



RELEVANT ELECTRICAL STANDARDS

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PART 1 - INTRODUCTION

This document defines the relevant technical specifications, policies and procedures that must be complied with by all Users connected to or seeking connection to the National Electricity Transmission System as set out under CC or ECC.6.2.1.2 of the Grid Code Connection Conditions, as applicable and pursuant to the terms of the Bilateral Connection Agreement. This Relevant Electrical Standards document applies only in accordance with the existing provisions of CC or ECC.6.2.1.2, as applicable. Equipment which was commissioned prior to the implementation date of this RES will continue to be subject to the standards applicable at the time of commissioning of that equipment.

The Relevant Electric Standards seek to maintain an appropriate level of reliability and security for the Transmission System in England and Wales. Ensuring that User equipment directly connected to the National Electricity Transmission System at least meets the same standard of construction, manufacturing and installation quality as that employed by NGET where such equipment has a material impact on the overall reliability and security of the System.

The User shall demonstrate that its equipment directly connected to the National Electricity Transmission System in England and Wales is fit for purpose, complies with both statutory and GB Grid Code requirements, it meets the manufacturers stated performance characteristics and the requirements of the Specific Requirements contained within these Relevant Electrical Standards. For the avoidance of doubt this includes evidence of commissioning processes and procedures that ensure that the above requirements are met.

In accepting the Connection Conditions, Users connecting to the National Electricity Transmission System are required to comply with these requirements pursuant to the terms of the Bilateral Connection Agreement.

This document applies only to connection agreements where the User is connected /connecting to an extant NGET substation or where the connection will be to a new substation that is being constructed by NGET. Where the User elects to construct the substation to which it will connect and subsequently transfer the assets to NGET the substation assets that will form part of the National Electricity Transmission System as a minimum shall meet in its entirety the National Grid Technical Specifications used by NGET.

For the avoidance of doubt, the requirements of these Relevant Electrical Standards apply only to User's equipment located within NGET's busbar protection zone and do not apply to User's equipment connected to other Transmission Licensee's equipment. Where Offshore Transmission Licensee's or OTSDUW Plant and Apparatus connects to an NGET substation, then the requirements of these Relevant Electrical Standards shall apply only within the busbar protection zone of the Interface Point.

User's should be aware that specific requirements such as System Monitor - Dynamic System Monitoring (DSM) equipment (TS.3.24.70 (RES), Fault Recording (TS3.24.71 (RES)) and Frequency Response Monitoring equipment TS.3.24.95 (RES) as detailed in section 4 of this document, may apply to Users where their equipment is not connected within NGET's busbar protection zone. The requirement for a User to satisfy these requirements will be specified in the Bilateral Connection Agreement. In these circumstances, the User will only be required to satisfy the requirements of TS3.24.70 (RES), TS3.24.71 (RES) and TS3.24.95 (RES), as applicable, and no other RES unless specifically defined in the Bilateral Connection Agreement.

Likewise Operational Data Transmission (TS3.24.100 (RES)) is a requirement that will be specified in the Bilateral Connection Agreement and may apply to Users regardless of whether their equipment is connected within NGET's busbar protection zone.

The Relevant Electric Standard document comprises of Introduction, Administration, General Requirements and Specific Requirements.,

Administration covers roles and responsibilities with respect to issue, maintenance and administration of the document including the governance of changes to the document contents and/or requirements.

General Requirements cover NGET's intentions with respect to the use of particular asset types on its System. Policies being based on, *inter alia*, safety, environmental implications, International policy, legislation and supplier market.

Specific Requirements covers the functional requirements of equipment connected to the National Electricity Transmission System in England and Wales.

Guidance Notes provide advice and guidance on how the General Requirements may be applied or the Specific Requirements are used, referencing the General Requirements, Specific Requirements or other relevant documents as appropriate.

These Relevant Electrical Standards contain the technical specifications that NGET currently requires Users to meet. However the requirements contained herein cannot be completely exhaustive and, in certain circumstances, there may still be specific scheme related reasons that will result in NGET requiring a User to meet further requirements that are not set out within these Relevant Electrical Standards. Any such requirement will be set out in the Bilateral Connection Agreement unless otherwise agreed between the User and NGET.

The Relevant Electrical Standards detail, along with the Grid Code, certain of NGET's requirements with respect to User equipment. User equipment that is outside the scope of the RES could nonetheless be subject to various electrical phenomena due to their connection to the National Electricity Transmission System in England and Wales (e.g. voltage transients). The User is responsible for ensuring that its equipment is capable of withstanding the effects of such system phenomena. Details of the technical and operational characteristics of the Transmission System in England and Wales are given in NGET report CI01 *Technical and Operational Characteristics of the Transmission System*.

For the avoidance of doubt the term National Electricity Transmission System in England and Wales used in conjunction with this document relates to those transmission assets owned by NGET.

PART 2 - ADMINISTRATION

NGET is responsible for the issue, maintenance and administration of this document.

Changes to this document are subject to the provisions of the Grid Code Governance process - Governance of Electrical Standards as detailed in GC.11 of the Grid Code and shall apply where NGET or a User:-

- a) proposes a change to a technical requirement;
- b) proposes to add a new technical requirement;
- c) proposes to delete a technical requirement;

The document amendment process is shown in Figure 1 below.

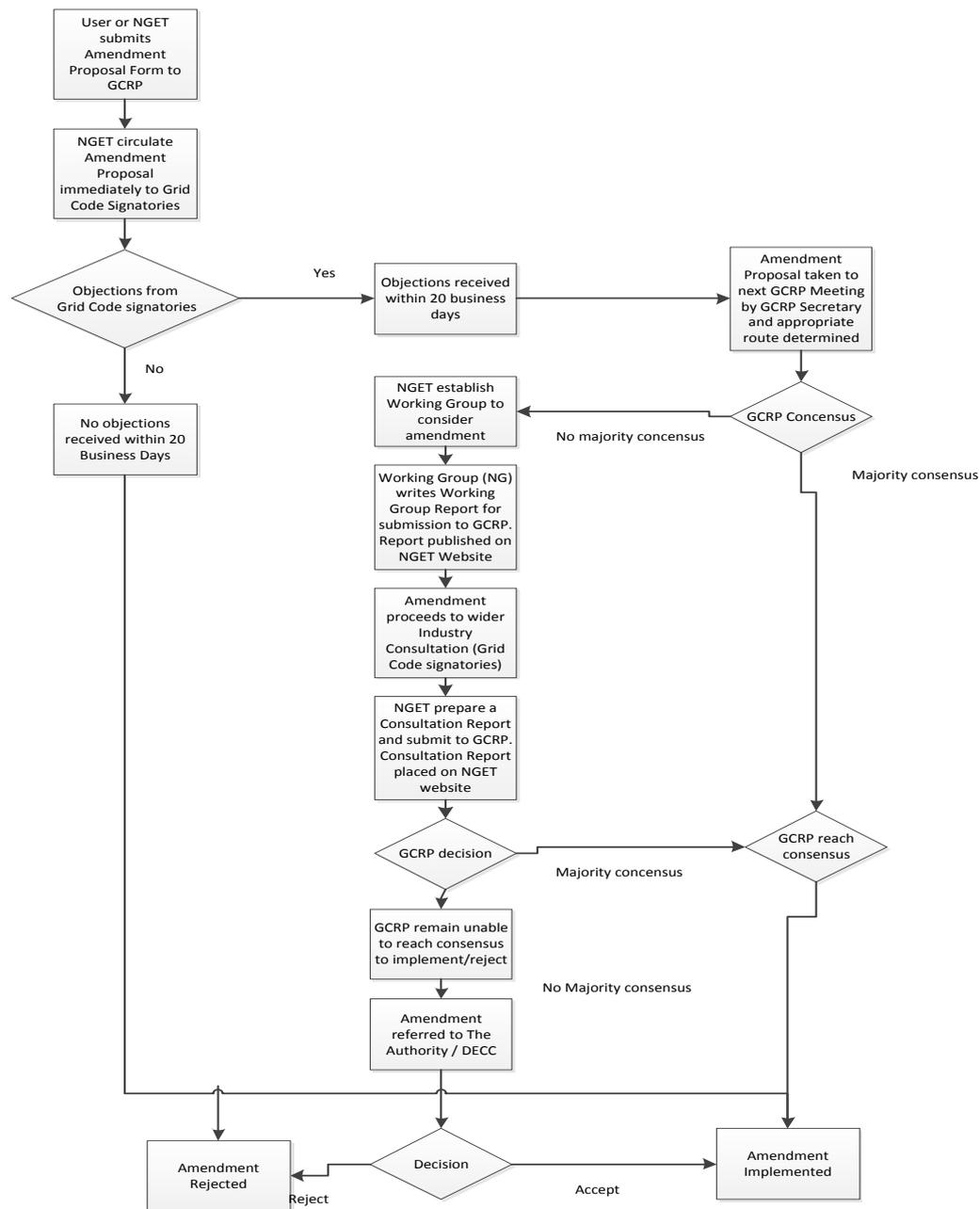


Figure 1 - Governance of Electrical Standards- Amendment Process

PART 3 - GENERAL REQUIREMENTS

Engineering Policy statements included in this document relate to particular types of technology assets and are a clear and unambiguous statement of need or intent, based on safety and/or environmental implications, business needs, international policy, legislation and supplier market.

Policy statements reference standards, NGET Transmission engineering policy and other relevant documents as appropriate.

User equipment installed within the busbar protection zone shall be proven fit for its intended purpose through demonstration of its strength and capability via compliance with the General and Specific Requirements of these Relevant Electrical Standards.

PART 4 – SPECIFIC REQUIREMENTS

The documents listed below, which form part of the Relevant Electrical Standards, are not reproduced here but are available separately via access to the National Grid UK website.

Back-Up Protection Grading across NGET's and other Network Operator Interfaces	PS(T)010(RES)
Ratings and General Requirements for Plant, Equipment, Apparatus and Services for the National Grid System and Connections Points to it.	TS 1(RES)
Substations	TS 2.01(RES)
Switchgear	TS 2.02 (RES)
Substation Auxiliary Supplies	TS 2.12 (RES)
Ancillary Light Current Equipment	TS 2.19 (RES)
Substation Interlocking Schemes	TS 3.01.01(RES)
Earthing Requirements	TS 3.01.02 (RES)
Circuit-Breakers	TS 3.02.01 (RES)
Disconnectors and Earthing Switches	TS 3.02.02 (RES)
Current Transformers for Protection and General Use on the 132 kV, 275 kV and 400 kV Systems	TS 3.02.04 (RES)
Bushings	TS 3.02.07 (RES)
Solid Core Post Insulators for Substations	TS 3.02.09 (RES)
Gas Insulated Switchgear	TS 3.02.14 (RES)
Environmental and Test Requirements for Electronic Equipment	TS 3.24.15 (RES)
Busbar Protection	TS 3.24.34 (RES)
Circuit Breaker Fail Protection	TS 3.24.39 (RES)
Synchronising	TS 3.24.60 (RES)
System Monitor - Dynamic System Monitoring (DSM)	TS 3.24.70 (RES)
Fault Recording	TS3.24.71 (RES)
Protection & Control for HVDC Systems	TS 3.24.90 (RES)
Frequency Response Monitoring	TS 3.24.95 (RES)
Operational Data Transmission	TS3.24.100 (RES)
Guidance for Conductor Jointing in Substations	TGN(E)187 (RES)
General Conditions	RES 24

NOTE

The guidance document(s) referenced in the above table support the NGET Policy Statements contained in the Relevant Electrical Standards but do not form part of the RES document.