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NSP/008/003 - Guidance on Installation of Customer Emergency Tripping

1. Purpose

The purpose of this document is to provide guidance on the provision of emergency tripping for HV or LV customers connected directly to Distribution substations on the Northern Powergrid network. It has been prepared to satisfy the requirements of ESQCR 2006.

Document Reference	Version	Date	Document Title
NSP/008/003	1.0	Aug 2018	Guidance on Installation of Customer Emergency Tripping

2. Scope

This design guidance document is a specification for customer emergency disconnection facilities for customers supplied directly from LV ACB's, 11kV or 20kV switchgear and will satisfy the requirements of IMP/001/010.

These arrangements should be applied at any new connection, but can also be applied at existing sites if major work is taking place such as a switchgear or protection change.

For EHV (>20kV) or more complex HV connections, i.e. Firm supplies or multiple points of supply will be provided on a bespoke arrangement. These should be confirmed with the Northern Powergrid Technical Services section on a project by project basis.

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3. Customer Emergency Trip

3.1. General

A customer emergency trip facility shall be provided where a customer is fed from a circuit breaker owned and operated by Northern Powergrid.

3.2. On Site Facility

The customer emergency trip will be provided by a momentary push button mounted in an adjacent room, so will generally be part of the Northern Powergrid substation building. The push button shall have a suitable cover/shroud that will prevent accidental operation but will not restrict immediate operation. It will operate one contact to trip the metering circuit breaker.

The push button will be mounted in a suitable box to provide IP54 Protection and the button will generally be to the requirements of ENA TS 50-18

The DC supply for the trip will be taken from the Northern Powergrid 30v battery. A supply from an AC supply shall not be used for any tripping purposes.

All Northern Powergrid wiring will only be between the emergency trip push button, switchgear and battery, no intermediate connection boxes will be used.

The battery will be located in the Northern Powergrid substation. Specification, supply and ownership of this equipment will be with Northern Powergrid.

See Appendix 2 for general wiring interconnections.

3.3. Remote Facility

Supplies from Northern Powergrid batteries shall not be extended beyond rooms adjacent to the substation boundary. Where a customer requires a remote emergency trip facility at his premises then an additional interposing relay located in the metering annexe will be operated from the customer's battery. The customer should be advised that to prevent spurious operation either due to capacitive discharge or AC pickup, one of the options will be used:

- The operation circuit should utilise double pole switching for the interposing relay
- A suitably rated High Burden trip relay (ESI 48-4 EB2 Type) should be used.

Any trip relay used should also have the following requirements

- Hand reset flag operation, the operation flag will drop on operation of the relay and will only reset by operation of a mechanism located on the relay. Removal of the relay cover should not be required to reset the relay
- The operation of the relay should latch the relay in the operated state, and resetting of the trip contact mechanism should be via a hand reset mechanism (which can be the same mechanism as the flag reset)

The remote facility will be operated from a customer supplied battery system, the specification of which shall be determined by the customer. Specification, supply and ownership of the interposing equipment will be with the customer.

The circuit breaker trip circuits will still be operated from the Northern Powergrid 30v battery.

See Appendix 3 for general wiring interconnections.

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3.4. Cabling and Wiring

The wiring and construction of the Northern Powergrid equipment shall generally be to ENA TS 50-18

All multicore connections should be in accordance with ENA TS 09-6 PVC/SWA/PVC 2.5mm cored cable to NPS/002/018 with all cables terminated in CW gland with IP66 rating as a minimum.

See Appendix 1 for general cable connections.

3.5. Battery Supply

The Northern Powergrid 30v battery system will be to NPS/003/002, Appendix 1 30v Non Standing Load tripping battery without battery charger.

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4. References

4.1. External Documentation

Reference	Title
ENA TS 09-06	Auxiliary Multicore and Multipair Cables
ENA TS 48-4	DC Relays associated with Tripping functions
ENA TS 50-18	Application of Ancillary Electrical Equipment
ESQCR 2006	The Electricity Safety, Quality and Continuity Regulations 2006

4.2. Internal Documentation

Reference	Title
IMP/001/010	COP for Standard Arrangements for Customer Connections
NPS/002/018	TS for Pilot, Control and Telephone Cables
NPS/003/002	TS for 30v Tripping Battery and Charger Systems

4.3. Amendments from Previous Version

Reference	Description
	Routine review, scope amended for application to existing sites, drawing modifications and minor textual corrections

5. Definitions

Term	Definition
EHV	Extra High Voltage
HV	High Voltage

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6. Authority for Issue

6.1. CDS Assurance

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

		Date
Liz Beat	Governance Officer	20/03/2024

6.2. Author

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

Review Period - This document should be reviewed within the following time period.

Standard CDS review of 3 years?	Non Standard Review Period & Reason	
Yes	Period: n/a	Reason: n/a
Should this document be displayed on the Northern Powergrid external website?		Yes
		Date
Michael Crowe	Protection Manager (North)	20/03/2024

6.3. Technical Assurance

I sign to confirm that I am satisfied with all aspects of the content and preparation of this document and submit it for approval and authorisation.

		Date
Andrew Scott	Protection Manager (South)	24/04/2024
James Russell	Technical Services – Program Manager	20/03/2024
Glen Hodges	Head of Technical Services	21/03/2024

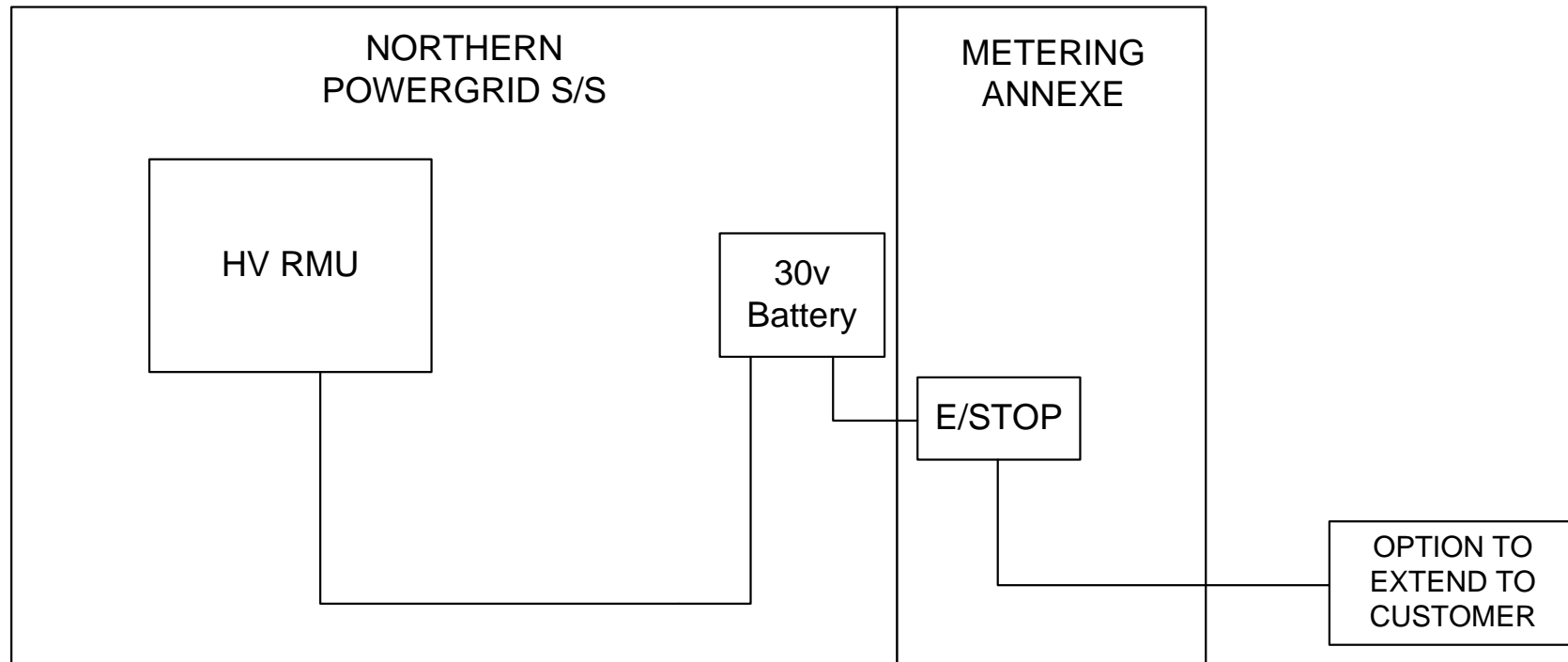
6.4. Authorisation

Authorisation is granted for publication of this document.

		Date
Iain Miller	Head of Connections Design	11/04/2024

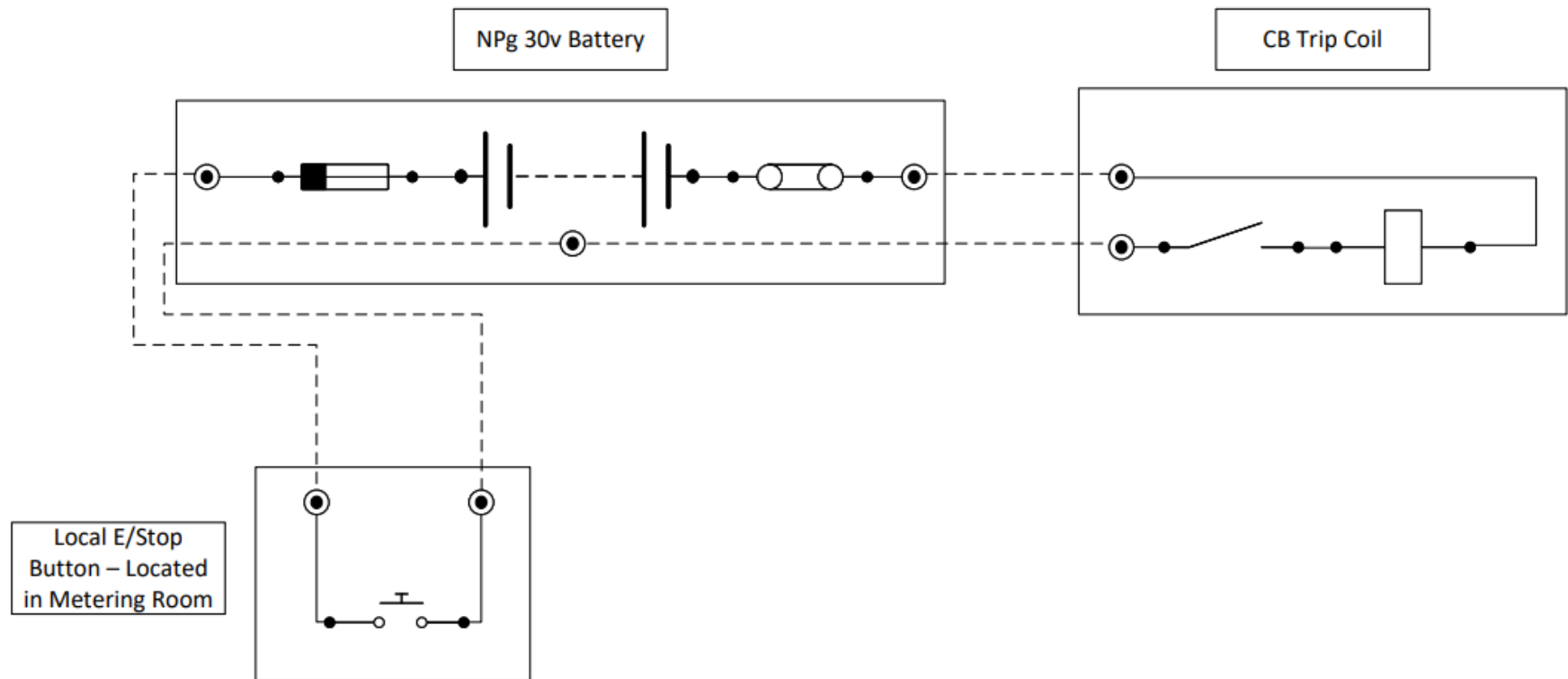
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Appendix 1 – Substation Cabling Block Diagram



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Appendix 2 - HV/LV Remote Trip Facility – Inside S/S Boundary



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Appendix 3 - HV/LV Remote Trip Facility – Outside S/S Boundary

