RETAIL ENERGY CODE

MOCoP

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REC Operational Document:

Meter Operation Code of Practice (MOCoP)

Version: 2.0 Effective Date: 1 September 2021

Domestic Suppliers	N/A
Non-Domestic Suppliers	N/A
Gas Transporters	N/A
Distribution Network Operators	Mandatory
DCC	N/A
Metering Equipment Managers	Mandatory
Non-Party REC Service Users	N/A

Change History

Version Number	Implementation Date	Reason for Change
2.0	1 September 2021	Updates made to MOCOPA v5.1 to reflect REC governance and revised cross-referencing
	TBC	Change Proposal R0014 Cable Colour Identification

Safety, technical and interface requirements

1 Scope

1.1 The Meter Operation Code of Practice (hereafter referred to as the MOCoP) covers the installation, operation and maintenance of electrical Metering Equipment by DNOs and relevant Metering Equipment Managers. It also covers safety and technical requirements

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relevant to meter operation and the interface between MEMs and DNOs. It specifies the requirements for the mutual exchange of information between MEMs and DNOs necessary to satisfy the safety and business needs of both parties and provides the means for this exchange via the REC Portal.

1.2 Meter operation services relating to private networks may not be within the scope of these MOCoP Requirements.

Metering Equipment Managers

1.3 All MEMs must hold a Registration Certificate or Provisional Certificate, or such other means of demonstrating their accreditation under the REC as may be issued by the Code Manager. This Registration Certificate authorises the MEM to work in accordance with the MOCoP.

1.4 A MEM is only able to break the seals on and work upon Metering Equipment and DNO Equipment, if:

(a) at the relevant Metering Point, they are the appointed MEMand are instructed by the electricity Supplier appointed to the relevant Metering Point; or

(b) for whole current metering only, at the relevant Metering Point, they are not the appointed MEM, but they are required, by a third party electricity Supplier or by the Gas Supplier responsible under the DCUSA for the equipment used for the communications with gas meters at the Site, to carry out the following work at the Metering Point (excluding replacing meters):

(i) Minimal reposition of third party Supplier's meter in communal meter position, to accommodate space for appointed smart meter installation;

(ii) Work on looped neutral(s) on Metering Equipment;

(iii) Work on a shared supply;

(iv) Investigation/remedial revenue protection work;

(v) Installation of an isolator; and/or

(vi) Install, operate, inspect, maintain, repair, renew, reposition, replace and/or remove equipment used for communications with gas meters at the Site (including minimal repositioning of electricity metering equipment as allowed under DCUSA).

1.5 The Registration Certificate also allows the MEMto break and re-seal DNOs equipment providing that the Meter Operative has been adequately trained and assessed to carry out this work. The MEM should ensure they comply with any individual

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DNO requirements.

DNOs

1.6 The principles contained within the MOCoP form the basis of good practice for meter installation and the operation and maintenance of the Metering Equipment attached to distribution networks.

1.7 Any individual DNO's safety information relevant to MEMs should be provided to MEMs via the REC Portal to ensure the on-going safety of Meter Operatives. This generic safety information must be reviewed at least annually. Additionally, a DNO should provide site specific information directly to a MEM as and when requested by the MEM.

1.8 The information given in sections dealing with safety responsibilities is for guidance only and is not intended to be exhaustive, nor as a substitute for the legislation concerned.

2 Requirements Applicable to MEMs at the Company Level

Safety requirements

General

2.1 As employers, DNOs and MEMs have a general duty of care both to their employees and to other persons whose safety may be affected by their work. These duties are more specifically stated within the Health and Safety at Work etc Act, 1974, and all subordinate and associated legislation.

Electricity at Work

2.2 Certain specific duties of the MEM, as an employer, regarding work activities on or near electrical installations (in so far as they relate to matters that are within its control), are set out in the Electricity at Work Regulations 1989, as amended. These duties include requirements to provide safe systems of work and to utilise safe practices and suitable protective equipment. Where a Meter Operative works at a Site for a Customer, the MEM will have direct responsibility for its Meter Operatives, whilst the Customer will have responsibilities for the Site in general (e.g. safe access and egress).

2.3 Special regulations apply in the case of quarries and mines (where substations supplying the latter are not classified as separate premises). In these cases, the relevant Site manager will need to be consulted regarding safety requirements.

Distribution Safety Rules

2.4 Work on or in the vicinity of DNO Equipment by the staff or agents of the relevant DNO is governed by the relevant Distribution Safety Rules. MEMs shall ensure, if their Meter Operatives are called upon to work with the DNOunder conditions requiring compliance

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with the Distribution Safety Rules (as described in paragraph 5.13 below), that the Meter Operatives are sufficiently trained.

Operation Liaison

2.5 For the purpose of operational, safety, technical and escalation liaison, the MEM shall nominate one or more representatives to offer a "point of contact" with the DNO and shall notify the DNO as part of the provision of MEM information (Appendix 2, Part 4). This MEM information shall be provided on the REC Portal. This may be achieved by providing a link to the appropriate page of the MEM's own website(s).

Operational Restrictions and Reporting

2.6 Where a DNO notifies a MEMof any operational restrictions relating to plant or access, the MEM shall ensure that this information is passed on to any affected Meter Operatives. The MEM shall also ensure that its Meter Operatives are aware of their responsibility to report to the DNO any dangerous situations, defects or asset condition information which they encounter pertaining to its equipment or Sites in line with the DCUSA requirement for reporting such issues.

Safety Knowledge and Experience

2.7 MEMs shall ensure that their Meter Operatives understand their responsibilities under the Electricity at Work Regulations 1989 (as amended) and have a sufficient level of knowledge and experience to avoid danger or injury (as indicated in Regulation 16 thereof) appropriate to the risk inherent in the work for which they are registered as competent (see also paragraphs 2.28 to 2.32 below).

Assessment on Site of Risks to Safety

2.8 The MEM should be aware of the Management of Health and Safety at Work Regulations 1999, which describe the responsibility for full assessment of the risks inherent in types of work generally, and for specific Sites in particular falling on the employer through his supervisory staff (Regulation 3 refers). In order to assist Meter Operatives in assessing risks associated with work on a particular Site, Appendix 4 contains a decision flow chart. More detailed information is contained in the appropriate metering Codes of Practice (referred to in Appendix 1).

Reporting of Incidents

2.9 Under the Electricity Safety, Quality and Continuity Regulations 2002 (as amended), the MEM will ensure accidents and dangerous occurrences are reported to the Health and Safety Executive. MEMs shall be responsible for reporting problems found on Metering Equipment that is from the outgoing terminals of DNO Equipment (see paragraph 3.1) to

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the out-going terminals of the Metering Equipment. For the avoidance of doubt, the legal owner (Customer, Meter Operator, DNOor anyone else) of the Metering Equipment is irrelevant.

Technical Requirements

General

2.10 All work must be carried out in accordance with all relevant legislation, including:

(a) the provisions of the Electricity Act, particularly the relevant parts of Schedule 7;

(b) appropriate parts of the Meters (Certification) Regulations 1998 (as amended) and the Meters (Approval of Pattern or Construction and Method of Installation) Regulations 1990 (as amended); and

(c) relevant provisions of the Electricity Safety, Quality and Continuity Regulations 2002 (as amended).

2.11 The MOEM should also comply with, where appropriate, relevant guidance documentation issued under the BSC.

Distribution Code requirements

2.12 The Parties acknowledge that the Supplier, or, where appropriate, a Customer who contracts with a MEM, is responsible for ensuring that the MEM complies with any obligation imposed on a Supplier or Customer by the relevant parts of the Distribution Code and DCUSA. The Distribution Code requires the user's (usually the Customer's) electrical system to comply with relevant provisions of the Distribution Code and the Electricity Safety, Quality and Continuity Regulations 2002 (as amended). It also requires agreement to ownership boundaries at the interface and lays down technical requirements for connection. Associated distribution operating codes cover operational liaison which secures safety at this interface and the need for a safety management system to cover work or tests at the operational interface. There is also a duty on the Party responsible for the network or Site at which the Metering Equipment is located to record who is the Party responsible for the Metering Equipment.

2.13 In the event of conflict or inconsistency between this Meter Operation Code of Practice, and either the DCUSA or the Distribution Code, then the latter agreement and code shall prevail to the extent of such conflict or inconsistency. If such a conflict or inconsistency arises, then the REC Metering Group shall meet to consider as soon as reasonably practicable after becoming aware of the conflict or inconsistency what changes, if any, should be made to this Meter Operation Code of Practice to address such conflict or inconsistency.

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Metering Equipment Specification

2.14 All meters installed must conform to the requirements of Schedule 7 of the Electricity Act, i.e. shall be of a pattern approved by the Authority, appropriate and, in the case of a domestic Customer, shall be certified under the Authority's directions.

2.15 Metering Equipment recording half-hourly values for the purposes of the BSC shall additionally be compliant with the relevant BSC Code of Practice (see Appendix 1) and any dispensation or exemptions as appropriate.

Metering Equipment Calibration, Testing and Maintenance

2.16 The initial calibration of Metering Equipment must comply with statutory requirements for limits of accuracy if the meter is a certified meter or within definitions set out in the relevant BSC Metering Code(s) of Practice. Copies of records of calibration and commissioning tests kept in accordance with BSC Metering Code of Practice 4 shall be made available upon request to the Code Manager, and/or the relevant DNO.

2.17 Re-calibration of meters and routine tests shall be undertaken for Metering Equipment recording half-hourly values for settlement purposes in the manner specified in the BSC Metering Code of Practice 4.

2.18 For non- half hourly Metering Equipment , there is a requirement that the meter performs within statutory maximum permissible errors throughout its in-service life.

Testing Instruments

2.19 All portable instruments used by MEMs for commissioning purposes shall be fit for their purpose and comply with the BSC Metering Code of Practice 4.

2.20 All portable measuring instruments used by MEMs for accuracy testing purposes, for example, measuring voltage and current, shall be calibrated, re-calibrated and traceable to the United Kingdom Accreditation Service (UKAS) standard at least annually to ensure that these instruments are operating within specification.

2.21 Where instruments are used for voltage measurement they shall be equipped with fused leads.

Quality Assurance

2.22 The MEM shall ensure that adequate procedures are in place to ensure that Metering Equipment operates correctly and accurately and is not compromised during storage, delivery or installation.

Technical Competence

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2.23 MEMs shall ensure that their Meter Operatives are technically competent to an appropriate level (refer to Appendix 6) to undertake on-Site work. They may be required to demonstrate this to the Code Manager (see paragraph 2.27 below).

Operating Requirements

The Registration Certificate

2.24 MEMs must hold a valid Provisional Certificate and/or Registration Certificate before undertaking any work as a MEM.

Exchange of Information with the DNO

2.25 MEMs shall, within the required timescales, provide DNOs with the information required in the Metering Operations Schedule for Supplier Volume Allocation metering.

2.26 Neither the MEM nor the DNO shall be required to disclose any Confidential Information, particularly commercially confidential tariff information or consumption information relating to a Customer, which would not otherwise be available to the DNOor MEM, as appropriate.

Administrative and other requirements

Training of Meter Operatives

2.27 Each MEM shall be responsible for the training of its Meter Operatives to meet both the safety requirements of paragraph 1.1.6 above and the technical requirements of paragraph 1.2.7 above. The results of any associated trade tests and/or records of such training shall be kept and shall be open to inspection by the Code Manager and where applicable to the relevant DNO requiring to authorise the MEM's employees and/or agents.

Appointment and Registration of Competent Persons

2.28 Each MEM shall be responsible for testing its Meter Operatives to establish their technical and safety competence prior to confirming in writing that they are competent.

2.29 The MEM shall maintain a register of competent persons authorised by it. This register shall be open to inspection by the Code Manager.Appendix 5 provides a model form of certificate of competency to be issued by MEMs to Meter Operatives giving suggested categories of authority, depending upon the experience of the Meter Operative and type of work expected to be undertaken by it.

2.30 The MEM should also refer to the guidelines of Appendix 6 which provide guidance to

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the training and/or assessment of Meter Operatives.

2.31 Where Meter Operatives are to be given authority to operate DNO Equipment and/or enter DNO controlled substations (as in paragraph 5.13(a) below), they may be authorised by the DNO under its Distribution Safety Rules. The DNO will carry out the necessary assessment and may refuse to authorise or permit to be authorised any person who fails to meet the standards required by it to operate on its network. The MEM shall be responsible for giving authority to Meter Operatives under paragraph 5.13(b) below. Prior to giving such authority, the Meter Operative will require training in the avoidance of relevant dangers.

2.32 If a MEM authorises a new agent or Sub-contractor to carry out meter operation services it shall inform the Code Manager in writing within 15 Working Days after such authorisation.

Sealing of Metering Equipment and related DNO Equipment

2.33 Metering Equipment and related DNO Equipment shall be sealed following commissioning and shall be resealed following any subsequent works by any Party that require the removal of seals, either owned by that Party or the property of another Party.Appendix 8 provides details of the equipment to be sealed, the seals to be used and relevant procedures. Reference should also be made to the BSC and the relevant BSC Procedures.

2.34 Appendix 7 refers to a list of unique identification letters for the seals of MEMs.

Documentation and Records

2.35 In addition to documentation and procedures required elsewhere by this Code, systems of documentation, recording and retention of data shall be established by a MEM to enable the following:

(a) notification to the DNO that the MEM has been appointed at a particular Site, and, if appropriate, an indication of who is the responsible Party, as referred to in paragraph 2.12 above, save that under the arrangements for the Metering Point Administration Service this information will not be necessary since it is available through the Metering Point Administration Data;

(b) requests for information to enable it to fulfil its duties set out in paragraph 5.10 below including the details listed in Appendix 2, Part 2;

(c) records as required by BSC Metering Code of Practice 4; and

(d) records of work carried out (indicating which Meter Operative carried out the work).

Review of Information Provided

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2.36 Each MEM must review the validity and accuracy of the information it issues to each DNO at least annually or following an organisational or policy change.

Internal Audits

2. 37 The MEM shall maintain an internal site safety audits procedure to ensure compliance with the MEMs obligations prescribed within this Agreement. The results of the internal site safety audits will be made available upon request to the Code Manager.

3 Requirements Applicable to Meter Operatives at Site Level

Introduction

3.1 MEMs shall ensure that their individual Meter Operatives working directly on Site comply with relevant requirements imposed on the MEM set out in section 1 above and those documented in the MOEM's own installation and maintenance procedures.

Safety requirements

General

3.2 MEMs shall make each of their Meter Operatives aware of their individual duty of care to themselves and to other persons who may be affected by their acts and/or omissions at work. These duties are more specifically stated within provisions of the Health and Safety at Work etc. Act 1974. MEMs shall also ensure that their Meter Operatives have an awareness of the duties of other parties to secure their safety, particularly their employer (as indicated in the Management of the Health and Safety at Work Regulations 1999) and the occupier of the work Site, and of their rights to refuse to carry out work if they consider it unsafe.

Electricity at Work Regulations

3.3 Duties of an employee as regards work activities on or near electrical installations which are within his control are set out in the Electricity at Work Regulations 1989 (as amended). MEMs shall make their Meter Operatives aware, as necessary, of the requirements of these regulations, particularly those requiring safe systems of work, safe procedures and the use of suitable protective equipment.

Safety Knowledge and Experience

3.4 Regulation 16 of the Electricity at Work Regulations 1989 (as amended), requires that no person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate, injury, unless he possesses such knowledge or experience, or is under such degree of supervision as may be appropriate

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having regard to the nature of the work MEMs shall ensure that each of their Meter Operatives has sufficient knowledge and experience, backed up by suitable training as necessary, to meet the required level of competence (see paragraph 2.27 above).

3.5 The MEM shall require that its Meter Operatives carry on Site with them their certificate of competency detailing the work for which they are authorised, including, where relevant, any certificate issued by the DNO.

Distribution Safety Rules

3.6 Work on or in the vicinity of DNO Equipment carried out by DNO employees or agents is governed by the Distribution Safety Rules of the respective DNO. The MEM shall ensure that its Meter Operatives are aware of the relevant DNO procedures and documentation (see paragraph 4.2 below). In order to receive certain safety documentation, Meter Operatives may need to be appointed by the DNO as Competent Persons within the meaning of the Distribution Safety Rules.

3.7 The DNOshall have the right (see paragraph 4.8 below) to confirm the authorisation referred to in paragraph 3.4 above and to prevent access to its equipment if Meter Operatives refuse or are unable to produce evidence of their authorisation.

Assessment on Site of Risks to Safety

3.8 The MEM shall ensure that its Meter Operatives understand the extent of the works required to be undertaken and undertake a risk assessment of the risks to safety on Site (see paragraph 2.8 above). The MEM shall ensure that its Meter Operatives shall report to it if they feel unable to proceed because:

(a) their level of knowledge or experience is insufficient;

(b) they have inadequate supervision or need to be accompanied (but are not);

(c) they have inadequate information;

(d) they require the attendance of DNO staff to assist or clarify that there is adequate safety at the workplace; and/or

(e) they have any other reason to believe that it is unsafe to continue.

3.9 In the event of serious problems arising on-Site, the Meter Operative may contact the DNO directly rather than reporting in the first place to the MEM.

Reporting of Dangerous Situations, Defects, Asset Condition Information and Incidents

3.10 The MEM shall ensure that its Meter Operatives have access to a current version of the MOCoP Guidance for Service Termination Issue Reporting document while on Site (this

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may be a physical or electronic version) and report to the DNO:

(a) any DNO Equipment which they find to be defective such as to present the possibility of danger (category A);

(b) any parts of the DNO Equipment, Sites or situations which are or which they reasonably believe may become hazardous (category B); or

(c) any relevant asset condition information (category C).

3.11 The MEM shall ensure that its Meter Operatives report immediately to any other MEM who has responsibility for Metering Equipment at the Site but which is not that MEM's Metering Equipment:

(a) any Metering Equipment which they find to be defective such as to present the possibility of danger; or

(b) any parts of the Metering Equipment or situations which are or which they reasonably believe may become hazardous.

3.12 Where such defects or hazards additionally involve damage to or suspected interference with Metering Equipment, then the procedures detailed in paragraphs 5.29 to 5.35 below shall also apply. The MEM shall ensure that its Meter Operatives do not interfere with apparatus belonging to the DNO to which they have not been granted access.

3.13 The MEM shall also ensure that its procedures require its Meter Operatives to follow the requirements under relevant safety legislation to report incidents/accidents and dangerous occurrences to the relevant reporting authority.

Technical requirements

General

3.14 The MEM shall ensure that its Meter Operatives are familiar with the general practices employed in the installation, testing and maintenance of Metering Equipment and the implications of incorrect connection.

Technical Competence

3.15 The MEM shall ensure that its Meter Operatives have appropriate qualifications, training and experience to ensure their technical competence to carry out any of the work requested by the MEM.

3.16 Each MEM shall ensure that proof of technical competence shall be made available on request to the Code Manager.

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Assessment of Technical Problems on Site

3.17 The MEM shall ensure that its Meter Operatives on Site assess any technical problems associated with the works required to be undertaken and do not proceed if:

(a) their level of technical knowledge or experience is insufficient;

(b) they have inadequate supervision;

(c) they have inadequate information;

(d) they require the attendance of DNO staff to assist or to clarify technical information relevant to the work; and/or

(e) they have any other reason to believe that it is unsafe to continue.

3.18 Technical problems may have safety implications which should also be referred to the MEM as they may affect the assessment of on-Site safety (see paragraph 2.2.5 above).

Documentation and Records

3.19 The MEM shall ensure that its Meter Operatives provide timely and accurate information to enable it to keep records and provide other required documentation as specified in paragraph 2.35 above, in particular the essential commissioning information referred to in paragraph 2.35(c) above.

Recommended On-Site Working Procedures

3.20 The Meter Operative must implement procedures developed by the MEM business. These will include ensuring that:

(a) a check of the meter installation is carried out before and after work, including connection configuration for meters and tariff or contract details; in the case of CT and CT/VT-operated metering, the secondary circuits should be tested that they are connected to earth;

(b) the polarity and phase rotation of the supply and connections to the Metering Equipment is correct (taking account of, if appropriate, whether the connection is deliberately non-standard);

(c) the Metering Equipment is recording the correct measurement of the load;

(d) the Site is safe and secure before and on completion of work or inspections;

(e) if non-standard arrangements of Metering Equipment are discovered that they are reported to the MEM who will advise the Supplier;

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(f) if any DNO non-settlement metering is encountered at a supply point, providing it is not labelled “DNO metering, required until …”, it is to be removed. This includes ancillary equipment, such as time switches, that was part of a previous metering arrangement.

(g) the correct personal protective equipment is available and used;

(h) the equipment to be worked on is made and proved not live or, if not, there are clear guidelines or procedures for the use of shrouding equipment, and that they are fully complied with; and

(i) the Customer’s electrical installation at the service position is visually inspected to identify signs of risk and if identified, to inform the Customer of this risk and any preventative actions required. A MEM may use the suggested template in Appendix 10 of this Schedule to fulfil this recommendation.

4 Obligations and Rights of the DNO

General Safety

4.1 The DNO has a general duty of care to its employees and to others regarding the supply and supply equipment it provides. It must also comply with relevant safety and other statutory provisions, particularly the Electricity Safety, Quality and Continuity Regulations 2002 (as amended), and relevant parts of the Distribution Code.

4.2 In regard to works on its equipment, the DNO addresses these duties for its own employees through the safe systems of work and safety procedures detailed in its Distribution Safety Rules. These require, amongst other things, that persons carrying out work are trained and assessed as competent to avoid danger. However, the general duty extends to ensuring that equipment and Sites within its control are not in a defective or hazardous condition, so far as is "reasonably practicable".

4.3 The DNO has a duty of care to "others" which may, at the discretion of the DNO, be interpreted as a requirement that individual Meter Operatives of the MEM should be authorised under its Distribution Safety Rules (see paragraph 5.13 below). This is irrespective of what safety procedures have been established by the MEM.

4.4 DNO policy with regard to authorisation of Meter Operatives in accordance with its Distribution Safety Rules shall be stated in the DNO information provided pursuant to Appendix 2, Part 1.

4.5 In certain circumstances, the DNOs may have rights of access to Customer premises under Schedule 6 of the Electricity Act.

4.6 Under the Electricity Safety, Quality and Continuity Regulations 2002 (as amended), the DNO will ensure accidents and dangerous occurrences are reported to the Health and

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Safety Executive. The DNO shall be responsible for reporting any problems on assets under its control – that is the cut-out, CT/VTs, associated wiring up to and including the test terminal block, associated metering panel and upstream distribution network. For the avoidance of doubt, the legal owner (Customer, MEM, DNO or anyone else) of the DNO Equipment or asset is irrelevant.

Access to DNO Equipment

4.7 To ensure control of safety at the point of work the DNO shall allow Meter Operatives access to its equipment (as defined in 5.13) without the need for attendance by its staff, where such equipment is not situated in premises subject to access control procedures under its Distribution Safety Rules. Such access will be subject to satisfactory evidence that the Meter Operative is employed by a MEM which holds a valid Registration Certificate (see paragraph 2.24 above), has proof of identity and has the relevant authorisation, including, where the DNO deems appropriate, authorisation under the DNO's Distribution Safety Rules. The DNO has the right to establish these facts, and to satisfy itself generally of the safety and technical competence of the MEM, and to refuse authority for access if it is not satisfied, provided that such action is not taken in an obstructive or trivial manner.

4.8 Where equipment is situated in shared premises subject to control procedures or is in premises where access is restricted to DNO staff, then the procedures of paragraph 5.13 below shall apply.

4.9 Each DNO has an obligation to maintain its equipment in a safe condition, but relies on staff on Site to report any deficiencies (as detailed in paragraph 3.10 above), which it will then remedy.

4.10 The standard arrangements for CT metering equipment shall include accessible test/isolating facilities in accordance with the BSC Metering Code of Practice 4. Where test/isolating facilities are required but do not exist, are inaccessible, or the CT and/or VT secondary connections are not connected to earth on the DNO side of the test/isolating facilities, the DNO shall provide suitable and accessible test/isolating facilities, with CT and VT secondary circuits connected to earth (see Appendix 11 - Earthing of Current Transformers), to enable connection of the new metering. This work, subject to the Customer's consent where the DNO is required to interrupt the supply, will be carried out within a reasonable timescale after a MEM's request. DNO policy with regard to dealing with the existing Metering Equipment on Site and use of or access to its metering cubicles/panels shall be stated in the DNO information provided as in Appendix 2, Part 1.

Operational Liaison

4.11 For the purpose of operational, safety technical and escalation liaison, the DNO shall nominate one or more representatives to offer a "point of contact" with the MEM and shall notify the MEM as part of the provision of DNO information (Appendix 2, Part 1).

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4.12 The “point of contact” shall have responsibility for agreeing with the MEM an appropriate course of action for the situations specified in paragraph 5.17 below.

Provision of Information

4.13 If a MEM requires the DNO to provide Site-specific information, it shall give the DNO as much prior notice as is reasonably practicable.

4.14 Upon receipt of a request from a MEM appointed at a specific Site, the DNO shall provide to the MEM the Site-specific information shown in Appendix 2 Part 2 in line with BSC Proceedure 515: 'Licensed Distribution'. Where the DNO does not have relevant CT and VT details it shall notify the MEM of this fact and instead provide it with appropriate standard errors. It shall also advise the MEM where it is aware of the existing Metering Equipment being the subject of a dispute as regards meter readings or accuracy and is or may be subject to an investigation by the National Measurement and Regulation Office, such investigation precluding its removal pending such determination.

4.15 When a DNO installs new Metering Equipment or changes existing Metering Equipment it shall provide or update, as appropriate, the information on the HV/LV CT metering label described in Appendix 2, Part 3. In addition, the DNO will adhere to the requirements outlined in the BSC Metering Code of Practice 4.

4.16 The DNO shall provide to all MEMs the DNO information indicated in paragraph Appendix 2, Part 1. This DNO information shall be provided on the REC Portal. This may be achieved by providing a link to the appropriate page of the DNO’ own website.

4.17 If the DNO wishes to retain its own Metering for non-settlement purposes, alongside MEM’s metering, the DNO shall ensure it is clearly labelled “DNO metering, required until …” or similar.

Maintained Status of Information

4.18 Each DNO must review the validity and accuracy of the information it issues to each MEM, in accordance with paragraphs 4.13 to 4.17 above and Appendix 2, at least annually or following an organisational or policy change. Following any such review, the DNO must send the current version of its information to the Code Manager for distribution to all MEMs as soon as practicable.

4.19 In addition, when notification is received of a new MEM acceding to this Code, the DNO will provide this information to the new MEM as soon as reasonably practicable. This review will include any operational restrictions specified in paragraphs 4.13 to 4.17 above.

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4.20 In the event of a dispute, the copy of DNO information held by the Code Manager will be deemed to be the current version.

Re-Sealing of Equipment

4.21 The DNO shall re-seal Metering Equipment after it has removed MEM seals in order to carry out any work upon such Metering Equipment, including where it carries out post-commissioning testing.

Repair of reported dangerous situations, defects or hazards

4.22 The DNO shall ensure that its DNO Operatives have access to a current version of the MOCoP Guidance for Service Termination Issue Reporting document while on Site. This may be a physical or electronic version.

4.23 Any DNO to whom a MEM reports a dangerous situation, defect or hazard in accordance with paragraph 3.10 to 3.13 shall repair such dangerous situation, defect or hazard and inform the currently appointed MEM in line with the Service Level Agreement for Resolving Network Operational Issues and Associated Reporting Requirements detailed within DCUSA.

5 On-Site interface considerations

5.1 It is the responsibility of the MEM to carry out the assessment of risk on Site and to ensure that safety precautions are in place to ensure that its Meter Operatives on Site are given control of safety at the point of work (see paragraph 2.8 above). In practice, this means that the Meter Operative on Site will carry out such risk assessment. The decision flow chart of Appendix 4 is an aid to this assessment and indicates particularly situations which may require referral to a representative of the DNO.

Typical Installations

Levels of Supply

5.2 Operatives must be aware of the differing levels of technical complexity and potential safety risk to parties who may work on or in the vicinity of distribution and/or Metering Equipment.

5.3 Diagrams in relevant BSC Metering Code of Practice 3 and 5 show basic meter connection arrangements, namely Low Voltage CT operated and High Voltage CT and VT-operated. Connections are generally made to separate test/isolating facilities, with on-going connections to the meter and it should be noted that there are alternative methods of connection for High Voltage CT/VT-operated metering.

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5.4 In dealing with Low Voltage supplies operatives must be aware that, in some cases, live conductors may be exposed when covers of the Metering Equipment are removed. In the case of High Voltage, access is restricted to voltage fuses, test/isolating facilities and to the meter position where these are sited within a DNO substation to which the Customer does not have access.

Interface definition and requirements for Test/Isolating Facilities

5.5 As regards the interface between the DNO Equipment and the Metering Equipment :

(a) for whole-current metering, the normal interface point will be the cables from a cut-out or Switch at the outgoing terminals of the cut-out or Switch. However, there will be occasions (e.g. with rising mains) where this is not the case, and guidance should be sought from the DNO. Where a DNO meter is to be left on Site, then the interface will be the outgoing terminals of that DNO meter;

(b) for CT and CT/VT metering, the normal interface point will be the outgoing connections from the test/isolating facilities and the voltage fuses. The test/isolating facility provided must allow the following operations to be carried out via a safe electrical connection and without the need to disturb any wiring:

(i) short circuit individual current transformers;

(ii) directly connect an ammeter;

(iii) connect test equipment to inject current into the secondary circuit towards the meter;

(iv) connect a testing device on each phase of the voltage circuit.

5.6 For the purposes of meter connection, the CTs, VTs, meter panel and associated cable, test/isolating facilities and voltage fuses will be provided by the DNO or by an independent connections provider, providing an adoptable connection meeting the requirements of the relevant BSC Metering Code(s) of Practice for the installation. Once commissioned, these CTs, VTs, meter panel and associated cable, test/isolating facilities and voltage fuses will become the property and the on-going responsibility of the DNO. Meter panels will accommodate affixing of the meter(s) which should be situated behind a Customer accessible door or on the front of the panel, the rest of the panel will be sealed in accordance with Appendix 7. The surface of the meter panel should be of sufficient area for the fitting of all the meters required, in accordance with the relevant BSC Metering Code(s) of Practice for the installation. The meter panel may be metal or plastic construction dependent on the Site conditions.

5.7 To enable work on the meter to be carried out safely, case (a) above requires the removal of the main supply fuses or opening of the supply switch and measures to prevent inadvertent restoration of supply. Case (b) above requires the shorting out of CT

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connections at the test/isolating facilities, and the removal of voltage fuses at the point of supply. Following a risk assessment any other precautions necessary shall be taken.

Connection to a DNO meter to be left in operation

5.8 Where DNOs metering is to operate alongside settlement metering (and has been labelled in accordance with 4.13 to 4.17) then the method of connection shall be as shown in relevant BSC Codes of Practice and both left in an operational state. The responsibility for connections and for sealing of any or both terminal covers and other sealable connection points rests with the Party carrying out the last on-Site work, and the general principles of sealing set out in paragraph 2.33 above shall apply.

5.9 Whenever work is carried out at the meter position (including, but not exclusively, new connections, service alterations, meter changes and connection of additional Customers' circuits), conductors shall be coloured and marked in accordance with Appendix 9.

Operational Interaction between MEM and DNO Staff

Information Required by a MEM

5.10 General information regarding typical equipment and practices of the DNO will be provided by the DNO to the MEM under the terms of the exchange of information agreed by the DNO in paragraph 4.12 above. The DNO will also provide the appropriate Site-specific information listed in Appendix 2, Parts 1 and 2. Certain information required under Appendix 2, Part 2 may be obtained directly from a label provided by the DNO in accordance with Appendix 2, Part 3.

5.11 Any complaint regarding the adequacy or accuracy of this information, or commercial implications arising from it which are considered unfair by the relevant MEM may be referred to the Code Manager.

Need for Access to Equipment in a DNO Substation and to Distribution Fuses

5.12 In the majority of cases, MEMs will have unrestricted access to the physical locations of the supply fuses (or switches), test/isolating facilities and voltage fuses necessary to enable control of safety at the point of work as indicated in paragraph 5.5 above. Such cases will be deemed not to require the attendance of the DNO, subject to the provisions of paragraph 4.7 above.

5.13 In any other case where, for example, interface equipment or the meter position is situated in a substation where access is restricted under the relevant Distribution Safety Rules, four options will be available to the MEM. Each option requires the agreement of the DNO:

(a) the DNO may, in accordance with the procedures of the Distribution Safety Rules authorise a specific Meter Operative of the MEM to enter the substation and carry

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out the work;

(b) the DNO may issue an authorisation as in (a) above, but to the MEM, who will then be responsible for providing sufficient training to its MEMs and for granting individual authority under his own procedures;

(c) a DNO representative may attend, grant access and stand by whilst the work is carried out. If this work requires the removal of supply or voltage fuses, then attendance will also be required to restore supplies when the works are completed (see paragraph 5.22 below); or

(d) the DNO may arrange for interface equipment to be relocated to, or for secondary isolation facilities to be fitted in, a non-restricted area.

5.14 The particular option exercised will be confirmed between the MEM and the DNO within 5 Working Days following receipt of the general information provided by the DNO (see Appendix 2, Part 1).

5.15 Option (a) may involve use of a joint access agreement whereby dual (or multiple) locking is provided and each user determines which of his staff has authority to enter.

5.16 The options (a) to (a) above will also apply in the case of Meter Operatives working on whole-current metering and needing to take safety precautions by removal (and subsequent replacement) of a DNO fuse or fuses. The authorisation in cases (a) and (b) will be required for work to be carried out on relevant equipment. In case (c) the DNO representative will remove and replace fuses under his own authorisation.

Need for DNO Attendance

5.17 The procedures within this Meter Operation Code of Practice are intended to minimise the need for DNO staff to attend Sites where a MEM is carrying out works. However, the following situations, amongst others, may call for DNO attendance:

(a) lack of the Site-specific information described in paragraph 5.10 above;

(b) access problems as in paragraph 5.13 above;

(c) where the meter is CT or CT/VT-operated and there are no test/isolating facilities and/or the CT or VT secondary circuits are not connected to earth on the DNO side of the test/isolating facilities; or

(d) where work needs to be carried out in the vicinity of live, bare conductors which cannot be adequately screened.

5.18 In situation (c), the DNO shall, at its own expense, provide, or procure the provision of, a suitable and accessible test/isolating facilities (note technical requirements as in 5.5),

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and ensure the CT and VT secondary circuits are connected to earth (see Appendix 11 - Earthing of Current Transformers).

5.19 In situation (d), which is likely to involve only Low Voltage supplies, DNO attendance may not be necessary if safety can be secured by isolation of the supply by the MEM.

5.20 DNO attendance may also take place at the request of the MEM to provide technical support or assistance.

5.21 The MEM shall, in the case of access problems, check whether the Customer has an authorised person for the Site who can grant access.

Documentation to Define Responsibility

5.22 Where staff of the DNO and the MEM become jointly involved in works, such as in paragraph 5.13(b) above, both Parties will follow the DNO Distribution Safety Rules. This may involve the use of a specific document to ensure that work does not commence before safety precautions have been taken and that the supply is not restored until works are completed or suspended (see 2.35(c)).

Generic Operational and Safety Considerations

5.23 Appendix 6 provides guidance to MEMs on typical DNO operational and safety considerations at the interface. This should be read in conjunction with DNO information provided (see paragraph 5.10 above) and Appendix 2, Part 1.

Business and Other Interactions

Estimation of unmetered units

5.24 The estimation of any units 'lost' (i.e. not metered) during the course of works where meters may be disconnected for a period will be carried out by data collection agents according to appropriate BSC Procedure(s).

Treatment of removed Metering Equipment

5.25 Where Metering Equipment is to be removed, the MEM and/or the DNO shall ensure that any holes left in metering panels are blanked off and any redundant wiring removed.

5.26 The meter asset provider shall be informed of the Metering Equipment removal within 10 Working Days using Data Catalogue flow D0303 (REC Market Message: MN00240) where applicable. Metering Equipment which has been removed shall be kept in waterproof and secure storage pending its return to its meter asset provider (or as agreed with the meter asset provider).

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5.27 Metering Equipment must be returned to the meter asset provider (unless subject to alternative commercial arrangements). If the removed Metering Equipment is faulty, damaged, subject to targeted removal (e.g. product recall) or removed as part of an investigation (e.g. safety or revenue protection), then the Metering Equipment should be clearly labelled with the reason of the removal. To minimise the opportunity for revenue protection issues, removed Metering Equipment must not be left at the Customer Premises (except in the event that the Metering Equipment is owned by the Customer).

5.28 Return addresses for DNOs are required to be included within DNO Information (see Appendix 2, Part 1).

Reporting of damage

5.29 NOTE: 'Damage' here includes external physical damage and any internal fault which manifests itself externally.

5.30 Where Metering Equipment on Site is found at any time by a representative of the DNO to be damaged, this shall be reported to the relevant Supplier.

5.31 Where damage is found by a Meter Operative, then he shall inform all relevant persons.

5.32 Where the damage appears to be due to deliberate tampering/interference, then the procedures set out in paragraph 5.35 shall apply.

5.33 Where there is a need for damaged Metering Equipment to be replaced, then such Metering Equipment shall not be destroyed or otherwise disposed of without the permission of any relevant Party (usually the Supplier or the DNO) which may be involved in an insurance claim or dispute. Such Party may require that the original equipment be reserved/set aside and made available for subsequent investigation; in this case it shall be the responsibility of such Party to notify the initial period for which the equipment shall be kept (typically 6 months) and to advise of its subsequent requirements.

5.34 Where the damage or deficiency has been such as to interfere with the correct operation of the Metering Equipment , then the Supplier will subsequently agree with the Customer and the DNO, in consultation with the relevant MEM, the quantity of any electrical energy not recorded.

Reporting of Tampering/Interference

5.35 Where either a Meter Operative or a representative of the DNO finds apparent evidence on Site of deliberate tampering/interference he shall comply with the relevant provisions of the Unbilled Energy Code of Practice and, in a potentially dangerous situation the Meter Operative or DNO representative shall take appropriate action to make the Site safe, while, so far as it is able, avoiding damaging any such evidence.

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Disputes as to accuracy

5.36 Where any relevant person has reason to believe that the Metering Equipment for which a MEM is responsible is not performing within statutory limits of accuracy, it may exercise its rights under Schedule 7 of the Electricity Act to refer the matter for determination by a meter examiner. The requirements of paragraph 8 and the procedures of paragraph 7 of that Schedule shall then apply. The latter paragraph contains a provision relating to the responsibility for the payment of any determination fees.

Redundant Metering Equipment

5.37 The MEM shall ensure that connected burdens are within acceptable limits. The MEM shall use all reasonable endeavours to ensure that no metering other than that of the current MEM, and where required that of the DNO, is connected.

5.38 It shall be the responsibility of the current MEM to identify and remove all redundant Metering Equipment for which the appointed MEM is responsible and return the Metering Equipment in accordance with Clause 5.25

Phase failure indicator lamps

5.39 DNOs are responsible for ensuring any existing phase failure indicator lamps are kept operational. DNOs should have ceased fitting phase failure indicator lamps at new Metering Points from 1 January 2009. When the DNO or MEM make a material change to the Metering Point, or at their own initiation, any existing phase failure indicator lamps should be disabled and clearly labelled as such or removed leaving the panel safe (e.g. unused holes filled). For the purposes of this clause, phase failure indicator lamps are defined as one or more lamps intended to visually demonstrate that voltage is available on one or more phases.

Meter board replacement

5.40 When there is a requirement to replace the meter board (or any other surface) onto which the Metering Equipment or DNO Equipment is fixed then the following shall be adopted:

5.41 Where there is only the need to displace the DNO Equipment, then arrangements should be made with the DNO to attend;

5.42 Where there is only the need to displace the Metering Equipment , then arrangements should be made for the MEM to attend, via the relevant Supplier;

5.43 Where there is the need to displace the DNO Equipment and Metering Equipment , then arrangements should be made with the DNO and with the MEM (via the relevant Supplier) to attend, as appropriate.

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Recovery of costs

General

5.44 The general principle used to determine whether costs incurred by a Party in its capacity as MEM and/or DNO under these requirements are recoverable shall be that the DNO shall, so far as practicable, treat all MEMs (including its own MEM business) in the same manner as regards costs charged by it.

5.45 A DNO may make a charge for any specialist advice provided by it (see for instance paragraph 5.17, or for providing information additional to that in Appendix 2, Part 2 at the request of a MEM. A MEM may seek to recover the costs of delays due to inadequate or inaccurate information provided by the DNO (see paragraph 5.10 above). A MEM may also come to some commercial arrangement with a DNO as regards dealing with equipment on Site (see paragraph 4.8 above).

5.46 There may be other cases where one Party feels that its costs should be recoverable from another. Disputes as to cost recovery in cases relating to the requirements shall be referred to the Code Manager.

Costs Relating to Access to Substations

5.47 As regards access to substations, the DNO may choose to authorise a specific MEM's Meter Operative to enter its substations (see paragraph 5.13(a) above), and, where a double locking or special locking system is used, the MEM will bear the additional costs of such arrangements. As regards the authorisation itself, the MEM will bear the costs of suitable training, where necessary, for his Meter Operative (see paragraphs 2.28 to 2.32 above). The DNO will bear the costs of interview and appointment and will seek to minimise such costs by taking due account of training received by the Meter Operative and whether he has authority to enter the substations of other DNOs.

5.48 The DNO may choose to authorise the MEM under the terms of paragraph 5.13(b) above, in which case the MEM will still bear the training and additional locking costs as above.

5.49 In the case of accompanied working (as described in paragraph 5.13(c) above), if the DNO chooses this option rather than authorising the Meter Operative, then it will bear the associated costs. Where a MEM requests on-Site supervision by a representative of the DNO as an alternative to training and obtaining authorisation for its Meter Operatives, then it shall bear the DNO's costs.

Additional Training

5.50 These cost recovery principles do not cover situations where "top up" training is required for those DNOs who require it, or who insist on the duplication of general training. The arrangements for additional training should be dealt with at a local level by

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discussion between the MEM and the DNO.

6 New Metering Points

6.1 In the case of new Metering Points, the following principles shall be adopted:

(a) the DNO and the MEM shall liaise with each other to ensure that new metering work and energisations are completed with the minimum delay;

(b) the DNO shall agree with the Customer or developer the position and space for the Metering Equipment , and shall, in so much as it is within its reasonable control, ensure it remains reserved. The location must be accessible to the Customer so they can read their meter and to the MEM (via the Customer). Consideration shall be given to the accessibility of the location to all users. The DNOs' service termination equipment and the Metering Equipment should be located between 0.5 and 1.8m above finished floor level, subject to unavoidable constraints such as security, vandalism or fire risk mitigation;

(c) for HV and LV CT metered supplies, the interface test/isolating facilities shall be installed in an accessible position near to the location of the proposed Metering Equipment. A label must be fitted in accordance with Appendix 2, Part 3. The CT and VT secondary circuits shall be connected to earth on the DNO side of the interface (see Appendix 11);

(d) for whole current supplies, a means of isolating voltage supplies (e.g. cut-out) shall be installed in an area to which the MEM has access (via the Customer);

(e) for cut-out-controlled supplies, the DNO is responsible for providing the fuse carriers and fuses. Where these cannot be left on Site (e.g. risk of unlawful energisation), the DNO shall be responsible for providing them to the MEM in a timely and acceptable manner for the MEM to perform the energisation (see Appendix 2, Part 1);

(f) it is the responsibility of the DNO to determine the rating of the cut-out fuses. For whole current metered supplies, the Meter Operative shall check the conductors being provided by the Customer are suitably rated for the cut-out fuses provided before he connects them, or Energises the supply (this is limited to checking at the point of connection without needing to take into account any de-rating for thermal conditions within the installation);

(g) the DNO is responsible for commissioning the service (e.g. checking voltage, earth loop impedance, phase rotation, polarity and any protection settings, etc at the cut-out/switchgear);

(h) the MEM shall confirm the voltage, phase rotation and polarity at the supply terminals (metering output terminals or isolator switch terminals);

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(i) for whole current metered supplies, the MEM shall make the necessary connections between the DNO Equipment, Metering Equipment and the Customer's equipment;

(j) where the DNO is to provide an earth terminal for the Customer, the DNO shall ensure the terminal is accessible to the Customer or contractor or take responsibility for making the earth connection. (Note: the Customer should have ongoing access to the earth terminal in order to carry out routine tests of his installation);

(k) for HV and LV CT-metered supplies, before connecting Customer conductors, or facilitating the Customer's contractor safe access to suitable terminals, the DNO shall check the conductors being provided by the Customer are suitably rated for the cut-out fuse or circuit breaker protection;

(l) for whole current and cut-out-controlled LV CT metered supplies, the MEM shall Energise the supply subject to the DNO having previously satisfied (e) and (k);

(m) for circuit breaker-controlled LV and HV metered supplies, the DNO shall Energise the supply, in response to a request from the Supplier;

(n) a MOCoP Party shall not agree to Energise a supply until it is appropriately metered;

(o) the MEM shall not carry out energisation work unless and until authorised under the DCUSA; and

(p) Conductors shall be coloured and marked in accordance with Appendix 9.

6.2 Items (c) and (d) above shall be provided by the DNO, chargeable to the Customer, and shall be capable of being sealed to prevent unauthorised access.

6.3 MEMs should take note of any requirements in the relevant DNO's statement published as required by Appendix 2.

6.4 NOTE: Due regard shall be paid in siting meters to the requirements for overall Metering Equipment accuracy. These are affected by the burden imposed, which is related to the length of connections between current transformers and meters.

6.5 Operational liaison between the MEM and the DNO during commissioning of new Metering Equipment shall be covered by the Distribution Safety Rules.

7 Modifications

Effect

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7.1 No modification may be made to any Party's equipment except in accordance with the following provisions of this paragraph 7.

Service Alterations

7.2 Modifications to termination arrangements or Metering Equipment should always meet the requirements of paragraph 5.

Changes made to the Distribution System by the DNO

7.3 The DNO may make a modification to its Distribution System whether at or remote from the interface point without the consent of the MEM. The DNO must provide all relevant details to the MEM for planned work at least 15 Working Days before the work is carried out. For unplanned work as soon as possible before or after the work is carried out. The MEM shall use such notifications to determine, if the Metering Equipment will require re-commissioning, and where so determined shall initiate re-commissioning.

7.4 Any costs and expenses incurred by a MEM as a result of modifications to the Distribution System, where such modifications are not consequent directly upon the requirements of the Customer or the MEM, may be reimbursed by the DNO.

7.5 In the case of changes initiated by the DNO or by the Customer to an existing Metering Point, the following principles shall be adopted:

(a) the DNO and the MEM shall liaise with each other to ensure that any work is completed with the minimum delay;

(b) the DNO shall agree with the Customer or developer the position and space for the Metering Equipment , and shall, in so much as it is within its reasonable control, ensure it remains reserved. The location must be accessible to the Customer so they can read their meter and to the MEM (via the Customer). Consideration shall be given to the accessibility of the location to all users. The DNOs' service termination equipment and the Metering Equipment should be located between 0.5 and 1.8m above finished floor level subject to unavoidable constraints such as vandalism or fire risk mitigation;

(c) for HV and LV CT metered supplies, the interface test/isolating facilities shall be installed in an accessible position near to the location of the proposed Metering Equipment . A label must be fitted in accordance with Appendix 2, Part 3;

(d) for whole current supplies, a means of isolating voltage supplies (e.g. cut-out) shall be installed in an area to which the MEM has access (via the Customer);

(e) for cut-out-controlled supplies, the DNO is responsible for providing and installing the required changes to the fuse carriers and/or fuses;

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(f) it is the responsibility of the DNO to determine the rating of the cut-out fuses. Where there is no change to the Metering Equipment , the DNO shall check the meter conductors are suitably rated for the new cut-out fuses provided before they connect them (this is limited to checking at the point of connection without needing to take into account any de-rating for thermal conditions within the installation). Where they are not appropriate, the DNO shall arrange with the MEM for whole current supplies and/or Customer for CT supplies, as appropriate, to install new conductors;

(g) the DNO is responsible for commissioning the service (e.g. checking voltage, earth loop impedance, phase rotation, polarity and any protection settings, etc at the cut-out/switchgear) in accordance with the BSC Metering Code of Practice 4;

(h) when performing any metering work the MEM shall confirm the voltage, phase rotation and polarity at the supply terminals (metering output terminals or isolator switch terminals);

(i) for whole current metered supplies, the MEM shall make the necessary additional connections and/or replacements between the DNO Equipment, Metering Equipment , and the Customer's equipment; and to facilitate de-energisation and energisation as agreed with the Supplier or Customer;

(j) where the DNO is to provide an earth terminal for the Customer, the DNO shall ensure the terminal is accessible to the Customer or contractor or take responsibility for making the earth connection. (Note: The Customer should have ongoing access to the earth terminal in order to carry out routine tests of his installation);

(k) for HV and LV CT metered supplies, before connecting additional load, replacement of Customer conductors, or facilitating the Customer's contractor safe access to suitable terminals, the DNO shall check the conductors being provided by the Customer are suitably rated for the cut-out fuse or circuit breaker protection;

(l) when performing any metering work for whole current and cut-out- controlled LV CT metered supplies, the MEM shall De-energise or Energise the supply subject to the DNO having previously satisfied paragraph (e) & (k);

(m)for circuit breaker-controlled LV and HV metered supplies, the DNO shall de-energise and Energise the supply, in response to a request from the Supplier;

(n) a MOCoP Party shall not Energise a supply until it is appropriately metered;

(o) the MEM shall not carry out de-energisation or energisation work unless and until authorised under the DCUSA; and

(p) Conductors shall be coloured and marked in accordance with Appendix 9.

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7.6 Items (c) and (d) above shall be provided by the DNO, chargeable to the Customer, and shall be capable of being sealed to prevent unauthorised access.

7.7 MEMs should take note of any requirements in the DNO's statement published as required by Appendix 2 of this Schedule.

7.8 NOTE: Due regard shall be paid in siting meters to the requirements for overall Metering Equipment accuracy. These are affected by the burden imposed, which is related to the length of connections between current transformers and meters.

7.9 Operational liaison between the MEM and the DNO during commissioning of new Metering Equipment shall be covered by the Distribution Safety Rules.

7.10 The DNO shall use reasonable endeavours to replace noncompliant transformers identified during a material change to the Distribution System within 10 Working Days, in accordance with the BSC and shall notify the MEM to enable its records to be updated.

7.11 For the avoidance of doubt, a material change means a permanent change to the DNO Equipment other than:

(a) a change to repair, modify or replace any component which is not, in the judgement of the DNO, a substantial part of the DNO Equipment;

(b) a change to repair another part or other parts of the DNO Equipment, which are not deemed to be substantial, using an enhanced or equivalent component; and

(c) a change to another part or other parts of the DNO Equipment, each of which is not of itself (and, where taken together with other such changes, are not) a substantial part of the DNO Equipment necessitated, in the judgement of the DNO acting as a reasonable operator in all circumstances, by any change under (a) above, in each case where an enhanced or equivalent component is used for the repair, modification or replacement rather than an identical component.

7.12 The accuracy requirements relating to the Metering Equipment which specify compliant equipment are as specified in the relevant BSC Metering Codes of Practice.

Changes made to the Metering Equipment by the MEM

7.13 Provided there is no impact on the Distribution System, the MEM may modify its equipment without the consent of the DNO. If the modification changes the details registered with the DNO (Appendix 2, Part 3), the MEM must provide the DNO with the updated details via industry data flows within five Working Days after making the modification.

7.14 Where the MEM wishes to make a modification to its Metering Equipment that will require modification to the Distribution System, the MEM shall complete and submit to

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the DNO an application prior to commencing any such modification and shall not carry out any such modification unless and until it has agreed the modification with the DNO.

8 Reconnection of Supplies and Addition of Customer Circuits

8.1 There are specific duties in the Electricity Safety, Quality and Continuity Regulations 2002 (as amended), (in particular Regulation 25) and also a general duty of care under health and safety legislation to ensure that members of the public are protected from work carried out.

8.2 Together, the above place the onus on the MEM and/or DNO to ensure work is carried out safely when it is connecting an installation that is found disconnected, or de-energised, or where it is asked to add additional circuits.

8.3 MEMs shall establish procedures for ensuring that it is safe to connect installations in compliance with the Electricity Safety, Quality and Continuity Regulations 2002 (as amended), at the date of this Code and as amended from time to time, to cover situations in which it is working at a meter installation where it may be reconnecting existing circuits, or adding new circuits.

Appendix 1 - References

This list only contains documents referred to in this Meter Operation Code of Practice; it is not meant as an exhaustive list of documents relevant to meter operation.

Legislation

Electricity Act 1989

Health and Safety at Work etc. Act 1974

SI 1998 No.1566:	The Meters (Certification) Regulations 1998
SI 1998 No.1565:	The Meters (Approval of Pattern and Construction and Method of Installation) Regulations 1998 (as amended 2002)
SI 1989 No.635:	The Electricity at Work Regulations 1989 (as amended by SI 1997 No. 1993: Offshore Electricity and Noise Regulations 1997)
SI 1999 No. 3242:	The Management of Health and Safety at Work Regulations 1999 (as amended by SI 2003 No.2457: The Management of Health and Safety at Work and Fire Precautions (Workplace) (Amendment) Regulations 2003, SI 2006 No. 438: The Management of Health and Safety at Work (Amendment) Regulations 2006)
SI 2002 No.	The Electricity Safety, Quality and Continuity Regulations 2002 (as

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2665	amended)

Other

Connection Agreements (and Standard Connection Agreements, where applicable)

The DCUSA

Appendix 2 - Exchange of Information Between DNOs and MEMs

1. The MEM shall provide information of three types to the DNOs:

   (a) **MEM information** relating to contact details of the department/person for the specific issues as detailed in Appendix 2, Part 4. The information is to be provided on the REC Portal Website (and updated to reflect changes from time to time). This may be achieved by providing a link to the appropriate page of the MOCOPA Operator's own website. Changes to such information will be communicated by the Code Manager to all DNOs.

   (b) **Site-specific information** relating to the MEM appointment for a Site and will request information from the DNO (see paragraph 2.35(a) above).

   (c) **Health and Safety Bulletins/Announcements** relevant to DNOs which cause urgent or non-urgent variations to their standard working practices.

2. The MEM shall submit the bulletin/announcement, together with a completed Health and Safety Bulletin/Announcement form, to the Code Manager for acceptance. The Code Manager will review the bulletin/announcement in consultation with a minimum of one Review Panel member representing each of the DNO and MEM Parties, within two working days for an urgent bulletin/announcement and five working days if non-urgent. Any accepted bulletin/announcement will be communicated to relevant MOCoP Parties within a further two working days.

3. The information is to be provided on the REC Portal. This may be achieved by providing a link to the appropriate page of the MEM's own website.

4. The DNO shall provide information of three types to the MEM:

   (a) **DNO information** relating to typical operating procedures, working practices, wiring arrangements etc and other information such as its policy for consent to connect, treatment of existing meters, use of/access to cubicles etc, as detailed in Appendix 2, Part 1.

   The information is to be provided on the REC Portal (and updated to reflect changes in the methods of working, safety information or contacts etc. initiated by the DNO

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from time to time). This may be achieved by providing a link to the appropriate page of the DNO's own website(s). Changes to such information will be communicated by the Code Manager to all MEMs.

(b) **Site-specific information** relating to the Site and its existing equipment as detailed inthe BSC Complex Site Supplementary Information and Parts 2 and 3 of this Appendix.

The information is required for each Site (see paragraphs 3.3 and 4.2.1 above). Notification of Site-specific changes will be provided to the MEM in accordance with the BSC.

(c) **Health and Safety Bulletins/Announcements** relating to guidance to MEMs which cause urgent or non-urgent variations to the existing information provided in paragraph 4(a), 4(b) and Parts 1 to 3 of this Appendix.

The DNO shall submit the bulletin/announcement, together with a completed Health and Safety Bulletin/Announcement Form, to the Code Manager for acceptance. The Code Manager will review the bulletin/announcement, in consultation with a minimum of one Metering Expert Panel member representing each of the DNO and MEM Parties, within two Working Days for an urgent bulletin/announcement and five working days if non-urgent. Any accepted bulletin/announcement will be communicated to relevant MOCoP Parties within a further two Working Days.

The information is to be provided on the REC Portal. This may be achieved by providing a link to the appropriate page of the DNO's own website(s).

Part 1: DNO Information

Contact name(s) and detail(s) for operational, safety, technical, commercial and escalation liaison.

OPERATIONAL/SAFETY

(a) Contact details for:

(i) New supply liaison;

(ii) Pre-modified HV and LV CT supply liaison;

(iii) Incident/accident on Site reporting; and

(iv) Dangerous situation (category A) reporting.

(b) Operational practices differing from or amplifying Appendix 5 - Generic operational and safety considerations at the DNO/MEM interface;

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(c) Control requirements for controlled substations, e.g. need to report, completion of log books;

(d) Access conditions policy and contact details as to options under 5.13 and joint access procedures (if utilised);

(e) contact details relating to the requirements for authorising and /or appointing Meter Operatives as competent in accordance with its Distribution Safety Rules; and

(f) Policy relating to any requirements not expressed in (a) to (e) above that may need to be fulfilled prior to the Meter Operative undertaking a connection to that DNO' assets and the means by which MEMs may obtain information as to that policy, in accordance with the Electricity Safety, Quality and Continuity Regulations 2002 (as amended).

TECHNICAL

(g) Typical working practices affecting installation in different areas;

(h) Typical wiring diagrams where used (NOTE: there will be need for disclaimers as to application in every case);

(i) Typical metering practices supporting Site-specific information;

(j) Security practices and special requirements to prevent/deter tampering and interference;

(k) Contact details for DNO metering equipment calibration and commission test records.

COMMERCIAL

(l) Return address and contact details for removed DNO meters;

(m) Re cubicles, whether access to/use of is permitted and any associated commercial arrangements; and

(n) Arrangements and contact details for MEMs to obtain items from DNOs, such as fuses and/or fuse carriers;

(o) Contact details for data flow queries.

(p) DNOs, such as fuses and/or fuse carriers;

ESCALATION

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(p) Contact details for general escalation issues.

Part 2: Site-specific information

Upon request from a MEM the following Site-specific information shall be provided by a DNO, either electronically using data flow D0215, or by other means. CT and VT test certificates will also be provided if they are available.

Data Item Name	Data Item Reference
CT Class	J0505
CT Rating	J0506
CT Ratio	J0454
Meter Equipment/Service Location	J1025
MPAN Core	J0003
Number of phases	J0427
Supply Capacity	J0456
Supply Voltage	J0443
VT Class	J0677
VT Rating	J0678

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Part 3: HV/LV CT metering label

This label enables the DNO to provide relevant information to MEM associated with VT and CT metered installations. It will be adhered to the inside of the metering cabinet door or placed adjacent to the Test Terminal Block (TTB) at the meter position, the former being the preferred option for security i.e. to avoid unauthorised tampering/removal or fading of the information due to a combination of direct light/time.

It will be used for both HV and LV CT connections and in most circumstances negate the need of the MEM, BSC Technical Assurance Agent and other parties to obtain the information directly from equipment nameplates etc., which are often inaccessible with the connection Energised. The label format accommodates single and multi-phase LV and HV systems.

This label will be completed by the DNO VT/CT installation/commissioning engineer either, preferably using pre-formatted computer/labelling software or, handwritten using an indelible pen. The label must be completed and fixed before energisation for any new or modified metering installation.

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HV/LV CT metering label

Voltage/Current Transformer Information							
VT/CT	**Phase**	**Manufacturer**	**Serial Number**	**Single/Dual/Multi (Ratios Available)**	**Rating (VA)**	**Class**	**Ratio (Connected)**
VT	**L1**	Sadtem	01-114274	Single	50	0.5	11,000/110
VT	**L2**	-	-	-	-	-	
VT	**L3**	Sadtem	01-114275	Single	50	0.5	11,000/110
CT	**L1**	Alstom	01/8166500	Low Ratio of 200/100/5	10	0.5s	100/5
CT	**L2**	-	-	-	-	-	
CT	**L3**	Alstom	01/8166501	Low Ratio of 200/100/5	10	0.5s	
Distributor Company: A. N. Networks			**Installation/Commissioning Engineer: A. N. Other**			**Date: A. N. Date**	

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The actual size of the label has not been prescribed and an example of the information requirements is shown in italics on the above label.

Label completion details

(a) **VT/CT** – these installations require both a voltage and current reference

(b) **Phase** – defined as L1, L2 and L3 connection identifiers

(c) **Manufacturer** – as described e.g. Sadtem

(d) **Meter Serial Number/ Serial Number** – this number is usually unique to the relevant manufacturer and can be structured in various formats. It is important that the Meter Operatives have an understanding of the various configurations and meanings that are applied e.g. year of manufacture, batch number and serial number etc.

(e) VT Ratio (HV) – e.g. 11,000/110 or 6,600/110

(f) Voltage Ratio (LV) – e.g. 400/230 volts

(g) **CT Ratio** – e.g. 200/100/5 (dual ratio) can be set to either high or low rating. The values specified will be actual connected ratios and for additional information it is essential for contact to be made with the DNO

(h) **Rating (VA)** – this is the power output of a VT or CT and the connected burden must not exceed this rating as the overall accuracy of the metering system will be affected

(i) **Class** – this will need to be appropriate to the relevant BSC Code of Practice determined by the Customer's demand/load requirements

(j) **Single/Dual/Multi Ratio** – most installations for LV are single ratio CT's and for HV installations the VT is normally a single ratio with dual ratio CT's. For some HV installations the CT's may be multi ratio with dual ratio VT's. If there is any doubt, then these variations must be confirmed with the DNO as the overall accuracy of the Metering Equipment will be affected

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Part 4: MEM Information

Contact name(s) and detail(s) for operational, safety, technical, commercial and escalation liaison.

OPERATIONAL/SAFETY

(a) Contact details for:

(i) New supply liaison;

(ii) Pre-modified HV and LV CT supply liaison; and

(iii) Post modified HV and LV CT supply liaison.

TECHNICAL

(b) Contact details for MEM Metering Equipment calibration and commission test records.

COMMERCIAL

(c) Contact details for:

(i) Dangerous situation (category A) DNO Site attendance liaison;

(ii) Asset condition reporting queries; and

(iii) Data flow queries.

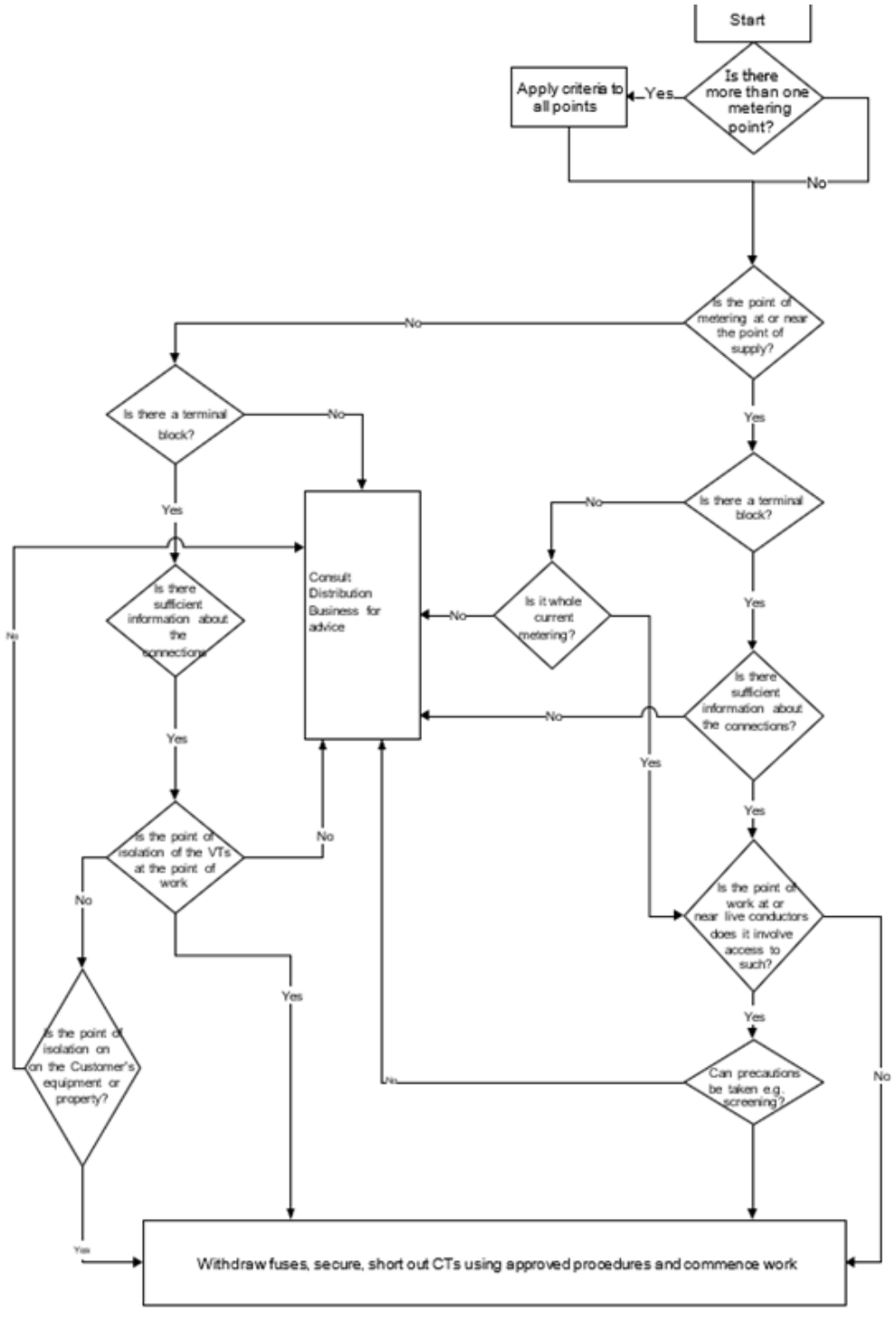
ESCALATION

(d) Contact details for general escalation issues.

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APPENDIX 3: DECISION CHART FOR RISK ASSESSMENT OF ON SITE WORKS

NOTE: This diagram is for guidance only and assumes that Meter Operatives have the requisite authority to proceed through any stage e.g. to withdraw fuses in the case of whole current metering.



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APPENDIX 4: MODEL FORM OF DOCUMENT RELATING TO COMPETENCY

CERTIFICATE NO.

Name and address of company providing certificate of competency

_____

_____

CATEGORY OF COMPETENCY

(Delete whichever of the following items are not applicable)

Category 1 Connection of LV whole-current meters with unrestricted access to the Site of work and the competence to make the point of work safe.

Category 2 Connection of a CT-operated meter remote from the point of supply to a terminal block with access to voltage fuses which are not in the vicinity of live conductors.

Category 3 As Category 2, but where voltage fuses are in the vicinity of live conductors.

Category 4 Connection of a CT-operated meter at the point of supply on or near live conductors.

Name of Competent Person (BLOCK LETTERS) _____

Name and Address of Employer _____

Approved by Position Date

Received **Date**

This certificate is valid until: **Date** _____

A copy of this certificate shall be held by the Competent Person named above. All Competent Persons shall observe the relevant provisions of this Meter Operation Code of Practice.

NOTE: The MOCoP term and/or logo is not to be used on this Certificate.

APPENDIX 5: GENERIC OPERATIONAL AND SAFETY CONSIDERATIONS AT THE DNO/ MEM INTERFACE

1. This Appendix describes the operational and safety requirements that apply to work

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activities on or near those parts of a Distribution System where a MEM is likely to be working.

2. The requirements are specified to enable DNOs to minimise to an acceptable level the "duty of care" that DNOs, as owners of the Distribution System apparatus, have to a MEM who wishes to install, operate and maintain meters in accordance with this Meter Operation Code of Practice.

3. A DNO shall expand upon this Appendix by specifying any additional statements that it considers necessary to take account of any special hazard or operational requirement, particularly where this relates to a local non-standard arrangement.

4. The MEM will have to ensure that the competence of the person carrying out work on Site includes knowledge and understanding appropriate for the work undertaken and in particular as to work "in proximity to service terminations" and "removal of covers" as described below.

5. The MEM has the option to train his employees or contractors to meet the competency requirements appropriate for operation of Low Voltage fuses and/or entrance to DNO substations (see Paragraph 4.8) or to contract with the DNO to provide a competent person to accompany his operative(s). For example, depending on previous DNO policies, the MEM may decide to rely on the DNO to provide accompanied access on the rare occasions that access is required to a particular DNO's substation.

Inspection and reporting of unsatisfactory apparatus

6. Whilst DNOs endeavour to maintain all their apparatus in a satisfactory condition, circumstances will arise where apparatus has been damaged or has faulted without the DNO being immediately aware.

7. It is important that the person responsible for work on or near any Distribution System apparatus makes a visual inspection of the apparatus, noting also whether there are any smells of burnt insulation, signs of melted compound or noises indicating electrical discharge. If any apparatus is found to be in an unsatisfactory condition, the appropriate DNO must be contacted. If the apparatus is unsafe the work shall be suspended until the DNO can attend and rectify the problem.

Work in proximity to service terminations

8. DNO service termination apparatus is usually designed to withstand inadvertent contact by persons who are working near to it. If, however, sharp tools such as electric drills etc. are being used in close proximity, a risk assessment may deem necessary the placement of temporary additional mechanical protection between the point of work and the apparatus to prevent the sharp tool from piercing the insulation/screening of the apparatus.

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9. If, upon assessing the risks that might arise from conducting works, the MOCoP Party considers that there is an unacceptable risk of disturbance of Customer equipment (and/or terminations) then the MOCoP Party must consider what preventative measures (e.g. cable clips) or reactive measures (e.g. retightening terminations) would be necessary to reduce risks arising from their intended works, but leave open the option to not conduct the works until further advice is sought from the Customer.

10. Reactive measures (e.g. retightening terminations) would be necessary to reduce risks arising from intended works on DNO and/or Metering Equipment but leave open the option to not conduct the works until further advice is sought from the DNO or MEM as appropriate.

Removal of covers

11. Persons responsible for Site safety should be aware that access covers, doors etc. on Distribution System apparatus may not be specifically marked with notices warning that removal of the cover, door etc. may allow access to bare live conductors. Any person who removes any cover, door etc. must treat all exposed conductors as live until proved not live. Before any work takes place all appropriate precautions must be taken to prevent danger of shock and injury, from arc energy associated with a short circuit.

12. Any covers which are removed shall be properly replaced on completion of the work. The work area must not be left unattended whilst any covers are removed.

Removal and replacement of cut-out fuses

13. A DNO may require, as part of its Low Voltage system control procedure, that permission to remove/replace cut-out fuses is obtained and reported in accordance with its normal operating procedure. Alternatively, the DNO Low Voltage system control procedure may allow the removal or replacement of LV cut-out fuses to take place without reference to control other than the requirement for any incident/accident to be immediately reported (see below).

14. Persons removing or replacing cut-out fuses must be competent to recognise which LV fusegear can be safely operated using the correct protective personal equipment. Persons must also be competent to recognise if an incorrect type of fuse is in place or if any interphase insulating barriers are missing. It is expected that the DNO will attend in these circumstances in the manner described in paragraph 7 above.

15. Where work is to be carried out at a location remote from an appropriate point of isolation a "caution notice" (in the form agreed with the DNO) shall be placed at the point of isolation whilst the fuses are removed, and work/testing is being carried out.

16. After the LV fuses have been replaced, a check shall be made that supply has been properly re-established, i.e. a fuse has not failed through being mechanically disturbed (e.g. if dropped on the floor). A DNO may agree to provide a MEM with spare fuses and

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fuse holders.

17. Cut-out fuses shall be properly tightened and covers/seals correctly re-applied.

Access to DNO substations

18. In the case of a joint access DNO/Customer substation, the Customer will provide access to the substation for the MEM.

19. Where joint access to a DNO substation is required, suitable dual locking may be agreed between the DNO and the MEM.

20. The MEM shall be advised by the DNO of the normal requirements that apply to access to and/or work in all relevant substation(s). These requirements may for example include the need to make appropriate entries in the substation logbook or to report to a DNO control point. The MEM will need to establish procedures so that any person to whom it permits access to the substation will comply with these requirements, as well as the safety precautions stated in paragraph 18 below.

21. Any person with authority to enter a DNO substation shall do so with caution and shall:

(a) look out, particularly at night, for temporary obstructions and excavations due to work in progress and also for any reduced electrical clearances due to damaged or broken conductors;

(b) note the emergency exits;

(c) examine the exterior of any apparatus being worked on and associated buildings for any signs of damage by vandalism, fire, explosion or electrical breakdown and report the existence of the same to the DNO control point;

(d) listen for any unusual noise coming from transformers, switchgear, cable terminations, overhead connections or any other apparatus;

(e) make a point of sniffing the air inside the substation building for any smell of damaged insulation, overheating vapour or gas or other evidence of damage to apparatus or danger;

(f) refrain from switching on lights, operating any electrical equipment, using the telephone, smoking or causing any form of ignition until satisfied that no gas or flammable vapour is present; and

(g) if the presence of gas or other flammable vapour is suspected, ventilate the substation by opening as many doors as possible without entering the building. The DNO control point shall be notified.

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Access to fire protected zones

22. Unless alternative (local DNO) procedures apply, the following action shall be taken before access to work, or other activities are carried out in any enclosure protected by automatic fire extinguishing equipment:

    (a) precautions shall be taken to render the automatic control inoperative. The equipment shall be left on hand control and a caution notice (in the form agreed with the DNO) fitted. The conditions under which automatic control may be restored shall be noted on any written work instructions used; and

    (b) the automatic control shall be restored immediately after the persons engaged on the work or other activity have withdrawn from the protected enclosure.

NOTE: Appropriate warning notices should be provided by the Site owner on all fire protected areas, but they may have been removed/obscured by vandalism.

Work where exposed live Low Voltage conductors are present

23. If work or other activity is to be carried out in the vicinity of exposed LV conductors, suitable screening to prevent danger shall be installed by the MEM between the work area and the exposed LV conductors. The screening/barrier will need to be adequate to prevent mechanical as well as electrical contact.

Reporting of incidents/accidents/specified events

24. If work being carried out by a MEM affects Distribution System apparatus such that the safe and secure operation of the Distribution System is or may be put at risk, the appropriate DNO contact/control point shall be immediately notified.

Access/operational restrictions

25. If a DNO has to place an access/operational restriction on any of its Distribution System apparatus or premises, such that it affects a MEM, the DNO shall notify the MEM in accordance with Appendix 2.

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APPENDIX 6: GUIDELINES FOR THE ASSESSMENT OF COMPETENCY OF METER OPERATIVES

General definition

1. There is no accepted definition of a competent person. Regulation 16 of the Electricity at Work Regulations (as amended), states:

   "No person shall be engaged in any work activity where technical knowledge or experience is necessary to prevent danger or, where appropriate, injury, unless he possesses such knowledge or experience, or is under such degree of supervision as may be appropriate having regard to the nature of the work."

Components

2. The Memorandum of Guidance on the Electricity at Work Regulations indicates elements of "technical knowledge or experience" referred to in Regulation 16. The following is based upon this, but reference should be made to the exact wording in the Memorandum:

Understanding of the general requirements of safety legislation and how these translate into personal duties and obligations;	This may include the need to report incidents or equipment found faulty;
Adequate knowledge of electricity and experience of general electrical work;	This could imply electrical apprenticeship followed by work experience in a field related to meter installation, or "time-serving" in such field;
Knowledge and experience of the specific work method;	This may have safety implications in that incorrectly performed work may cause danger, e.g. incorrect polarity, overheating caused by unsatisfactory connection;
Understanding of the system to be worked on and of surrounding hazards and the safety precautions which must be taken to prevent or avoid danger;	These may include non-electrical hazards, e.g. CO_2 installations;
Ability to recognise conditions under which work must not be commenced or its progress curtailed or ceased;	This may include recognition of the Meter Operative's own shortcomings, lack of experience or training including the need for assistance, supervision or more information.

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Specific technical criteria

3. The following gives examples of the range of technical knowledge, acquired through training and/or by experience, which may be appropriate depending upon the work that the Meter Operative is required to carry out:

(a) Current transformers

(i) Knowledge of principles of construction and operation.

(ii) Appreciation of ratio and polarity.

(iii) Understanding of the relationship between burden, ratio and phase angle errors.

(iv) Appreciation of the methods of connection and effects of open circuiting the secondary.

(b) Voltage transformers

(i) Knowledge of principles of construction.

(ii) Understanding of the relationship between burden, ratio and phase angle errors.

(c) Secondary wiring

(i) Familiarity with wiring installation practices with special reference to the identification requirements of the Energy Networks Association's Technical Specification 50-19, or any other equivalent or replacement standards from time to time.

(ii) Methods of testing insulation resistance and continuity.

(d) Wiring diagrams

(i) Familiarity with wiring diagrams and their interpretation.

(e) Meters

(i) Understanding of the principles of measurement of kWh, kVAh and kVArh and the use of two and three-element polyphase meters.

(f) Sealing

(i) Knowledge of requirements of the BSC Procedure or Market Procedure (as appropriate) and relevant directions as to the sealing of Metering

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Equipment.

(g) Testing and test equipment

(i) Familiarity with the use of equipment for measurement of voltage and current, polarity and phase rotation, and active and reactive energy.

(ii) Awareness of the accuracy limits of equipment and the requirement for regular calibration checks.

Safety criteria

4. The following gives examples of the range of safety knowledge, acquired through training or by experience, which may be appropriate depending upon the work that the Meter Operative is required to carry out:

(h) Inspection and reporting

(i) Knowledge of the procedures for reporting of dangerous incidents, dangerous situations, defects or asset condition information.

(ii) Understanding of the need visually to inspect prior to work and to report any deficiencies to the appropriate parties.

(iii) Understanding the content of the MOCoP Guidance for Service Termination Issue Reporting document.

(i) Connection of meters to test/isolating facilities

(i) Understanding of the procedures to interrupt the voltage supply by withdrawal of fuses and short out current transformers by means of suitable links.

(ii) Familiarity with the practical methods of carrying out these precautions and the steps to ensure that no unauthorised interference negates them.

(j) Work in proximity to service terminations

(i) Knowledge of the dangers arising from damage to service terminations.

(ii) Familiarity with the use of correct tools and equipment and the need to apply mechanical protection where necessary.

(iii) Use of appropriate personal Protective equipment.

(k) Removal of covers

(i) Awareness of dangers such as bare live conductors and/or terminals which

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may be exposed following removal of a cover.

(ii) Knowledge of the precautions to be taken to screen or otherwise prevent injury.

(iii)Understanding that the work area should not be left unattended whilst covers are removed.

(l) Work in the vicinity of live LV conductors

(i) Knowledge of materials and techniques adequately to screen the work area from danger, taking account of both electrical and mechanical considerations.

(m) Removal of cut-out fuses

(i) Awareness of the need visually to inspect the cut-out prior to removal of covers and prior to removal of fuses.

(ii) Understanding of the dangers which such inspection may reveal and the steps which may then need to be taken.

(iii) Familiarity with the removal and replacement of fuses in a safe manner including insertion techniques and the use of protective equipment where necessary e.g. insulating gloves, fuse pullers, insulating sheet, additional phase barriers, terminal shrouds, eye protection etc.

(iv) Understanding of additional precautions to ensure continuing safety such as the use of caution notices and safekeeping of removed fuses.

(v) Knowledge of the use of voltage testing devices to prove 'not live' before work commences and to check restoration on completion of the work.

(n) Access to DNO substations

(i) Understanding of the need for adequate authority to enter and of the conditions under which access is allowed, which may include requirements to notify the DNO control engineer and make suitable entries in any logbook.

(ii) Knowledge of basic precautions to be taken prior to and during entry, such as visual checks of surroundings and the equipment and tests for the presence of gas, including ensuring continuing safe egress.

(iii) Awareness of the dangers that might be inherent in equipment within the substation and of the need to avoid actions which might lead to the

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inadvertent operation of switches or protective devices.

(o) Access to fire protected zones

(i) Ability to recognise substations or other locations where fire protection is installed.

(ii) Knowledge of the procedures for rendering and keeping safe whilst entry is affected where these have been indicated by the DNO, and for proper restoration of the protection.

(iii) Knowledge of actions to be taken in the event of a fire protection system operating whilst the Meter Operative is still in the substation.

(p) Safety documentation

(i) Familiarity with any relevant safety document which may be required and with the procedures for issue and cancellation.

(q) Access/operational restrictions

(i) Awareness of the procedures which the DNO adopts for notification of access/operational restrictions and the need to check whether any such restriction is in effect at the specific Site.

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APPENDIX 7: REQUIREMENTS FOR THE SEALING OF METERING EQUIPMENT AND RELATED DNO EQUIPMENT

Objectives and application

1. The objectives of the sealing of Metering Equipment and DNO Equipment are:

   (a) to ensure basic safety – access to live conductors should require a tool;

   (b) to provide an indication of responsibility and/or the right to operate;

   (c) to aid with the prevention of tampering/illegal abstraction; and

   (d) to indicate the MOCoP Party and individual to last access the Metering Equipment or DNO Equipment at the Site, in the event of a dispute.

2. These sealing requirements apply respectively to all MOCoP Parties. However, the principles apply to any other agent which may remove seals associated with Metering Equipment such as employees of other Data Collectors, providers of urgent metering services (UMETs) or Elexon's Technical Assurance Authority.

3.This Appendix specifies:

   (a) the equipment to be sealed;

   (b) the types of seal to be used and their purpose;

   (c) general sealing practice; and

   (d) particular procedures for the control of Specified Seals and Dies.

4. These sealing requirements apply following initial installation and commissioning of Metering Equipment , where commissioning includes the connection of the Metering Equipment to the DNO Equipment. Prior to initial installation and commissioning of Metering Equipment , it is anticipated that the DNO Equipment will be sealed using an Indicative Seal as a minimum standard.

Equipment to be sealed

5. Table A1 indicates the equipment to be sealed.

6. Where any equipment is required to be sealed by either a Security Seal or a Specified Seal and is contained within a 'housing', and that housing is sealed to the same standard, sealing of the individual items within is not obligated.

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Types of seal and purpose

7. This Appendix covers the following types of seal:

(a) Specified Seals;

(b) Security Seals;

(c) Indicative Seals; and

(d) Padlocks.

8. These are additional to the prescribed seals required to be applied to electricity meters which are certified, as per SI 1998 No 1566, and to the seals required by the Measuring Instruments (Active Electrical Energy Meters) Regulations (2006), which should under no circumstances be removed.

Specified Seals

9. A Specified Seal is designed to meet the objectives of (a), (b), (c) and (d) in paragraph 7, and will comprise a ferrule appropriately crimped onto a Wire Rope.

10. The requirements of a ferrule of a Specified Seal are that it shall:

(a) be a tin-plated, annealed, copper ferrule;

(b) not be less than 5.0mm long; and

(c) have the identification symbol appropriate to the MEM or the DNO's company name, marked on one side of the ferrule or on a flange or protuberance, provided that the design of the flange or protuberance is one approved by the Code Manager. Alternatively, the identification symbol or company name may be impressed on the ferrule by the Sealing Pliers when the ferrule is crimped

11. The requirements of Wire Rope are that it shall:

(a) be manufactured from zinc-coated steel wire complying with BS EN 10264-1:2012; and

(b) have a diameter of not less than 0.914mm.

12. The requirements for Sealing Pliers are that it shall:

(a) crimp the ferrule of a Specified Seal onto the Wire Rope sufficiently to withstand a tensile load of not less than 200N, in order to secure equipment so as to prevent accidental breaking or removal of the seal or Wire Rope;

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(b) impress the side of the ferrule with a minimum three-character

(c) identification number of the operative, and where appropriate, the identification symbol or company name of the MEM; and (d) have a correctly operating Sealing Plier ratchet mechanism

13. The control of Sealing Pliers and associated Dies is specified in paragraphs 24 to 28 of this Appendix

Security Seals

14. A Security Seal is designed to meet the objectives of (a), (b) and (c) in paragraph 1 of this Appendix, and as a minimum would require a tool to remove.

Indicative Seals

15. An Indicative Seal is designed to meet the objectives (B) and (C) in paragraph 1 of this Appendix. The seal should be relatively robust to deter tampering and would indicate where interference has occurred. An Indicative Seal should be appropriate for its intended application.

Padlocks

16. General practice is to use brass bodied, hardened steel hasp locks with a common key suite or code so that any person with appropriate authority, issued with a master key, can open them. In some cases, a coloured sheath (e.g. red) may be applied to indicate danger. For the avoidance of doubt, the use of a padlock should only be determined by a DNO.

GUIDANCE ON SEALING PRACTICE

General

17. Metering Equipment and related DNO Equipment shall be sealed following initial installation and commissioning of the Metering Equipment and shall be resealed following any subsequent works that require the removal of seals, including any works delivered by an independent connections provider for adoption by a DNO. The MOCoP Party on whose behalf such work is carried out shall be responsible for resealing equipment and for taking the removed seals from the Site and destroying them, whether they are owned by that Party or are the property of another Party. In carrying out sealing and resealing, parties shall comply with procedures given in the BSC Agreed Procedures, if any, thereunder.

18. Certain older installations may not allow compliance with the requirement to seal. The layout and equipment in these installations may be more vulnerable to interference and care should be taken to ensure that seals are applied so far as possible to minimise the

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chance of interference.

19. Earlier practice in the UK was to use lead seals with soft wire and these seals may be encountered on older installations. In these circumstances, the seals associated with the Metering Equipment and the associated DNO Equipment should be checked for signs of interference. If no evidence of interference is discovered at the sealing system then lead seals should be replaced with new seals. However, lead seals used as prescribed seals (formerly known as European Smart Metering Alliance (ESMA) or specified seals), i.e. those sealing the meter case as opposed to the terminal block, should not be replaced as they are a guarantee of certification of the meter. Any signs of interference with these should be reported to the relevant Supplier.

20. In the event that a MOCoP Party finds it not possible to apply the appropriate seal, in accordance with the relevant part of Table A1, a seal of the next practicable level of security shall be applied.

General Guidance specific to MEMs

21. Subject always to paragraphs 5.29 to 5.34 and 5.35, if a Meter Operative suspects that DNO's equipment has been interfered with, he must report this to the relevant persons.

General Guidance specific to DNO

22. The absence of a seal must at once give rise to suspicion of interference, which must be dealt with, in the most careful and cautious manner (see paragraphs 5.29 to 5.34 and 5.35).

23. In the event that work requiring a Specified Seal to be broken is carried out on the behalf of a DNO by an independent connections provider, the DNO shall be responsible for ensuring a Security Seal (as a minimum) is applied. The DNO shall be responsible for replacing any Security Seal with a Specified Seal within 28 calendar days (subject to reasonable endeavours to gain access to Site) following notification to the DNO.

CONTROL OF Sealing Pliers AND ASSOCIATED Dies

Sealing Pliers and Dies

24. Sealing Pliers, to be used with uniquely identified Dies for crimping and marking Specified Seals, must be provided by MOCoP Parties for each operative.

25. Dies shall not be transferred between MOCoP Parties.

26. No MOCoP Party shall retain any duplicate sets of Dies.

27. Dies or Specified Seals shall not be used other than for sealing equipment.

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28. Sealing Pliers with Dies that do not make legible marks shall not be used.

Re-allocation/destruction of Dies

29. A MOCoP Party shall be permitted to re-allocate sets of Dies that are no longer required because the relevant operative will no longer be sealing Metering Equipment or DNO Equipment on its behalf. Alternatively, a MOCoP Party may choose to destroy sets of Dies no longer required by the relevant operative.

30. A MOCoP Party shall be required to destroy sets of Dies that have been damaged.

31. In the event of a MOCoP Party ceasing to hold a Registration Certificate all sets of Dies shall be destroyed by it forthwith.

Record of Dies

32. A MOCoP Party shall record the following particulars when Sealing Pliers or Dies are issued to an operative, returned by an operative or are sent for repair and shall produce such records on request by the Code Manager:

    (a) the identification marks on each set of Dies held;

    (b) the name of the person to whom the Dies were issued or the name of the company to which Dies are sent for repair; and (iii) the dates of issue and return.

33. A record shall be made of all Dies destroyed in accordance with Appendix 7, Paragraphs 29 to 31 above.

34. A record shall be made of any sets of Dies which have been lost or stolen. The MOCoP Party shall inform the Code Manager immediately of any missing Dies.

35. A MOCoP Party shall keep any records made under paragraphs 31 to 34 for a period not less than 10 years after the loss or destruction of Dies.

Inspection of Records and Dies

36. On being given reasonable notice, a MOCoP Party shall allow the Code Manager to inspect any records or Dies required to be kept pursuant to this Appendix 7.

Blank Seals

37. Each MOCoP Party shall make suitable efforts to ensure sealing materials, especially pre-marked seals, are kept secure before use.

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TABLE A1: EQUIPMENT TO BE SEALED AND TYPE OF SEAL REQUIRED

	Equipment	Seal required (as a minimum)
Service termination equipment	Cut-out	Specified Seal
	Distribution board	Specified Seal/Padlock (as appropriate)
Whole current metering	Meter terminal cover	Specified Seal
	Meter case (cover)	Specified Seal (where prescribed seals are not present (see Appendix 7))
	Auxiliary fuses	Specified Seal
	Timeswitch/Teleswitch/ Contactor/ Isolator (forming part of Metering Equipment)	Specified Seal
	Connecting blocks (except after metering)	Specified Seal
	Token acceptor	Specified Seal
	Communications equipment	Specified Seal
	Maximum demand indicator reset	Indicative Seal
CT operated Low voltage (additional to all above)	Metering voltage circuit fuses	Specified Seal
	CT chamber	Specified Seal
	CT terminal cover	Specified Seal
	Test terminal block	Specified Seal
	Switch (controlling supply)	Padlock
	Secondary voltage fuse	Specified Seal
	Communications port	Indicative Seal
	Metering panel	Specified Seal
CT/VT operated High voltage (additional to LV)	VT racking	Indicative Seal
	VT fuses (on switchgear)	Indicative Seal
	VT Marshalling box	Indicative Seal
	VT fuses (on metering panel)	Specified Seal
	Auxiliary fuses	Indicative Seal
	CT Marshalling box	Indicative Seal

APPENDIX 8: GUIDANCE FOR THE ACTIONS TO BE TAKEN WHERE CT/VT DETAILS ARE NOT AVAILABLE

1. This Appendix should be used as guidance for MEMs installing and maintaining CT/VT Metering Equipment.

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Flowchart for Establishing CT and VT Errors General

2. This flowchart is designed to help Suppliers, MEMs and DNOs to establish the errors for particular CTs and/or VTs to be applied to Metering Equipment .

3. The guiding principle is that the “overall accuracy” must comply with the BSC Metering Code(s) of Practice requirement. For example, BSC Metering Code of Practice 5 issue 6 section 4.3.1 (i) requires an accuracy of +/- 1.5%. Therefore, if this flowchart results in a CT accuracy of +/- 0.5%, then the meter and associated apparatus must not exceed +/- 1.0%.

4. This flowchart is not necessarily the only solution but is offered as guidance only.

5. The Technical Assurance Agent (TAA) will also use this guidance note in assessing compliance with the BSC Metering Code(s) of Practice in accordance with the requirements of BSCP27.

Notes

6. Commissioning sheet means the record of the initial installation (or change of installation) and testing of the Metering Equipment , on the Site concerned. This must include the make, class, ratio and serial number of the CTs and/or VTs. (It may, but not necessarily, include the CT errors as in b) below). (It may also, but not necessarily, include the meter errors).

7. CT certificate (CT Cert) means the record of the errors associated with the CT(s) together with the serial number(s). This will normally have been originally provided by the manufacturer or a meter test station.

8. VT certificate (VT Cert) means the record of the errors associated with the VT(s) together with the serial number(s). This will normally have been originally provided by the manufacturer or a meter test station.

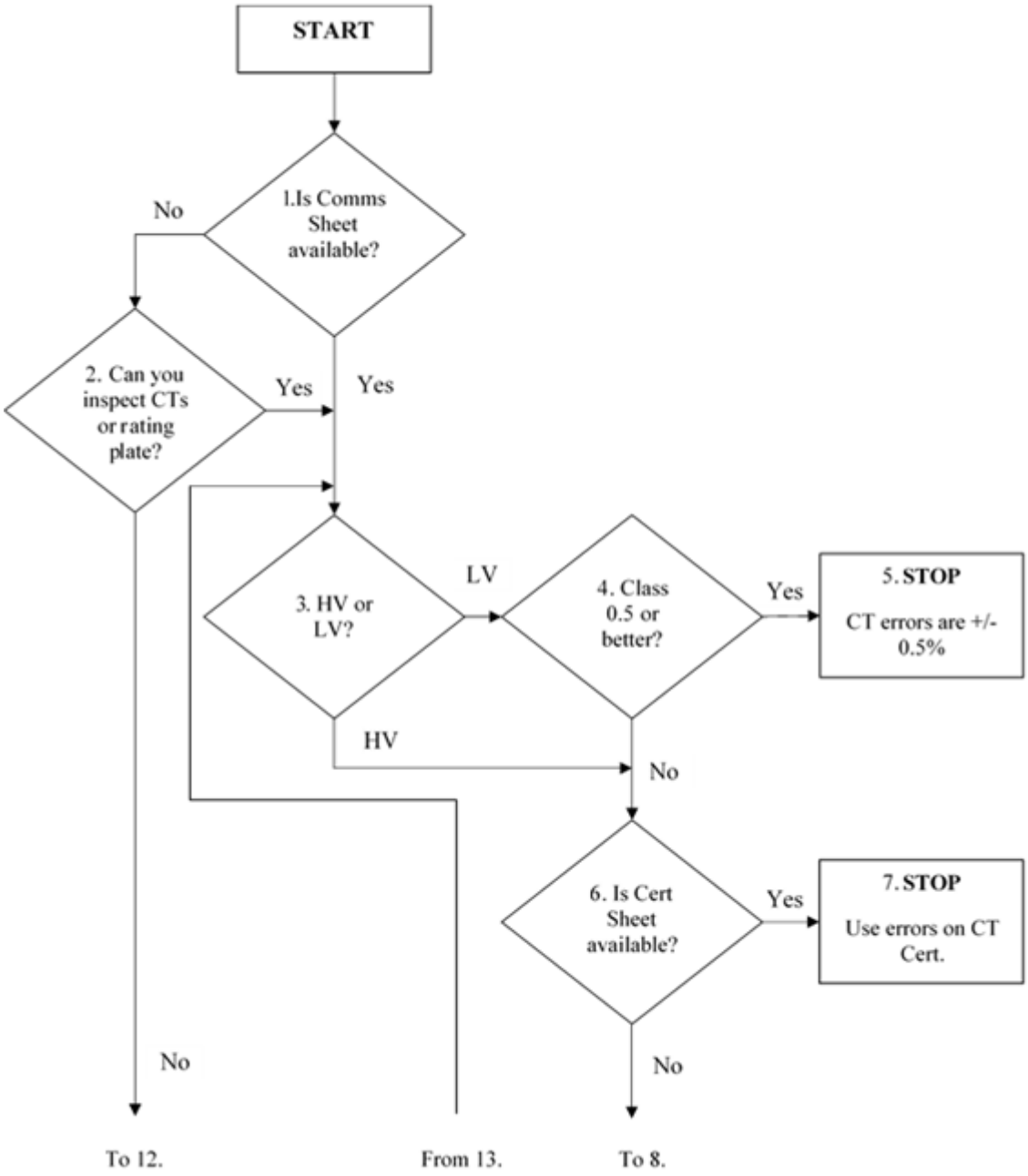
9. Visual inspection of CTs and/or VTs requires access to the CTs and/or VTs and the label and consequently the serial number. This may have safety implications and for this reason an option is included if this is not possible. However, this should be a last resort.

10. Generic Certificates (Gen Certs) means the Generic Certificates for CTs and/or VTs provided by the DNO.

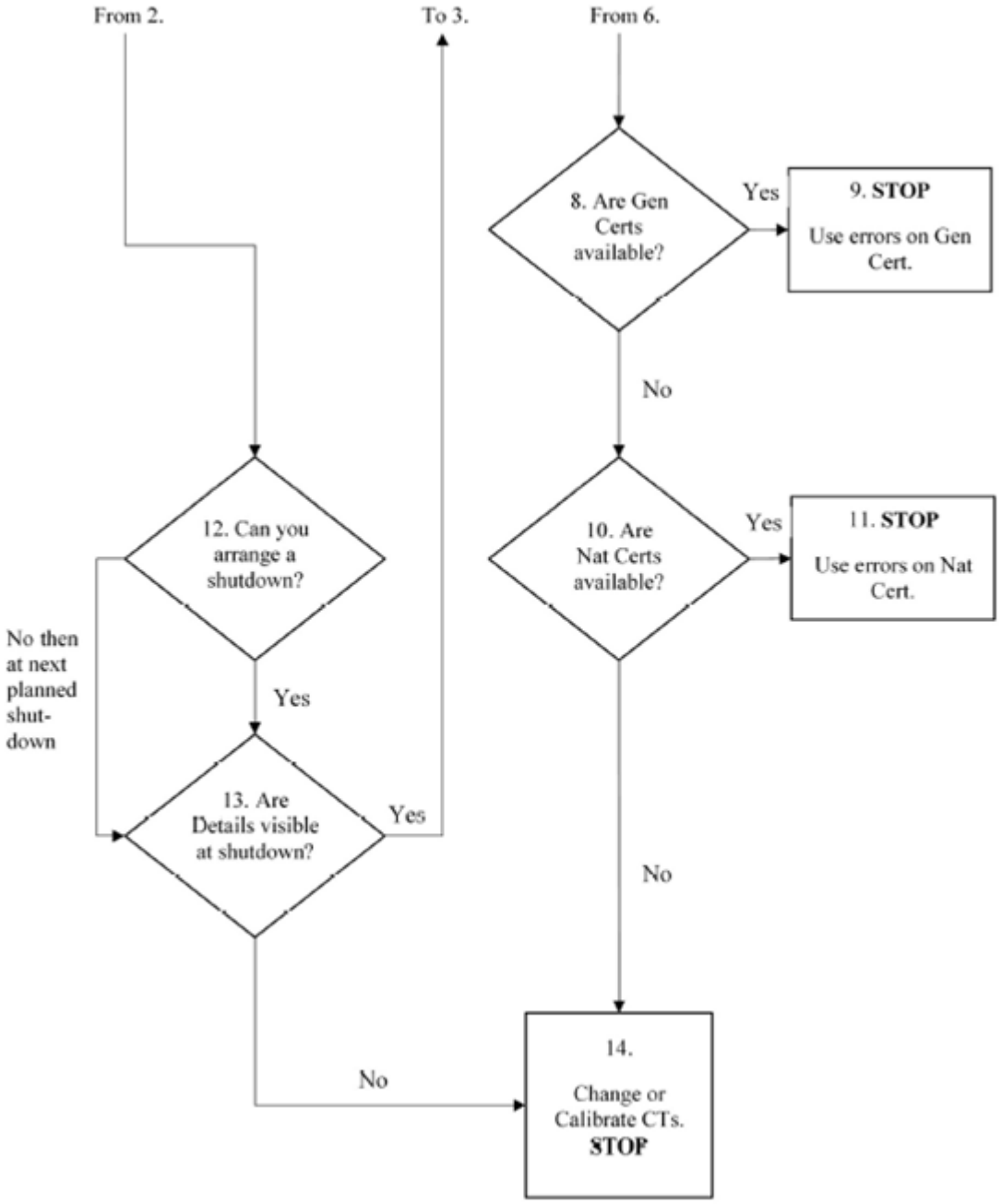
11. National Certificates (Nat Certs) means the National Certificates held on the National Database by Elexon.

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Flowchart for CTs (use similar process for VTs)



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APPENDIX 9: CABLE IDENTIFICATION

1. For whole current metering, load-carrying conductors shall be marked either L ~~and~~ or N for single phase supplies, or L1, L2, L3 ~~and~~ or N for polyphase supplies, whenever metering work is carried out. The markings shall be applied as a minimum:

   (a) at the meter terminals (except the incoming terminals where security devices are fitted); and

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(b) at any equipment fitted by a MEM, DNO or urgent metering services provider on the outgoing side of the meter which interfaces to the Customer's installation (e.g., isolation/supply switch, time-switch, terminal blocks).

All cables should be marked at both ends, however, for conductors of less than 500mm in length and clearly visible throughout, marking at one end ~~may be~~is considered acceptable. The markings may be by printed tape, tag or other suitable permanent medium.

2 The MEM or DNO shall only connect a new Customer's circuit provided it is clearly and unambiguously identified at the end to be connected, either by colour or marking (e.g., L, L1, L2, L3, N) in accordance with the current version of BS 7671.

3. For single insulated cables, or the insulation of insulated and sheathed cable, the MEMs, DNOs and urgent metering services providers shall use the following colours where they provide new or replacement cables.

~~4.~~ The insulation of a single-phase cable should be:

(a) all brown and marked L, and

(b) all blue and marked N.

The insulation of the line conductors of a polyphase phase supply shall be either:

(a) all brown and marked L1, L2, L3 ~~at both ends~~, or

(b) brown, black and grey and marked L1, L2, L3 ~~at both ends~~, and~~.~~

(c) a~~A~~ll neutral conductors shall have blue insulation and marked N ~~at both ends~~.

~~5. For conductors of less than 500mm in length and clearly visible throughout, marking at one end may be considered acceptable.~~

4~~6~~. For insulated and sheathed cables, the sheath may be the same colour as the insulation (as defined in paragraph 3~~4~~ above). Where it is not possible to comply with paragraph 3 due to manufacturer availability of cable and the outer sheath colour is not the same as the inner insulation, but is brown, black or grey; then it should be clearly marked, as described in paragraph 3~~the sheath colour is not the same as the insulation, then it should be a colour other than brown, black, grey, blue, yellow, red, green or green yellow, i.e. not any colour that is currently, or has historically, been used to identify line, neutral or earth conductors~~.

5~~7~~. Where cables between the cut-out and outgoing side of the Metering Equipment require replacement then all cables should be replaced by cables which comply with the paragraphs 1 to 6~~4~~ above.

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~~8~~6. DNOs will use the Energy Networks Association Technical Specification 50-19 standard ferruling marking at the interface (test terminal block and/or fuses/link) for all new and altered wiring. At the DNO terminations, the markings shall be:

(a) CTs: D11, D10, D31, D30, D51, D50 (odd is “feed”)

NB: Where a common return is used, then D10, D30, D50 become D70

(b) Metering Potentials: E10 or E11, E30 or E31, E50 or E51 (depending on whether the interface is the fuse/link or the test terminal block after the fuse).

~~9~~7. DNO CT metering secondary voltage and current conductors for all new and altered wiring shall be either:

(a) all one colour; or

(b) brown, black, grey (phase colours) and blue (neutral).

8~~10~~. MEMs shall use the Energy Networks Association Technical Specification 50-19 ferruling marking for all new and altered CT metering wiring, and all CT metering secondary voltage and current conductors shall be:

(a) all one colour; or

(b) brown, black, grey (phase colours) and blue (neutral).

NB: For avoidance of doubt, this may be a different colour to that provided by the DNO. Auxiliary wiring (e.g. pulse, rate change and communications signals) does not need to conform but should be suitably identified.

The Energy Networks Association Technical Specification 50-19 requirements in ~~A11.5~~paragraph 6 and ~~A11.7~~8 above secure a clear identification of the different conductors and should be adopted as best practice for identification.

APPENDIX 10: CUSTOMER’S ELECTRICAL EQUIPMENT CHECKLIST

1.The model checklist and text may be used by MEMs to fulfil the recommended on-Site working practices as defined within Schedule 1 paragraph 2.5 (l).

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Model Checklist/Text

To the occupier

VISUAL INSPECTION OF YOUR ELECTRICAL INTAKE POSITION

It is recommended that the electrical installation in your home is checked by a registered electrician competent person at least once every ten years to confirm whether or not it is in a satisfactory condition for continued service.*

Whilst replacing your electricity meter, the Meter Operative observed the following safety issue(s) with the equipment in your electrical intake position that need to be brought to you, or your landlord's, attention:

If any of the following issues have been observed, Electrical Safety First+ recommends that advice is sought from a registered electrician about upgrading your protection against electric shock and fire as a matter of urgency. An inspection by a registered electrician is likely to result in a cost to you even if no work is required.

	***Your electrical equipment is damaged, exposing live parts to touch**. The equipment needs to be repaired or replaced as a matter of urgency to prevent the risk of electric shock*
	***Your electrical installation appears not to be adequately earthed.** The purpose of earthing is to minimise the risk of electric shock and/or fire in your home if a fault occurs in your electrical installation or an electrical appliance*
	***Your consumer unit (fuse box) or other equipment is showing signs of overheating.** Overheating can be caused by overloaded circuits or loose connections, and can be the cause of fire*
	***The cables connecting the meter to your consumer unit are in a poor/damaged condition.** The cables need to be replaced (in conjunction with your electricity supplier/meter operator)*
	***Your electrical installation is not adequately main bonded.** The purpose of bonding is to minimise the risk of electric shock to anyone in your home who may be touching two separate conductive parts when a fault occurs somewhere in the supply or in the electrical installation*

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If any of the following issues have been observed, Electrical Safety First recommends that you seek advice from a registered electrician.

	You should test your voltage-operated earth-leakage circuit-breaker. If the device does not trip when tested, you will be at serious risk of electric shock if a fault develops in your electrical installation or in an electrical appliance. The test should be repeated on a quarterly basis
	The cables connecting the meter to your consumer unit, and/or the earthing conductor for your installation, appear to be under-sized
	Access to your consumer unit (fuse box) is too restricted. *Consideration should be given to having your consumer unit relocated to improve access to it in the event of an emergency, to re-set circuit-breakers or replace fuses in the event of a fault, and to enable you to test the RCDs** (if any) at the recommended quarterly intervals*
	You have a very old arrangement of separate main switches. *Consideration should be given to having them replaced with a modern consumer unit (fuse box) incorporating RCDs to give you increased protection against electric shock and fire*
	Other observed issues, such as combustible materials in vicinity of metering equipment.

Whilst the Meter Operative may have observed defects, damage or deterioration which may present electrical safety hazards, such an inspection alone cannot fully determine whether an installation is safe for continued use.

For further information and advice about electrical safety in and around your home, visit http://www.electricalsafetyfirst.org.uk/

+ Electrical Safety First is an independent charity committed to reducing deaths and injuries caused by electrical accidents at home and at work.

** Registered electricians in your area can be found by visiting http://www.electricalsafetyfirst.org.uk/find-an-electrician/*

*** An RCD (residual current device) is a potentially life-saving device that is designed to prevent you getting a fatal electric shock if you touch something live, such as a bare wire. It gives you a level of personal protection that ordinary fuses and circuit-breakers can't provide. Like smoke detectors, RCDs installed in your home could one day save your life!*

Description of what the question means and what would need to be carried out on Site

2. Consideration by MEMs must be given to the expected action that the Customer and in turn the Customer's electrician must take in response to points raised, specifically in

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relation to whether a means of independent isolation (isolator switch) should be fitted.

Your electrical equipment is damaged, exposing live parts to touch

- Visual inspection of the meter position and the near surrounding area, typically this would include the consumer unit, should be ticked only if damage is serious but does not inhibit re-energisation.

Your electrical installation appears not to be adequately earthed

- Visual attempt to identify the Customer's earthing arrangement i.e. is an earth wire present if not is another form of earthing visible. No expectation of electronic testing, just that there is no earth cable visible.

Your Consumer unit (fuse box) or other equipment is showing signs of overheating

- Visual signs of overheating identified – blacked housing or heat damage on the Consumer unit.

The cables connecting the meter to your Consumer unit are in a poor/damaged condition

- A visual sign of deterioration to the outer sheathing but which does not constitute a reason not to Energise.

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Your electrical installation appears not to be adequately main bonded

- Where metallic pipes suitable for bonding are in the vicinity of the meter position, bonding should be evident.

You should test your voltage-operated earth leakage circuit breaker. If the device does not trip when tested, you will be at serious risk of electric shock if a fault develops in your electrical installation or in an electrical appliance. The test should be repeated on a quarterly basis

- In all cases where an earth leakage circuit breaker (ELCB) is identified, this should be brought to the attention of the Consumer.

The cables connecting the meter to your consumer unit, and/or the earthing conductor for your installation, appear to be under-sized

- Where the consumer tails are less than 16mm^2 many MEMs are identifying this to the Consumer.

Access to your Consumer unit (fuse box) is too restricted

- If the meter and the consumer unit are difficult to access it is likely that the job has been aborted. However, if it is only the Consumer unit with restriction, then the advice is Customers should be suggested to consult an electrician about moving the Consumer unit.

You have a very old arrangement of separate main switches

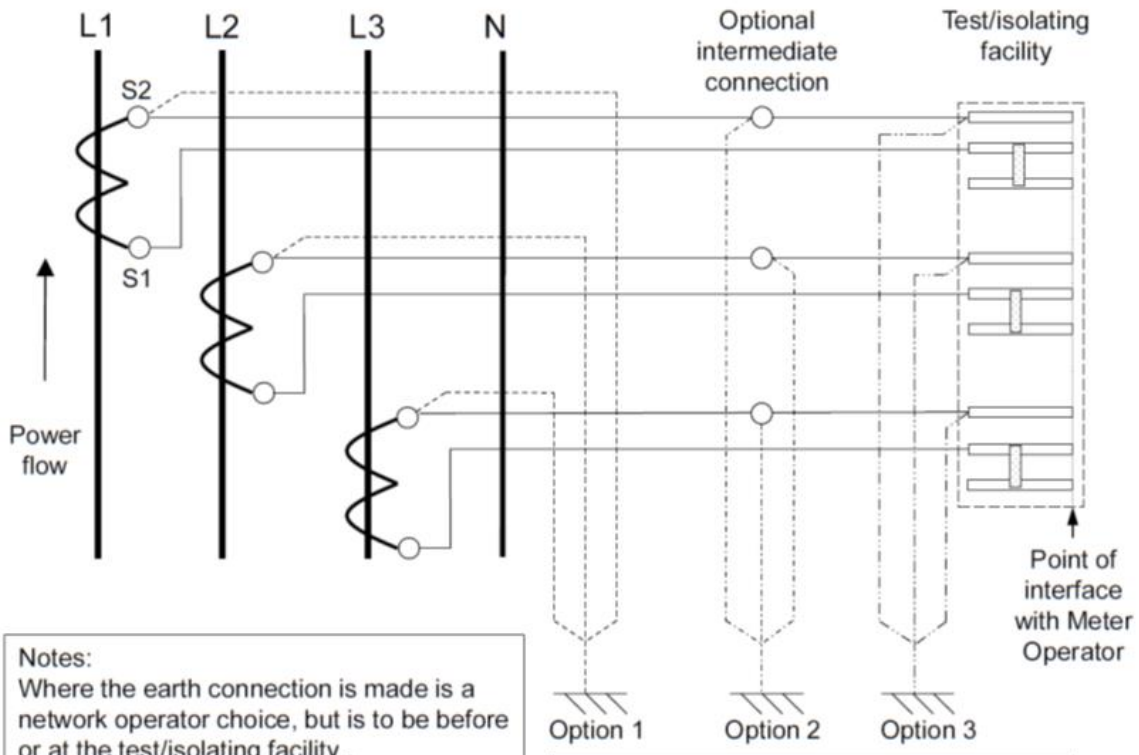
- Any installation that does not have modern Miniature Circuit Breakers (MCBs) in place should be considered here.

Other Observed Issues

- A free field to be used at MEMs (Meter Operative) discretion. This field will allow the identification of any other observed potential issues, including the identification of general safety recommendations i.e. combustible materials in the vicinity of Metering Equipment .

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APPENDIX 11: EARTHING OF CURRENT TRANSFORMERS



Notes:
Where the earth connection is made is a network operator choice, but is to be before or at the test/isolating facility .
It is preferable to earth on the "return" (S2) side for consistency.
It is preferable for the connection to be as close to the source as possible (option1), but alternatives are acceptable.

Notes, cont'd:
This diagram is primarily for LV metering. For HV, the L2 CT is normally absent, and the CT earth connection should be in the HV switchgear or marshalling box.

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