of transfer by electronic dataflow. • Introduction of a formal mechanism by which the Supplier can escalate a deficiency or an omission with WPD's commissioning. • Revised Crown & iPad User Guide. • Revised Test Sheets. • Revised Guidance Notes.	Graham Brewster
Jul 2018	Issue of Revision 4. The main changes are: • Process change as a consequence of implementing a "CT Metering" iPad Application (App) to expedite the testing process for a number of metering assets. • Splitting the testing regime into three parts, namely, pre-energisation tests, energisation tests and post energisation tests. • Process change as a consequence of employing 'Quick Response' Codes' (QR codes) on a number of metering assets. • Revised process for acquiring metering assets and uploading test certificates by Inventory teams for those metering assets received into Central Stores or Plant Centres. • Revised Crown & iPad User Guide. • Revised Test Sheets. • Revised Guidance Notes.	Graham Brewster

CONTENTS

1.0 INTRODUCTION

The Registrant of a metering system (usually the Supplier) is responsible for its commissioning and discharges this obligation via its agent, the Meter Operator (MOP). In practice the MOP cannot complete particular inspections & tests because this requires access to metering instrument transformers which generally reside in equipment owned by the upstream network operator. As a consequence metering Code of Practice 4 has been amended to place obligations on the equipment owner to complete particular commissioning inspections & tests. The new obligations came into effect on 6th November 2014.

The commissioning obligations were modified on:

- 3rd November 2016 with the introduction of timescales for completing the commissioning
- 1st November 2018 with the introduction of data flows for exchanging commissioning information and for escalating a deficiency or omission

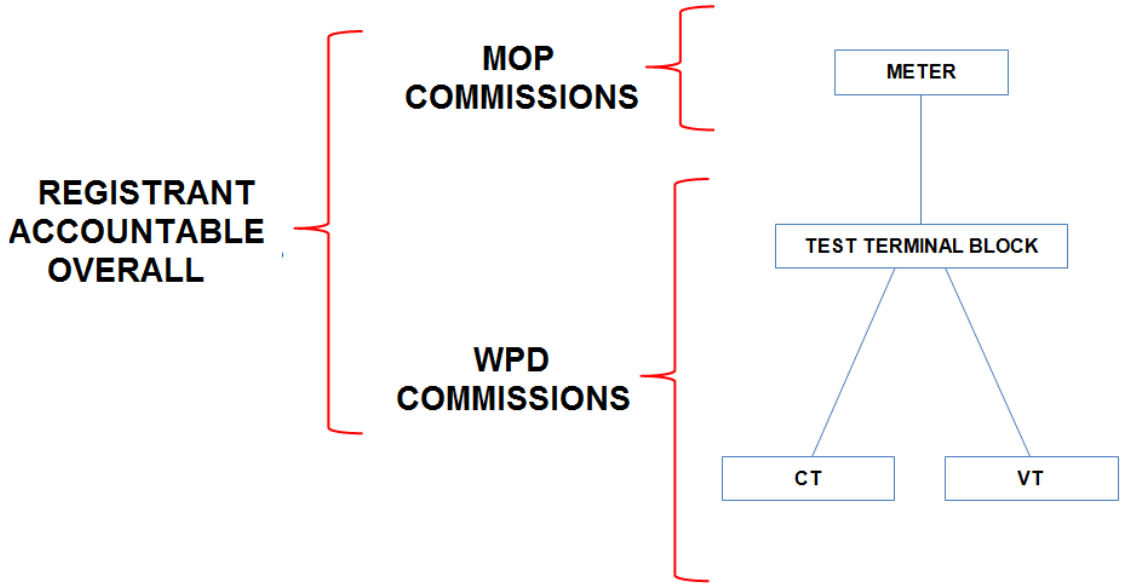
Guidance

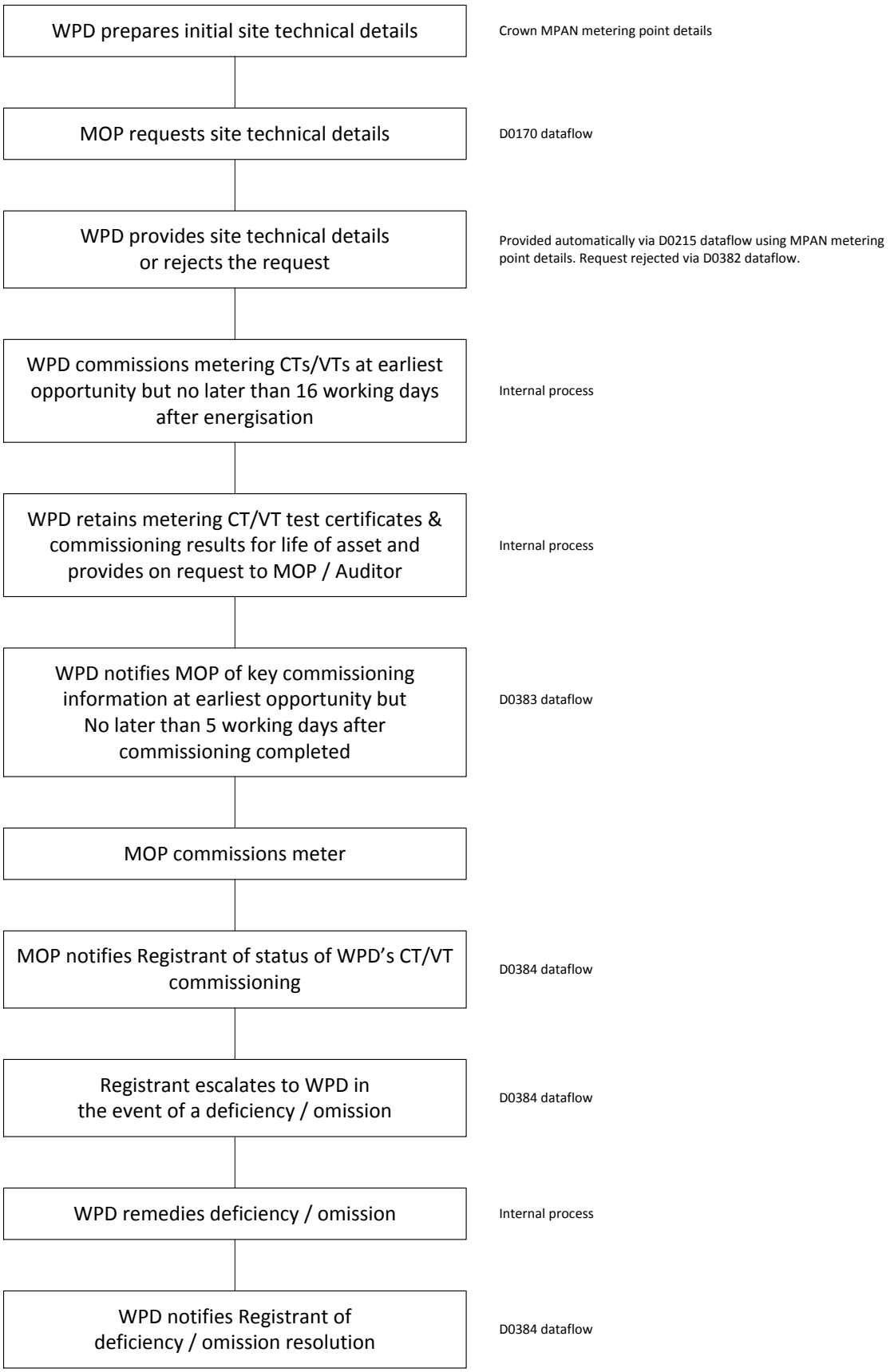
Settlement Metering comes under the auspices of the Balancing & Settlement Code. There are a number of associated codes of practice and Code of Practice 4 (CoP4) specifies the requirements for the calibration, sample calibration and commissioning of metering equipment and the maintaining of associated records.

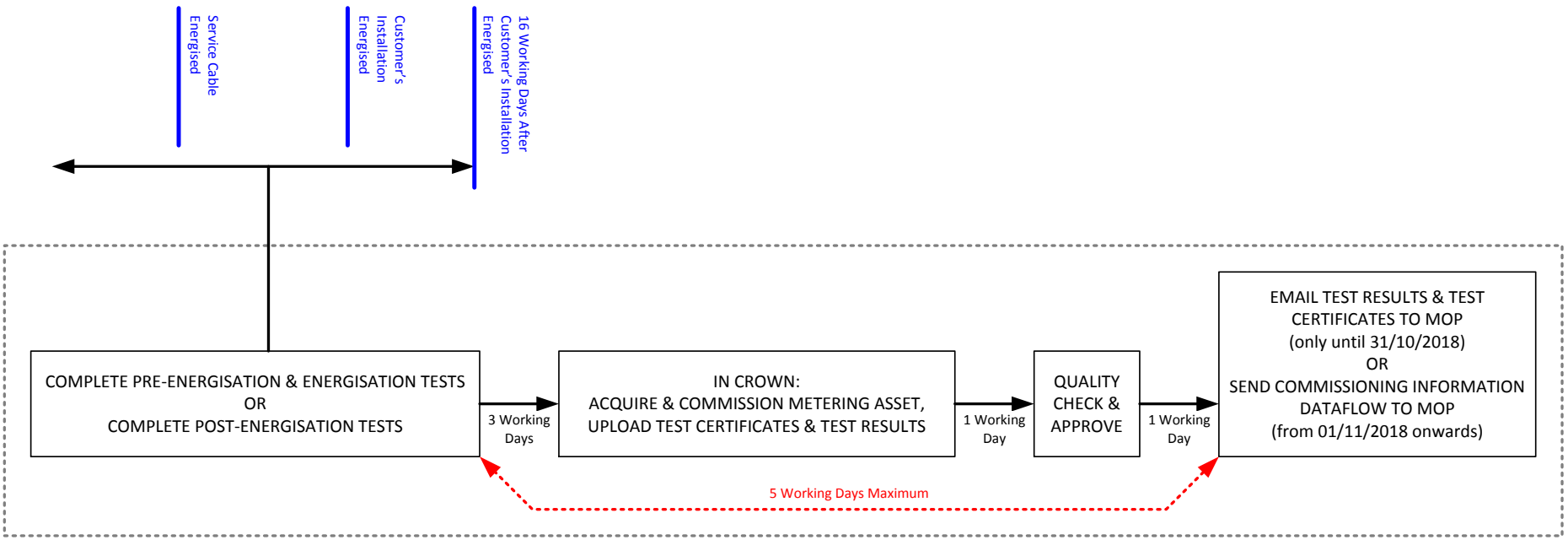
Compliance with the Balancing & Settlement Code is a condition of WPD's Distribution Licence (Licence Condition 20).

In the event of an inconsistency between the requirements contained within this document and the Balancing & Settlement Code and its associated Code of Practice 4, the provisions of the Code and the associated Code of Practice shall prevail.

The overall process is shown in diagrammatic form below.




WPD prepares initial site technical details
Crown MPAN metering point details
MOP requests site technical details
D0170 dataflow
WPD provides site technical details or rejects the request
Provided automatically via D0215 dataflow using MPAN metering point details. Request rejected via D0382 dataflow.
WPD commissions metering CTs/VTs at earliest opportunity but no later than 16 working days after energisation
Internal process
WPD retains metering CT/VT test certificates & commissioning results for life of asset and provides on request to MOP / Auditor
Internal process
WPD notifies MOP of key commissioning information at earliest opportunity but No later than 5 working days after commissioning completed
D0383 dataflow
MOP commissions meter
MOP notifies Registrant of status of WPD's CT/VT commissioning
D0384 dataflow
Registrant escalates to WPD in the event of a deficiency / omission
D0384 dataflow
WPD remedies deficiency / omission
Internal process
WPD notifies Registrant of deficiency / omission resolution
D0384 dataflow


Service Cable Energised
Customer's Installation Energised
16 Working Days After Customer's Installation Energised
COMPLETE PRE-ENERGISATION & ENERGISATION TESTS
OR
COMPLETE POST-ENERGISATION TESTS
3 Working Days
IN CROWN:
ACQUIRE & COMMISSION METERING ASSET,
UPLOAD TEST CERTIFICATES & TEST RESULTS
1 Working Day
QUALITY CHECK & APPROVE
1 Working Day
EMAIL TEST RESULTS & TEST CERTIFICATES TO MOP
(only until 31/10/2018)
OR
SEND COMMISSIONING INFORMATION DATAFLOW TO MOP
(from 01/11/2018 onwards)
5 Working Days Maximum

This standard technique document details the inspections & tests to be undertaken by the distribution business and by Independent Connections Providers in order to satisfy the metering Code of Practice 4 requirements.

It applies:

- To all new (i.e. commissioned on or after 06/11/2014) instrument transformer operated metering systems
- To any existing (i.e. in commission prior to 06/11/2014) instrument transformer operated metering system in the event of changing:
    - An instrument transformer, or
    - The connected ratio on a multi-ratio instrument transformer, or
    - The connections between an instrument transformer and the test terminal block
- Only where WPD owns or is to adopt the metering instrument transformers
- Only to metering systems employed for settlement purposes

It does not apply:

- To existing instrument transformer operated metering systems (until they are modified)
- Where the metering instrument transformers are owned by a third party, for example, the customer, an independent distribution network operator (IDNO), another distribution network operator (DNO) or the transmission network operator (National Grid)
- Where metering is not used for settlement purposes

A number of different configurations of distribution owned metering assets are employed by WPD, including:

- LV Combined Cut-out, CT & Meter Cabinet
- LV CT & Meter Cabinet (Separate Cut-out)
- LV Intake CB & Remote Meter Cabinet
- HV Metering Unit & Remote Meter Cabinet
  i.e. 12kV metering unit in accordance with EE SPEC 2
- HV Metering CB & Remote Meter Cabinet
  i.e. Metering CTs & VTs associated with 12kV indoor switchgear to EE SPEC 3 & 185
- EHV Metering CB & Remote Meter Cabinet
  i.e. Metering CTs & VTs associated with 36kV indoor switchgear to EE SPECs 3 & 182 or 36kV outdoor switchgear to EE SPEC 10
- 66kV Metering CB & Remote Meter Cabinet
  i.e. Metering CTs & VTs associated with 72kV switchgear to EE SPEC 7

- 132kV Metering CB & Remote Meter Cabinet
  i.e. Metering CTs & VTs associated with 145kV switchgear to EE SPEC 7
- 25kV Metering CB & Remote Meter Cabinet

Network Services teams are responsible for commissioning the following distribution owned metering assets:

- LV Combined Cut-out, CT & Meter Cabinet #
- LV CT & Meter Cabinet (Separate Cut-out) where it has been supplied by the manufacturer with CTs pre-fitted #
- LV Intake CB & Remote Meter Cabinet where the cabinet is 'plug-in' type
- HV Metering Unit & Remote Meter Cabinet where the cabinet is a 'plug-in' type

 # Except where installed by an ICP and adopted by WPD, in which case testing is a contestable activity.

WPD Smart Metering (acting as a contractor to the Distribution Business) is responsible for commissioning the following distribution owned metering assets: $

- LV CT & Meter Cabinet (Separate Cut-out) except where it has been supplied by the manufacturer with CTs pre-fitted
- LV Intake CB & Remote Meter Cabinet except where the cabinet is a 'plug-in' type
- HV Metering Unit & Remote Meter Cabinet except where the cabinet is a 'plug-in' type
- HV Metering CB & Remote Meter Cabinet
- EHV Metering CB & Remote Meter Cabinet
- 66kV Metering CB & Remote Meter Cabinet
- 132kV Metering CB & Remote Meter Cabinet
- 25kV Metering CB & Remote Meter Cabinet

*$ WPD Smart Metering is only responsible for commissioning the **metering** assets. Network Services teams are responsible for commissioning the non-metering assets i.e. the LV cut-out, LV ACB & HV switchgear.*

2.0 DEFINITIONS

CT	Current transformer
CT Pre-Note	A form which is sent to WPD Smart Metering for all new connections, upgrades and alterations involving CT metered supplies
CT Install Note	A form which is sent to WPD Smart Metering whenever the Distribution Business requires it to install a separate LV CT / Meter Panel, remote LV Metering Panel, or remote HV Metering Panel
Commissioning	A process to ensure that the energy flowing across a defined metering point is accurately recorded by the associated metering system
Commissioning Report	A convenient label for a collection of the following documents: metering CT test certificates metering VT test certificates test sheets
ICP	Independent Connection Provider
MOP	Meter Operator. An agent of the Registrant who has overall responsibility for the commissioning of the metering system. Also known as a Meter Operator Agent (MOA)
Test Certificate	A certificate provided by the manufacturer which identifies the magnitude and phase displacement errors in the metering CT or VT. Also known as calibration certificate, error certificate or test cert
Test Terminal Block	The facilities provided close to the meter which enable such meters to be routinely tested. Sometimes referred to as the Test Facilities
VT	Voltage transformer
WPD	Western Power Distribution
WPD Smart Metering	WPD's independent meter operator business which, for the purpose of this Standard Technique, is acting as a contractor to the Distribution Business

3.0 REQUIREMENTS

3.1 General

Where metering instrument transformers are owned or are to be adopted by WPD then the inspections & tests described in Section 3.4 shall be performed up to and including the Test Terminal Block. The tests shall be completed at the earliest opportunity but no later than 16 working days after energisation of the customer's installation.

In addition, the following actions must be completed at the earliest opportunity, but no later than 5 working days after completion of the inspections & tests:

- A "Commissioning Report" in accordance with Section 3.5 shall be prepared
- A "Notification of Commissioning Information" dataflow shall be sent to the appointed MOP

3.2 Test Certificates

Test Certificates are supplied by the manufacturer of the metering CTs / VTs.

Copies of metering CT & VT Test Certificates shall be obtained from the manufacturer and uploaded into Crown at the earliest opportunity but no later than 3 working days after completion of the inspections & tests.

The metering CT & VT Test Certificates within Crown shall be retained for the life of the associated metering CTs / VTs.

> *Guidance*
> *Test Certificates are sometimes incorporated into the "Birth Certificate" information provided by the manufacturer.*
>
> *See also Standard Technique TP14J: Management of Metering CT & VT Test Certificates.*

3.3 Test Equipment & Instruments

All test equipment & instruments used during commissioning shall be suitable for the application intended and have been commercially manufactured.

All test equipment & instruments shall have been calibrated / re-calibrated within the last 24 months (and preferably within the last 12 months).

Calibration shall comprise checking for compliance with the published specification at appropriate points, using working standards which are periodically verified and which are traceable to National Standards.

3.4 **Inspections & Tests**

Inspections and tests shall be carried out for the purpose of verifying & recording:

- That metering CTs & VTs are correctly located (in relation to the defined metering point) to record the required power flow
- That metering CTs have the correct ratio, polarity and phase rotation
- That metering VTs have the correct ratio, polarity and phase rotation
- That the relationship between metering voltages and currents is correct

> *Guidance*
>
> *Phase rotation must be standard on both the test block terminals and on the terminals at which the supply is delivered to the customer's installation.*

The inspections and tests are split into three parts, namely, Pre-Energisation Tests, Energisation Tests, and Post Energisation Tests.

- Pre-energisation tests are normally carried out off-site prior to installation, for example, in a WPD Depot or Plant Centre. However, they may alternatively be carried out on-site when the metering asset has been fully installed.
- Energisation tests are carried out on-site when the metering asset has been fully installed and the incoming service cable has been energised, but with the customer's installation off-load.
- Post energisation tests are carried out on-site with the customer's installation energised and on load.

Pre-energisation tests, energisation tests, and post-energisation tests shall be completed for each metering asset as per the following table:

ASSET	PRE ENERGISATION TESTS	ENERGISATION TESTS	POST ENERGISATION TESTS
LV Combined Cut-out, CT & Meter Cabinet	Yes	Yes	No
LV CT & Meter Cabinet (Separate Cut-out) supplied with manufacturer fitted CTs	Yes	Yes	No
LV CT & Meter Cabinet (Separate Cut-out) supplied without manufacturer fitted CTs	No	No	Yes
LV Intake Circuit Breaker with a 'plug-in' remote meter cabinet	Yes	Yes	No
LV Intake Circuit Breaker without a 'plug-in' remote meter cabinet	No	No	Yes
HV Metering Unit with a 'plug-in' remote meter cabinet	Yes	Yes	No
HV Metering Unit without a 'plug-in' remote meter cabinet	No	No	Yes
HV Metering Circuit Breakers	No	No	Yes
EHV Metering Circuit Breakers	No	No	Yes
66kV Metering Circuit Breakers	No	No	Yes
132kV Metering Circuit Breakers	No	No	Yes
25kV Metering Circuit Breakers	No	No	Yes

Pre-energisation tests, energisation tests, and post-energisation tests shall be carried out in accordance with the "Test Sheets" and "Guidance Notes" contained in Sections 5 & 6 respectively.

A copy of the completed Test Sheets shall be uploaded into Crown at the earliest opportunity, but no later than 3 working days after completion of the associated inspections and tests.

The Test Sheets within Crown shall be retained for the life of the associated metering CTs / VTs.

3.5 **"Commissioning Report"**

A "Commissioning Report" shall be prepared which shall contain, as a minimum and where applicable, the following information:

- Site name
- Site address
- MPAN (where relevant)
- Supply / Feeder number (where more than one)
- Date of Commissioning
- A copy of metering CT test certificates
- A copy of metering VT test certificates (where relevant)
- A copy of the completed Pre-Energisation, Energisation, and Post-Energisation Test Sheets (as appropriate)

Guidance

The 'Commissioning Report" is not an actual document but a collection of test certificates and test sheets which incorporate the metering CT & VT asset attributes and test result data.

The Commissioning Report is prepared automatically by Crown using the documentation which has been uploaded into it.

'Supply / feeder number' is applicable at premises where the customer has multiple connections to the WPD network and a unique MPAN (or import / export MPAN pair) has not been assigned to each connection i.e. the MPAN is shared by the multiple connections. The 'supply / feeder number' is the means by which each separate connection to the customer is identified. Note that it does not mean the distribution substation feeder number that the customer is connected to.

3.6 **"Commissioning Report" Check & Approval / Rejection**

The "Commissioning Report" shall be checked to ensure that all applicable test sheets and CT/VT test certificates are present and that no blank pages, blank forms, partially completed forms or other spurious documents have been uploaded instead.

The "Commissioning Report" shall only be approved where all applicable information is present and correct.

The check and approval / rejection shall be completed no later than one working day after receiving the "Commissioning Report" for approval.

3.7 Remedial Actions Following "Commissioning Report" Rejection

In the event of the "Commissioning Report" being rejected the relevant Network Services team shall be automatically notified. The notification shall include the reason for the rejection.

Remedial actions must be completed by the relevant Network Services team without delay if non-conformance with the Balancing & Settlement Code timescales is to be avoided.

3.8 Notification of Commissioning Information

Salient data from the "Commissioning Report" shall be sent automatically to the appointed Meter Operator following its approval. The data shall be sent using dataflow D0383.

Guidance

The Meter Operator commissions the meter and receives the data from WPD about the metering CT & VT commissioning.

The Meter Operator reviews all the data and informs the Registrant (i.e. Supplier) of the commissioning status i.e. whether commissioning of the meter and metering CTs & VTs have been completed satisfactorily. Where this is not the case, the MOP provides the Supplier with details of the deficiency / omission and the level of risk it represents to the Settlement process.

3.9 Remedial Actions Following Escalation By The Registrant (Supplier)

Where the Registrant (Supplier) is notified of a deficiency or omission relating to WPD's commissioning of the metering CTs & VTs it will escalate the matter to WPD using dataflow D0384.

The Records team will receive and respond to all Supplier escalations on behalf of Network Services. All responses shall be provided using dataflow D0384.

Remedial actions must be completed by the relevant Network Services team promptly. Deficiency / omission resolution information must be provided to the Records team in order that this can be communicated to the Supplier.

3.10 **Quick Response (QR) Codes**

A unique Quick Response (QR) Code shall be assigned to the following assets

- LV Combined Cut-out, CT & Meter Cabinet
- LV CT & Meter Cabinet (Separate Cut-out)
- LV Intake Circuit Breaker Cabinet
- HV Metering Unit
- Remote Meter Cabinet associated with an HV Metering CB
- Remote Meter Cabinet associated with an EHV Metering CB
- Remote Meter Cabinet associated with a 66kV Metering CB
- Remote Meter Cabinet associated with a 132kV Metering CB
- Remote Meter Cabinet associated with a 25kV Metering CB

The QR Code shall unambiguously identify the asset such that the correct Crown record is updated when the 'CT Metering' iPad Application is employed.

The self-adhesive QR Code label shall be affixed in the following locations:

ASSET	**LOCATION OF QR CODE LABEL**
LV Combined Cut-out, CT & Meter Cabinet	Exterior of cabinet on front face
LV CT & Meter Cabinet (separate cut-out)	Exterior of cabinet on front face
LV Intake Circuit Breaker Cabinet	Exterior of cabinet on upper front door
HV Metering Unit	Exterior of metering unit terminal / fuse box on the hinged / removable cover
Remote Meter Cabinet associated with an HV Metering CB	Exterior of remote meter cabinet on front face
Remote Meter Cabinet associated with an EHV Metering CB	Exterior of remote meter cabinet on front face
Remote Meter Cabinet associated with a 66kV Metering CB	Exterior of remote meter cabinet on front face
Remote Meter Cabinet associated with a 132kV Metering CB	Exterior of remote meter cabinet on front face
Remote Meter Cabinet associated with a 25kV Metering CB	Exterior of remote meter cabinet on front face

3.11 Metering Label

A Metering Label shall be provided at each metering point in order to furnish relevant instrument transformer data to the Meter Operator, BSC Technical Assurance Agent and any other relevant party.

Guidance

See Section 4.4 of ST: TP14C for further details.

The E5 Code for the Metering Label is 42723.

3.12 Crown & iPad App User Guide

The overall process shall be managed via Crown and the iPad Application, with the procedures to be followed to be as per the following Crown and iPad App User Guide.

CROWN and iPAD APP User Guide

3.13 Contestable Connections

Where an Independent Connection Provider (ICP) offers up metering CTs and VTs for adoption the ICP is responsible for:

a) Obtaining metering CT & VT Test Certificates from the manufacturer

b) Providing WPD with copies of the metering CT & VT Test Certificates

c) Carrying out Pre-Energisation Tests specified in Section 3.4 above on LV Combined Cut-out, CT & Meter Cabinet and LV CT & Meter Cabinet (Separate Cut-Out) installations only and completing a paper copy of the relevant Pre-Energisation Test Sheet

d) Carrying out Energisation Tests specified in Section 3.4 above on LV Combined Cut-out, CT & Meter Cabinet and LV CT & Meter Cabinet (Separate Cut-Out) installations only and completing a paper copy of the relevant Energisation Test Sheet

e) Providing WPD with copies of the completed Pre-Energisation and Energisation Test Sheets

Item b), c), d) and e) shall be completed at the earliest possible opportunity but no later than the date of energisation of the metered connection.

WPD undertakes inspections of an ICP's contestable works prior to adoption. Inspections are carried out by a WPD Inspector who is appointed by the local Network Services Team Manager (See ST: NC2H: Inspection, Recording and Commissioning for further details).

Network Services shall reject the adoption in the event that metering CT & VT Test Certificates and Pre-Energisation & Energisation Test Sheets have not been provided, or are incomplete, or are inaccurate. Network Services shall inform the ICP's nominated contact of the reason for the rejection and confirm it in writing using the "Notice of Defect Prior to Energisation" form provided in Appendix E of ST: NC2H. The ICP's contestable works shall not be connected to the WPD distribution system until fully completed and accurate Test Sheets and Test Certificates have been provided.

Where Network Services are satisfied with accuracy and completeness of the documentation it shall make arrangements for the contestable works to be energised.

4.0 RESPONSIBILITIES

4.1 LV Combined Cut-Out, CT & Meter Cabinet Installations

Responsibility for particular activities associated with an LV Combined Cut-Out, CT & Meter Cabinet installation is described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT Test Certificates:	
Non-contestable connections	Cabinet Supplier
Contestable connections	ICP
Acquisition of LV Combined Cabinet in Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Uploading CT Test Certificates into Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Affixing QR Code onto LV Combined Cabinet	Network Services
Undertaking Pre-Energisation Testing	
Non-contestable connections	Network Services
Contestable connections	ICP
Completing paper copy Pre-Energisation Test Sheet	
Contestable connections	ICP
Keying Pre-Energisation test results into iPad App	
Non-contestable connections	Network Services
Contestable connections	Network Services
Undertaking Energisation Testing	
Non-contestable connections	Network Services
Contestable connections	ICP
Completing paper copy Energisation Test Sheet	
Contestable connections	ICP

ACTIVITY	RESPONSIBLE PARTY
Keying Energisation test results into iPad App	
Non-contestable connections	Network Services
Contestable connections	Network Services
Commissioning of LV Combined Cabinet in Crown (via iPad App)	
Non-contestable connections	Network Services
Contestable connections	Network Services
Quality check & approval / rejection of “Commissioning Report”	WPD Smart Metering
Remedial measures following “Commissioning Report” rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing “Metering Label” on LV Combined Cabinet	
Non-contestable connections	Cabinet Supplier
Contestable connections	Network Services

4.2 LV CT & Meter Cabinet Installations (Separate Cut-Out) Supplied With Manufacturer or ICP Fitted CTs

Responsibility for particular activities associated with an LV CT & Meter Cabinet installation (separate cut-out) which has been supplied with manufacturer or ICP fitted CTs is described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT Test Certificates:	
Non-contestable connections	Cabinet Supplier
Contestable connections	ICP
Acquisition of LV CT & Meter Cabinet in Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Uploading CT Test Certificates into Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Affixing QR Code onto LV CT & Meter Cabinet	Network Services
Undertaking Pre-Energisation Testing	
Non-contestable connections	Network Services
Contestable connections	ICP
Completing paper copy Pre-Energisation Test Sheet	
Contestable connections	ICP
Keying Pre-Energisation test results into iPad App	
Non-contestable connections	Network Services
Contestable connections	Network Services
Undertaking Energisation Testing	
Non-contestable connections	Network Services
Contestable connections	ICP
Completing paper copy Pre-Energisation Test Sheet	
Contestable connections	ICP

ACTIVITY	RESPONSIBLE PARTY
Keying Energisation test results into iPad App	
Non-contestable connections	Network Services
Contestable connections	Network Services
Commissioning of LV CT & Meter Cabinet in Crown (via iPad App)	
Non-contestable connections	Network Services
Contestable connections	Network Services
Quality check & approval / rejection of "Commissioning Report"	WPD Smart Metering
Remedial measures following "Commissioning Report" rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing "Metering Label" on LV Combined Cabinet	
Non-contestable connections	Cabinet Supplier
Contestable connections	Network Services

4.3 LV CT & Meter Cabinet Installations (Separate Cut-Out) Supplied Without Manufacturer Fitted CTs

Responsibility for particular activities associated with an LV CT & Meter Cabinet installation (separate cut-out) which has been supplied without manufacturer fitted CTs is described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT Test Certificates	CT Supplier
Acquisition of LV CT & Meter Cabinet in Crown	Inventory
Installing CTs within LV CT & Meter Cabinet	WPD Smart Metering
Uploading CT Test Certificates into Crown	WPD Smart Metering
Affixing QR Code onto LV CT & Meter Cabinet	WPD Smart Metering
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of LV CT & Meter Cabinet in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of “Commissioning Report”	WPD Smart Metering
Remedial measures following “Commissioning Report” rejection	Network Services
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	Network Services
Completing “Metering Label” on LV CT & Meter Cabinet	WPD Smart Metering

4.4 LV Intake Circuit Breaker Cabinet Installation With A 'Plug-In' Remote Meter Cabinet

Responsibility for particular activities associated with an LV Intake Circuit Breaker Cabinet Installation with a 'plug-in' remote meter cabinet are described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT Test Certificates	LV Intake CB Cabinet Supplier
Acquisition of LV Intake Circuit Breaker Cabinet in Crown	Inventory
Uploading CT Test Certificates into Crown	Inventory
Affixing QR Code onto LV Intake Circuit Breaker Cabinet	Plant Centre
Undertaking Pre-Energisation Testing	Plant Centre
Keying Pre-Energisation test results into iPad App	Plant Centre
Installing 'plug-in' remote meter cabinet and umbilical cable	Network Services
Undertaking Energisation Testing	Network Services
Keying Energisation test results into iPad App	Network Services
Commissioning of LV Intake Circuit Breaker Cabinet in Crown (via iPad App)	Network Services
Quality check & approval / rejection of "Commissioning Report"	WPD Smart Metering
Remedial measures following "Commissioning Report" rejection	Network Services
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	Network Services
Completing "Metering Label" on Remote Meter Cabinet	Plant Centre

4.5 LV Intake Circuit Breaker Cabinet Installation Without A 'Plug-In' Remote Meter Cabinet

Responsibility for particular activities associated with an LV Intake Circuit Breaker Cabinet Installation without a 'plug-in' remote meter cabinet are described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT Test Certificates:	
Non-contestable connections	LV Intake CB Cabinet Supplier
Contestable connections	ICP
Acquisition of LV Intake Circuit Breaker Cabinet in Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Uploading CT Test Certificates into Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Affixing QR Code onto LV Intake Circuit Breaker Cabinet	
Non-contestable connections	Plant Centre
Contestable connections	Network Services
Installing remote meter cabinet and multicore cable	WPD Smart Metering
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of LV Intake Circuit Breaker Cabinet in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of "Commissioning Report"	WPD Smart Metering
Remedial measures following "Commissioning Report" rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing "Metering Label" on Remote Meter Cabinet	WPD Smart Metering

4.6 HV Metering Unit Installations <u>With</u> A 'Plug-In' Remote Meter Cabinet

Responsibility for particular activities associated with an HV (i.e. 6.6kV or 11kV) Metering Unit Installation with a 'plug-in' remote meter cabinet is described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT & VT Test Certificates	HV Metering Unit Supplier
Acquisition of HV Metering Unit in Crown	Inventory
Uploading CT & VT Test Certificates into Crown	Inventory
Affixing QR Code onto HV Metering Unit	Plant Centre
Completing "Metering Label" on Remote Meter Cabinet	Plant Centre
Undertaking Pre-Energisation Testing	Plant Centre
Keying Pre-Energisation test results into iPad App	Plant Centre
Installing 'plug-in' remote meter cabinet and umbilical cable	Network Services
Undertaking Energisation Testing	Network Services
Keying Energisation test results into iPad App	Network Services
Commissioning of HV Metering Unit in Crown (via iPad App)	Network Services
Quality check & approval / rejection of "Commissioning Report"	WPD Smart Metering
Remedial measures following "Commissioning Report" rejection	Network Services
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	Network Services
Completing "Metering Label" on Remote Meter Cabinet	Plant Centre

4.7 HV Metering Unit Installations Without A 'Plug-In' Remote Meter Cabinet

Responsibility for particular activities associated with an HV (i.e. 6.6kV or 11kV) Metering Unit Installation without a 'plug-in' remote meter cabinet is described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT & VT Test Certificates:	
Non-contestable connections	HV Metering Unit Supplier
Contestable connections	ICP
Acquisition of HV Metering Unit in Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Uploading CT & VT Test Certificates into Crown	
Non-contestable connections	Inventory
Contestable connections	Network Services
Affixing QR Code onto HV Metering Unit	
Non-contestable connections	Plant Centre
Contestable connections	Network Services
Installing remote meter cabinet and multicore cable	WPD Smart Metering
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of HV Metering Unit in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of "Commissioning Report"	WPD Smart Metering
Remedial measures following "Commissioning Report" rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing "Metering Label" on Remote Meter Cabinet	WPD Smart Metering

4.8 HV Metering Circuit Breaker Installations

Responsibility for particular activities associated with an HV (i.e. 6.6kV or 11kV) Metering Circuit Breaker Installation is described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Network Services
Provision of CT & VT Test Certificates: Non-contestable connections Contestable connections	 HV CT & VT Supplier(s) ICP
Installing HV Remote Meter Cabinet and multicore cable	WPD Smart Metering
Affixing QR Code onto HV Remote Meter Cabinet	WPD Smart Metering
Acquisition of HV Remote Meter Cabinet in Crown	WPD Smart Metering
Uploading CT & VT Test Certificates into Crown	Network Services
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of HV Remote Meter Cabinet in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of "Commissioning Report"	WPD Smart Metering
Remedial measures following "Commissioning Report" rejection Non-contestable connections Contestable connections	 Network Services Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier) Non-contestable connections Contestable connections	 Network Services Network Services via ICP
Completing "Metering Label" on Remote Meter Cabinet	WPD Smart Metering

4.9 EHV (33kV) Metering Circuit Breaker Installations

Responsibility for particular activities associated with an EHV (i.e. 33kV) Metering Circuit Breaker Installation is described in the table below:

ACTIVITY	RESPONSIBLE PARTY
Entering initial CT ratios, class and rating details into Crown	Primary System Design
Provision of CT & VT Test Certificates:	
Non-contestable connections	EHV CT & VT Supplier(s)
Contestable connections	ICP
Installing EHV Remote Meter Cabinet and multicore cable	WPD Smart Metering
Affixing QR Code onto EHV Remote Meter Cabinet	WPD Smart Metering
Acquisition of EHV Remote Meter Cabinet in Crown	WPD Smart Metering
Uploading CT & VT Test Certificates into Crown	Network Services
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of EHV Remote Meter Cabinet in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of "Commissioning Report"	WPD Smart Metering
Remedial measures following "Commissioning Report" rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing "Metering Label" on Remote Meter Cabinet	WPD Smart Metering

4.10 **66kV Metering Circuit Breaker Installations**

Responsibility for particular activities associated with a 66kV Metering Circuit Breaker Installation is described in the table below:

ACTIVITY	**RESPONSIBLE PARTY**
Entering initial CT ratios, class and rating details into Crown	Primary System Design
Provision of CT & VT Test Certificates:	
Non-contestable connections	66kV CT & VT Supplier(s)
Contestable connections	ICP
Installing 66kV Remote Meter Cabinet and multicore cable	WPD Smart Metering
Affixing QR Code onto 66kV Remote Meter Cabinet	WPD Smart Metering
Acquisition of 66kV Remote Meter Cabinet in Crown	WPD Smart Metering
Uploading CT & VT Test Certificates into Crown	Network Services
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of 66kV Remote Meter Cabinet in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of “Commissioning Report”	WPD Smart Metering
Remedial measures following “Commissioning Report” rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing “Metering Label” on Remote Meter Cabinet	WPD Smart Metering

4.11 **132kV Metering Circuit Breaker Installations**

Responsibility for particular activities associated with a 132kV Metering Circuit Breaker Installation is described in the table below:

ACTIVITY	**RESPONSIBLE PARTY**
Entering initial CT ratios, class and rating details into Crown	Primary System Design
Provision of CT & VT Test Certificates:	
Non-contestable connections	132kV CT & VT Supplier(s)
Contestable connections	ICP
Installing 132kV Remote Meter Cabinet and multicore cable	WPD Smart Metering
Affixing QR Code onto 132kV Remote Meter Cabinet	WPD Smart Metering
Acquisition of 132kV Remote Meter Cabinet in Crown	WPD Smart Metering
Uploading CT & VT Test Certificates into Crown	Network Services
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of 132kV Remote Meter Cabinet in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of “Commissioning Report”	WPD Smart Metering
Remedial measures following “Commissioning Report” rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing “Metering Label” on Remote Meter Cabinet	WPD Smart Metering

4.12 **25kV Metering Circuit Breaker Installations**

Responsibility for particular activities associated with a 25kV Metering Circuit Breaker Installation is described in the table below:

ACTIVITY	**RESPONSIBLE PARTY**
Entering initial CT ratios, class and rating details into Crown	Primary System Design
Provision of CT & VT Test Certificates:	
Non-contestable connections	25kV CT & VT Supplier(s)
Contestable connections	ICP
Installing 25kV Remote Meter Cabinet and multicore cable	WPD Smart Metering
Affixing QR Code onto 25kV Remote Meter Cabinet	WPD Smart Metering
Acquisition of 25kV Remote Meter Cabinet in Crown	WPD Smart Metering
Uploading CT & VT Test Certificates into Crown	Network Services
Undertaking Post-Energisation Testing	WPD Smart Metering
Keying Post-Energisation test results into iPad App	WPD Smart Metering
Commissioning of 25kV Remote Meter Cabinet in Crown (via iPad App)	WPD Smart Metering
Quality check & approval / rejection of “Commissioning Report”	WPD Smart Metering
Remedial measures following “Commissioning Report” rejection	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Receiving and answering deficiency / omission escalations from Registrant (Supplier)	Records
Remedial measures following receipt of deficiency / omission escalation from Registrant (Supplier)	
Non-contestable connections	Network Services
Contestable connections	Network Services via ICP
Completing “Metering Label” on Remote Meter Cabinet	WPD Smart Metering

5.0 TEST SHEETS

The fields on these Test Sheets align with equivalent ones within WPD's Crown and iPad App systems.

It is a mandatory requirement for WPD staff to key asset attribute and test result data into the CT Metering iPad App - the use of paper copy test sheets is prohibited.

For Contestable Connections, the ICP must complete a paper copy of the relevant Test Sheet. This facilitate the efficient transfer of commissioning data from the ICP to WPD and its subsequent transformation into electronic format suitable for sending to the Meter Operator via dataflow.

5.1 Pre-Energisation Tests

Test Sheet: Pre-Energisation Tests: LV Combined Cut-Out, CT & Meter Cabinet

Test Sheet: Pre-Energisation Tests: LV CT & Meter Cabinet (Separate Cut-Out)

Test Sheet: Pre-Energisation Tests: LV Intake CB & 'Plug-In' Remote Meter Cabinet

Test Sheet: Pre-Energisation Tests: HV Metering Unit & 'Plug-In' Remote Meter Cabinet

5.2 Energisation Tests

Test Sheet: Energisation Tests: LV Combined Cut-Out, CT & Meter Cabinet

Test Sheet: Energisation Tests: LV CT & Meter Cabinet (Separate Cut-Out)

Test Sheet: Energisation Tests: LV Intake CB & 'Plug-In' Remote Meter Cabinet

Test Sheet: Energisation Tests: HV Metering Unit & 'Plug-In' Remote Meter Cabinet

5.3 Post-Energisation Tests

Test Sheet: Post-Energisation Tests: LV CT & Meter Cabinet (Separate Cut-Out)

Test Sheet: Post-Energisation Tests: LV Intake CB & Remote Meter Cabinet

Test Sheet: Post-Energisation Tests: HV Metering Unit & Remote Meter Cabinet

Test Sheet: Post-Energisation Tests: HV Metering CB & Remote Meter Cabinet

Test Sheet: Post-Energisation Tests: EHV (33kV) Metering CB & Remote Meter Cabinet

Test Sheet: Post-Energisation Tests: 66kV Metering CB & Remote Meter Cabinet

Test Sheet: Post-Energisation Tests: 132kV Metering CB & Remote Meter Cabinet

Test Sheet: Post-Energisation Tests: 25kV Metering CB & Remote Meter Cabinet

6.0 GUIDANCE NOTES

The following Guidance Notes have been prepared to support the commissioning of distribution business provided metering facilities.

6.1 Pre-Energisation Tests

Guidance Note: Pre-Energisation Tests: LV Combined Cut-Out, CT & Meter Cabinet

Guidance Note: Pre-Energisation Tests: LV CT & Meter Cabinet (Separate Cut-Out)

Guidance Note: Pre-Energisation Tests: LV Intake CB & 'Plug-In' Remote Meter Cabinet

Guidance Note: Pre-Energisation Tests: HV Metering Unit & 'Plug-In' Remote Meter Cabinet

6.2 Energisation Tests

Guidance Note: Energisation Tests: LV Combined Cut-Out, CT & Meter Cabinet

Guidance Note: Energisation Tests: LV CT & Meter Cabinet (Separate Cut-Out)

Guidance Note: Energisation Tests: LV Intake CB & 'Plug-In' Remote Meter Cabinet

Guidance Note: Energisation Tests: HV Metering Unit & 'Plug-In' Remote Meter Cabinet

6.3 Post-Energisation Tests

Guidance Note: Post-Energisation Tests: LV CT & Meter Cabinet (Separate Cut-Out)

Guidance Note: Post-Energisation Tests: LV Intake CB & Remote Meter Cabinet

Guidance Note: Post-Energisation Tests: HV Metering Unit & Remote Meter Cabinet

Guidance Note: Post-Energisation Tests: HV Metering CB & Remote Meter Cabinet

Guidance Note: Post-Energisation Tests: EHV (33kV) Metering CB & Remote Meter Cabinet

Guidance Note: Post-Energisation Tests: 66kV Metering CB & Remote Meter Cabinet

Guidance Note: Post-Energisation Tests: 132kV Metering CB & Remote Meter Cabinet

Guidance Note: Post-Energisation Tests: 25kV Metering CB & Remote Meter Cabinet

APPENDIX A

SUPERSEDED DOCUMENTATION

This document supersedes ST: TP14D/4 dated July 2018 which has now been withdrawn.

APPENDIX B

ANCILLARY DOCUMENTATION

POL: TP14	Electricity Metering Interface
ST: TP14C	Distribution Provided Metering Facilities
ST: NC2H	Inspection, Recording and Commissioning
ST: CA1G	Procedures for Making Low Voltage Mains Cable Terminations

APPENDIX C

KEY WORDS

Metering; Commissioning; Current Transformers; Voltage Transformers; Balancing & Settlement Code; Code of Practice; COP; P283: