

1. SCOPE

This section of the Energy Networks Live Working Manual details the procedures to be followed when work or testing is required on **Live** CTs and associated CT connected **Apparatus**. The procedure applies the principles established by the Scottish Power Safety Rules (Electrical and Mechanical) 4th Edition to achieve **Safety from the System** and in particular OPSAF-10-012 (PSSI 12) - Low Voltage Apparatus.

2. ISSUE RECORD

This is a [Reference](#) document. The current version is held on the EN Document Library.

It is your responsibility to ensure you work to the current version.

Issue Date	Issue No.	Author	Amendment Details
September 1998	A		Initial Issue
March 2018	2	Dave Naylor Mark Brookman	Additional Hazard section introduced. Clarification in section 11 on accompaniment, PPE, and risk assessment and control measures. Section 12 now includes Power Quality Monitor CTs.

3. ISSUE AUTHORITY

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4. REVIEW

This is a [Reference](#) document which has a 5 year retention period after which a reminder will be issued to review and extend retention or archive.

5. DISTRIBUTION

This document is part of the Live Working Manual but does not have a maintained distribution list.

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7. DEFINITIONS

Terms printed in bold type are as defined in the ScottishPower Safety Rules (Electrical and Mechanical) 4th Edition.

8. ASSESSMENT

All work on or so near **Live** exposed **LV** conductors that **Danger** may arise requires justification (in accordance with OPSAF-01-001 (LWM 1.1) Policy for **Live Work on the System**) and risk assessment before the commencement of work to ensure that it is appropriate for the work to be done with the conductors **Live** and that **Danger** will not arise during the course of the work. This assessment will be carried out by the **Authorised Person** who is to undertake the work and shall have suitable knowledge and experience.

In all cases, as part of the risk assessment, **Apparatus** shall be subjected to a visual inspection prior to the start of any work to ensure that **Danger** will not arise due to the condition of the **Apparatus** or its surroundings.

Should this inspection reveal any significant deficiency in the **Apparatus** which could give rise to **Danger**, no attempt shall be made to work on the **Apparatus** until an appropriate **Senior Authorised Person** has been consulted and assessed the situation.

9. DANGERS

The main **Dangers** to personnel working on or testing CTs are electric shock or burns arising from:-

- (i) The possibility of open circuiting CT secondary circuits when the CT is carrying primary current. Potentially dangerous **High Voltages** may appear on the CT secondary winding within a very short period of time which may cause the CT to fail disruptively.
- (ii) The possibility of inadvertent contact with **Live** conductors or contacts on **Live** terminals.

10. ADDITIONAL HAZARDS

Whilst not directly introducing **Danger**, the following hazards may arise as a result of undertaking work on CTs with the potential to harm to **Persons** working on or near the **System**, or to the general public and other people at work. This procedure has been written including steps to mitigate the hazards.

- (i) Operation of protection systems and associated **Apparatus** on the circuit being worked on or adjacent circuits.
- (ii) Inadvertent depletion of protection systems on the circuit being worked on or adjacent circuits.

11. GENERAL

The requirements detailed below shall be met when working on or testing CTs.

- (i) The ScottishPower Safety Rules (Electrical and Mechanical) 4th Edition shall be strictly adhered to at all times.
- (ii) Work or testing in accordance with this procedure shall be undertaken with accompaniment from a second **Authorised Person**.
- (iii) **Approved** PPE including flame retardant coveralls (fastened up to neck and wrists) and a minimum of light eye protection shall be worn.

- (iv) **Live** terminals shall be risk assessed and **Isolated** where reasonably practicable. Where it is not reasonably practicable to isolate the terminals, control measures may include:
- the use of **Approved** shrouding
 - use of an **Approved** insulated mat
 - use of **Approved** rubber gloves.

Consideration shall be given to the use of temporary shorts on CTs while work is in progress.

- (v) Only **Approved** insulated tools shall be used.
- (vi) The requirements of OPSAF-12-009 (LWM 3.3 - Control & Protection Systems) shall be considered and particular care taken to avoid any risk of inadvertent tripping of protection systems.
- (vii) On completion of work temporary shorts shall be removed (if present). Sufficient inspection or re-commissioning shall be undertaken on completion of work to ensure that protection systems will operate as expected.

12. WORK OR TESTING ON CTs ASSOCIATED WITH THE HV SYSTEM

CTs associated with the **HV System** shall only be worked on or tested under the following conditions:-

- (i) CT changes shall be completed with the **Apparatus Isolated, Earthed** and under the terms of a **Permit for Work**. The only exceptions are protection CTs which are connected to external earth bars or CTs associated with earth fault indicator devices and interposing CTs for Power Quality Monitors.
- (ii) CT testing for which **Apparatus** which has been **Isolated** and **Earthed** shall be carried out under the terms of a **Sanction for Test**.
- (iii) CT testing for **Apparatus** which is **Live** and operating under normal conditions may require a **Limited Work Certificate** where it is necessary to confirm oral instruction in writing.
- (iv) CT testing for **Apparatus** which is not **Live** but no isolation or earthing has been carried out may require a **Limited Work Certificate** where it is necessary to confirm oral instruction in writing.

13. WORK OR TESTING ON CTs ASSOCIATED WITH THE LV SYSTEM

CTs associated with the **LV System** shall only be worked on or tested under the following conditions:-

- (i) CT changes are only permitted on uninsulated **Live Apparatus** when an **Approved** procedure can be applied. Where an **Approved** procedure cannot be applied, the uninsulated **Apparatus** shall be **Isolated, Caution Notices** posted and the **Apparatus** proved not **Live** at the point of work.
- (ii) CT changes are permitted on insulated **Live Apparatus** where the CTs are split and there is sufficient clearance from other uninsulated **Live Apparatus**.
- (iii) CT testing is permitted on **Live Apparatus** provided there is sufficient clearance from adjacent **Live Apparatus** to prevent inadvertent contact during testing.