GOVERNANCE OF ELECTRICAL STANDARDS WORKING GROUP

Paper by the Joint GES Working Group of the Network Code Review Panels

PROPOSALS FOR GOVERNANCE OF NETWORK TECHNICAL STANDARDS

[26th August 2003]

Executive Summary

A The Paper is a Report reflecting the work of the Joint Working Group of Network Code Review Panels on Governance of Electrical Standards (GES WG) and is prepared for the Code Review Panels in order to enable them to undertake the next step in the process namely to establish separate Panel Working Groups to consider the implementation of the proposals in relation to each Code.

B The aim of the Working Group in taking forward the issues raised by Ofgem has been to ensure a balance between greater transparency entailing a more prescriptive form of governance, and the need to preserve efficiency in relation to developing standards and ensuring that the governance process overall is appropriate and cost effective. This has led to the development of a clearly defined set of standards which fall within the revised governance model, as described in the Paper. Overall the aim has been to identify those standards which impose significant material obligations on Users and which fall outside existing Code, Licence based or any other form of governance process.

C In terms of those standards, for National Grid the relevant standards will be 18 NTGSs, as listed in the Appendix to this Paper and provisions relating to EDT and EDL. The Appendix also deals with Scottish Transmission Standards. In relation to distribution, the standards are again as listed in the Appendix and relate to standards listed in the Distribution Code, together with further standards which are to be listed separately by DNOs.

D In relation to the new governance model for the standards which are identified as falling within the scope of the new governance arrangements, the relevant Code Licensee will identify to the relevant Panel any proposed changes to the standards. If the Panel reaches a broad consensus that the proposed change is appropriate and that further consultation is not needed, the Licensee will have the executive power to implement any change having so notified it, . If the Panel does not come to that view, then the Licensee will establish a Working Group if appropriate and following this undertake a public consultation, with further discussion at the Panel to see if consensus can be reached. Again, if the Panel broadly agrees with the Licensee's conclusions, the Licensee will so implement the change. Where the Panel and the Licensee do not reach a broad consensus, the matter will be referred to Ofgem who will take the final executive decision as to whether or not the proposed change should be implemented.

References to the Licensee will include references to all the DNO Licensees in the context of distribution standard issues.

E The Report also indicates that it is now for the individual Code Licensees and the respective Panels to take forward the detailed implementation of the new arrangements within the Code documentation, which will also include the mechanics for dealing with specific individual DNO standards.

1. Introduction

1.1 Following Ofgem's "Final Proposals" for the Governance of electrical standards, published on 10 October 2002, a Joint Working Group of the Grid Code Review Panel, the Scottish Grid Code Review Panels and the Distribution Panel was established to take forward the common elements of Ofgem's Final Proposals. This Report reflects the work of the Joint Working Group (GES WG) and is prepared for the three Code Review Panels.

1.2 In developing this Report the GES WG identified significant differences between the governance of NGC standards as those relating to a single company, and those relating to the DNOs where governance arrangements have to encompass 14 separate Licensees and a mixture of common and individual standards.

1.3 The Code Review Panels are now invited to establish separate Panel Working Groups to consider how best each can implement the proposals contained in this Report.

2. Overall Objective

2.1 The Consultation process undertaken by Ofgem, and the discussion in the Joint Working Group, in which Ofgem has also been represented, has enabled consideration discussion and conclusion on both the scope of the relevant standards to be covered by the revised governance arrangements, and also on then important principles covering the rôles of Panels and Ofgem.

2.2 The Working Group has been motivated through out by a desire to ensure a balance between greater transparency which entails a more prescriptive form of governance, and the need to preserve efficiency in relation to developing standards and ensuring that the governance process overall is appropriate and cost effective. The discussion on the issue of which relevant standards to incorporate within the process, and the best way of addressing the governance has led to the development of a clearly defined set of standards that fall within the revised governance model, which are set out in this Report.

Relevant Standards

2.3 The focus has been to seek to identify those standards which impose significant material obligations on Users which fall outside existing Code, Licence based or any other formal governance route.

Governance

2.4 In relation to those standards that have been identified as falling within the scope of the new Governance arrangements, a proposal has been formulated for dealing with their governance. This involves the Licensee identifying to the relevant Panel proposed changes to relevant standards. In general where then Panel has reached a broad consensus that the proposed change is appropriate, and that further consultation is not needed, the Licensee has the executive power to implement any change with out further consultation. If the Panel do not reach a broad consensus or believe that the change needs to be consulted on further, the Licensee will establish a Working Group if appropriate and following this in all cases hold a period of public consultation. Following this the Licensee will put its conclusions to the relevant Panel. If the Panel broadly agrees with the Licensees conclusions, the Licensee will implement the change. In all cases where the Panel and the Licensee do not reach a broad consensus the matter will be referred to Ofgem who will take the final executive decision as to whether or not the proposed change should be implemented.

2.5 The Working Group paid particular attention to the issue of the multitude of DNO technical standards in use. It was agreed that it was not appropriate to modify the existing individual DNOs' processes relating to these standards. However in line with 2.3 above, where an individual DNO standard imposed a material requirement on a User, the existing powers of the DCRP to deal with a more senior standard or to provide advice on Code interpretation could be used to provide advice on the individual standard in question. The User would still have recourse to Ofgem for determination on specific points associated with making connexions to the network.

2.6 Now that these high level principles relating to scope have been resolved it is envisaged that the detail of the processes, and how precisely they will be incorporated within the relevant Codes and associated documentation, will now be taken forward by each of the respective Panels in relation to their Code.

2.7 In addition, there will be a need for liaison between the various Code Panels in circumstances where the consideration of standards may have an effect on the other Codes.

3. Scope of Standards

3.1 Relevant Standards for Transmission

The GES WG agreed that the relevant standards for the new governance process in the context of transmission are: -

3.1.1 the 18 NGTSs which are listed in the Appendix to this Report. These reflect the "Technical Standards" which are currently referred to in the Grid Code, where there is a requirement for National Grid to maintain a list;

3.1.2 provisions relating to EDT and EDL. The existing references to them in the Grid Code will be expanded slightly in order to clarify how they fit within the new governance arrangements although they will be dealt with as provided in the Grid Code.

They are also referred to in the Appendix to this Report, where the Scottish relevant standards are also set out.

3.2 Relevant Standards for Distribution:-

3.2.1 In developing the scope of standards relevant to distribution it was recognized the the GES WG that it was equally important for Users to be able to influence the interpretation of standards as applied by the 14 DNOs, as well as to be able to influence their content.

3.2.2 The scope of the standards that are proposed which come under the new governance model are listed below.

3.2.3 Proposed qualifying technical standards which will come within the scope of governance are listed in the Appendix and as follows:

Distribution Code Annex 1 Standards

3.2.4 Standards that define Distribution Code requirements are to be identified and listed in Annex 1 of the Distribution Code. These standards are designed to enable DNOs to maintain statutory requirements and declared characteristics of voltage and frequency and interoperability of DNO and User networks. They include the 13 standards currently listed in Annex 1 of the Distribution Code and a number of other standards may come under this category as shown in the Appendix to this report.

3.2.5 Such standards will be developed through the new governance model and any disagreement on the content of such standards will be reported to Ofgem by the DNOs for an Ofgem decision

3.2.6 Distribution Code Annex 1 standards are implemented by suitable references in the Distribution Code, requiring a network code modification. Ofgem will approve such modifications in the normal way following public consultation and DNO report to Ofgem.

Other Distribution Code Review Panel Governed Standards

3.2.7 Certain national electricity industry technical standards have been identified that materially affect Users but do not define Distribution Code requirements and are not implemented by modifications to the Distribution Code. Such standards are to be identified and for convenience listed in an appendix to the Distribution Code, although they will not form part of the Code. These standards will follow the same process for development, consultation and resolution of disputes by Ofgem and approval by DNOs as for Annex 1 standards. The only difference is that there is no requirement for implementation via a Distribution Code modification. Proposals for these DCRP governed standards are shown in the Appendix and include the DTI guide to connection of embedded generation and Engineering Recommendation G 81 which gives transparency to DNO plant and equipment standards to facilitate competition in connection.

Individual DNO Company Standards

3.2.8 Individual DNOs also adopt national electricity industry and company standards to fulfil or implement the requirements of the network codes or which are referenced in connection agreements or otherwise place obligations on Users. DNOs will have an obligation to publish lists of such standards. There are numerous such standards and in the interests of efficiency a system of governance as described in 2.5 above is proposed. Standards adopted by companies subject to governance by exception will not be approved through the new governance model but specific issues will be open to challenge by Users and reviewed by the DCRP. The review process may result in the issue being resolved by modification of the Distribution Code or a Distribution Code standard, a new Distribution Code standard, or issue of formal guidance as permitted in the Distribution Code. These options will be subject to formal Distribution Code consultation and approval arrangements. Alternatively informal views may be given by the DCRP to the DNO and Ofgem which will cause the DNO to review its standard. DNOs will therefore have an incentive to maintain lists up to date and publish intentions to modify standards which materially affect Users.

3.3 Other standards have variously been discussed during the process of taking forward the debate on the governance of electrical standards but they already have their own governance procedures and so do not need to be dealt with here. For example, 'Licence Standards', which exist pursuant to the licences, are changed in accordance with a procedure set out in those licences.

4. Revised Governance Model

4.1 Transmission

4.1.1 In relation to the 18 NGTSs that have been identified as falling within the scope of the new Governance arrangements, National Grid as the Licensee would identify to the Grid Code Review Panel proposed changes to any of these 18 relevant standards.

4.1.2 National Grid would have the executive power to implement any change with out further consultation, if the Panel has reached a broad consensus that the proposed change to the standard was appropriate, and that further consultation was not needed. If the Panel do not reach a broad consensus/ believed that the change needs to be consulted on further, National Grid would establish a Working Group if appropriate and following this in all cases hold a period of industry consultation. Following this National Grid would put its conclusions to the Grid Code Review Panel. If the Grid Code Review Panel broadly agrees with National Grid's conclusions, National Grid will implement the change. In all cases where the Panel and National Grid do not reach a broad consensus, the matter will be referred to Ofgem who will take the final executive decision as to whether or not the proposed change to one of the 18 NGTSs in question should be implemented.

4.1.3 A similar approach will apply in relation to the Scottish Codes.

4.2 **Distribution**

4.2.1 In relation to the Annex 1 Standards, and the DCRP governed standards that have been identified as falling within the scope of the new Governance arrangements, proposals to initiate changes to these standards would be reviewed by the DCRP.

Annex 1 Standards:

4.2.2 If the Panel reached a broad consensus that the proposed change to the standard was appropriate, and that further consultation was not needed the DNOs would have the executive power to implement any change without further consultation. In this case a report to Ofgem would still be required, as now, to give effect to the consequential Distribution Code changes. If the Panel does not reach a broad consensus or believed that the change needs to be consulted on further, the DNOs would establish a DCRP Working Group if appropriate and following this in all cases hold a period of industry consultation. If the Panel broadly agrees with the DNOs' conclusions from the consultation, the DNOs will implement the change in the standard and submit the consequential Distribution Code changes to Ofgem. In all cases where the Panel does not reach a broad consensus, the matter will be referred to Ofgem who will take the final executive decision as to whether or not the proposed change to the standard and the consequential Distribution Code changes should be implemented.

DCRP Governed Standards:

4.2.3 If the Panel reached a broad consensus that the proposed change to the standard was appropriate, and that further consultation was not needed the DNOs would have the executive power to implement any change without further consultation. If the Panel does not reach a broad consensus or believed that the change needs to be consulted on further, the DNOs would establish a DCRP Working Group if appropriate and following this in all cases hold a period of industry consultation. If the Panel broadly agrees with the DNOs' conclusions from the consultation, the DNOs will implement the change in the standard. In all cases where the Panel does not reach a broad consensus, the matter will be referred to Ofgem who will take the final executive decision as to whether or not the proposed change to the standard should be implemented.

4.3 **The Role of the Code Review Panels**

Although there was some discussion at the Working Group on whether a Code Panel itself should be able to take an executive decision to bring about a change, it was agreed by the GES Working Group that it was more appropriate that in cases where broad consensus could be reached, the existing bodies (ie the Licensees) who make the decision on the changes to relevant standards should continue to make that decision, with the additional requirement of the involvement of the relevant Code Panels as outlined above. One of the reasons for this is the wish to avoid the Panels themselves being in a position of making an "executive" decision which might give rise to a liability on the Panel and, therefore, the Panel Members in relation to the adoption of

such a change to the standard. Ofgem have indicated that they are willing to act as the body to make an executive decision in those cases where there is not broad consensus as to whether a proposed change should be made.

5. Conclusion

5.1 This Report outlines the way in which the discussions have developed in the Joint Working Group following the Ofgem Consultation and its Final Proposals and reflects the agreed position on how the governance of relevant standards should be taken forward. It is now for the individual licence holders with their responsibilities in terms of developing the Grid and Distribution Codes and associated documents to take forward the detailed implementation of the principles outlined above.

5.2 Whilst it would be envisaged that the way in which the process is reflected in the individual Codes and associated documents, and the overall approach, could well be similar across all of the Codes, there will be specific variations reflecting particular issues relating to particular types of Code.

5.3 Amongst the issues to be dealt with in the implementation would be the detail on exactly how the process would work and how transparency will be enhanced and formally reflected. This could include expanding the existing provisions on utilisation of relevant websites and a procedure or methodology for ensuring that issues in relation to standards, and the taking forward of their consideration, are formally raised at the relevant Code Panel meetings and with suitable external transparency.

5.4 It should be noted that in relation to this Report, no specific detail has been included on all the practicalities of how the development of standards are delivered and how issues are taken forward. For example, certain Code Licence Holders utilise services of outside consultants or bodies in order to take forward the development of standards and discussion on them generally. This is something which is viewed very much as a matter for the individual Code Licence Holders and Review Panels as it is simply the way they deliver their requirements in relation to both the Codes themselves and relevant standards. There is also a need to ensure in putting in place the detailed processes within the relevant Codes that there is a suitable recognition of the need to coordinate the approach in certain areas across the various Codes and Review Panels.

5.5 The relevant Licence Holders and Review Panels are therefore invited to develop the detailed changes needed to reflect the points raised in this Report.

APPENDIX

Current and Proposed Qualifying Standards

This appendix summarises the current references to LNO standards which define requirements of the network codes and makes recommendations for additional standards where necessary.

1 Distribution Code Referenced Standards

The Distribution Code includes an Annex 1 which lists all LNO standards which define the requirements of the Distribution Code and these are made binding on Users and LNOs in various sections of the Distribution Code. Annex 1 and the standards referenced in Annex 1 do not form a part of the Distribution Code.

1.1 Distribution Code ANNEX 1
DISTRIBUTION GLOSSARY AND DEFINITIONS ELECTRICITY SUPPLY INDUSTRY PUBLICATIONS REFERRED TO IN THE DISTRIBUTION CODE.

Copies of the Engineering Recommendations and Technical Specifications are available from the Electricity Association, 30 Millbank, London, SW1P 4RD on request. A copy of Engineering Memorandum 7907 is available from Scottish Hydro Electric Power Distribution Ltd on request.

1 **Engineering Recommendation G5/4**
Planning levels for harmonic voltage distortion and the connection of non-linear equipment to transmission and distribution systems in the United Kingdom.

2 **Engineering Recommendation G12/3**
Requirements for the application of protective multiple earthing to low voltage networks.

3 **Engineering Recommendation G59/1**
Recommendation for the connection of private generating plant to the Public Electricity Suppliers' distribution systems.

4 **Engineering Recommendation G75**
Recommendations for the connection of embedded generating plant to Public Electricity Suppliers' distribution systems above 20kV or with outputs over 5MW.

5 (a) **Engineering Recommendation P2/5**
Security of Supply.
(b) **EM7907**
Distribution planning standards of voltage and of security of supply. (Parts of Scottish Hydro Electric Power Distribution Ltd Area)

6 **Engineering Recommendation P14**
Preferred switchgear ratings.

7 **Engineering Recommendation P24**
AC traction supplies to British Rail.

8 **Engineering Recommendation P25**

The short circuit characteristics of electricity boards low voltage distribution networks and the co-ordination of overcurrent protective devices on 230V single phase supplies up to 100A.

9 **Engineering Recommendation P26/1**
The estimation of the maximum prospective short circuit current for three phase 415V supplies.

10 **Engineering Recommendation P28**
Planning limits for voltage fluctuations caused by industrial, commercial and domestic equipment in the United Kingdom.

11 **Engineering Recommendation P29**
Planning limits for voltage unbalance in the United Kingdom for 132kV and below.

12 **Technical Specification 41-24**
Guidance for the design, installation, testing and maintenance of main earthing systems in substations

13 **Engineering Recommendation S34**
A guide for assessing the rise of earth potential at substation sites.

It is noted that Engineering Recommendation P2/5 Security of Supply and the Scottish Hydro Electric equivalent EM7907 are licence standards and included for information only.

1.2 Additional LNO Distribution Code Annex 1 Standards

The following LNO standards have been identified as being suitable for adoption as requirements of the Distribution Code and may be considered further by the Distribution Code Review Panel.

Engineering Recommendation G74 Procedure to meet the requirements of IEC 909 for the calculation of short-circuit currents in three-phase AC power systems

Engineering Recommendation P18 Complexity of 132 kV Circuits.

Engineering Recommendation P20/1 Earthing policy in relation to the customer’s installations.

Supporting Engineering Technical Report ETR and ACE Reports should be referenced in the Distribution Code where EA standards are supported by such reports.

1.3 British Standards

Certain British Standards are also adopted as conditions of the Distribution Code and may be referenced in the Code.

BS7671 Requirements of Electrical Installations

BS EN50160 Voltage Characteristics of Electricity Supplied from Public Electricity Systems

1.4 Distribution Code Governed Standards

Other national electricity industry standards have a material impact on Users but do not define network code requirements and are to be listed in an appenidx to the Distribution Code, but do not form a part of the Distribution Code.

DTI Publication - Technical Guide to Connection of Embedded Generators to the Distribution Network (currently under revision by a DCRP Working Group)

ER G81 “Framework for design and planning, materials specification and installation and record for Greenfield low voltage housing estate installations and associated, new, HV/LV distribution substations”. Engineering Recommendation G81 is currently under the governance of Ofgem through the active competition in connections forum. In due course it is envisaged that ER G81 will come under NCRP standards governance. Standards listed under ER G81 will be treated on merit.

2 National Grid Company Grid Code Referenced Standards

2.2.1 NGC Technical Specifications

Under CC6.2.1.2 NGC is required at all times to maintain a list of those Technical Specifications and additional requirements which might be applicable under this CC.6.2.1.2 and which may be referenced by NGC in the Bilateral Agreement. NGC shall provide a copy of the list upon request to any User. NGC shall also provide a copy of the list to any new User upon receipt of an application form for a Bilateral Agreement for a new Connection Point.

The 18 NGC technical specifications identified below will be NGC Grid Code referenced standards as these are the only NGTS’s which have a significant material effect on users.

2.2.2 Electronic Data Communications Facilities

NGC Grid Code CC6.5.8 (c) requires NGC to consult with Users on any changes in the specification of Electronic Data Communications Facilities. The relevant details of the standards are as follows:

EDT:

i. EDT Interface Specification Issue 4
ii. EDT Submitter Guidance Note December 2001

EDL:

i. EDL Message Interface Specifications Issue 4
ii. EDL Interface Specification Guidance Note October 2001
iii. EDL Instruction Interface Valid Reason Codes Issue 2

NATIONAL GRID TECHNICAL SPECIFICATIONS
(Based on NGC NGTS Index Issue 5 March 2000)

Note: For Users connecting to the NGC Transmission System, they may be required to comply with National Grid Technical Specifications marked with a tick (*) in the left hand column. See clause CC6.2.1.2 of the Grid Code – such requirements will be defined in their Supplemental Agreement with NGC. (It is understood that this document is due for revision)

*	NGTS 1	Ratings and General Requirements for Plant, Equipment, Apparatus and Services for the National Grid System and Direct Connections to it.	Issue 3 Mar-99
*	NGTS 2.1	Substations	Issue 2 May-95
*	NGTS 3.1 .1	Substation Interlocking Schemes	Issue 1 Oct-93
*	NGTS 2.2	Switchgear for the National Grid System	Issue 2 Nov-95
*	NGTS 3.2.1	Circuit-breakers and Switches	Issue 1 Sep-92
*	NGTS 3.2.2	Disconnectors and Earthing Switches	Issue 1 Mar-94
	NGTS 3.2.3	Metal-Oxide Surge Arresters for use on 132, 275 & 400 kV Systems	Issue 2 May-94
*	NGTS 3.2.4	Current Transformers for Protection and General Use on the 132 kV, 275 kV and 400 kV Systems	Issue 1 Sep-92
*	NGTS 3.2.5	Voltage Transformers for use on the 132 kV, 275 kV and 400kV Systems	Issue 2 Mar-94
*	NGTS 3.2.6	Current and Voltage Measurement Transformers for Settlement Metering of the 33 * 66 kV, 132 kV, 275 kV and 400 kV Systems	Issue I Sep-92
*	NGTS 3.2.7	Bushings for the National Grid System	Issue I Sep-92
*	NGTS 3.2.9	Post Insulators for Substations	Issue I May-96
*	NGTS 3.3.2	Dry-Type Reactors	Issue I Sep-92
*	NGTS 3.3.3	Co-ordinating Gaps	Issue I Sep-92
*	NGTS 2.6	Protection	Issue 2 Jun-94
*	NGTS 3.6.3	Busbar Protection for 400 kV and 275 kV Double Busbar Switching Stations	Issue 3 Nov-98
*	NGTS 3.6.8	Circuit-Breaker Fail Protection	Issue 2 Jun-95
*	NGTS 3.11.1	Capacitors and Capacitor Banks	Issue 1 Mar-93

It is noted that NGC Grid Code requirements only apply to equipment in bays within the NGC busbar protection zone and does not impose standards on Users equipment outside this Zone.

3 Scottish Transmission Standards

3.1 Current Scottish Grid Code Standards

3.1.1 Planning Code Appendix A Scottish Power

Security of Supply TDM 13/10,001 Issue 2 (Licence Standard)

System Phasing TDM 13/10,002 Issue 4

Criteria for System Voltage Control and Reactive Compensation Studies TDM 13/10,003

Planning Limits for Voltage Fluctuations Caused by Industrial, Commercial and Domestic Equipment in the United Kingdom. ER P28

EHV or HV Supplies to Induction Furnaces ER P16 (Supported by ACE Report No.48)

Limits for Harmonics in the United Kingdom Electricity Supply System ER G5/4 (Supported by ACE Report No.73)

AC Traction Supplies to British Rail ER P24

3.1.2 Planning Code Appendix A Scottish and Southern

Security of Supply TM9001 (Licence Standard)

Security of supply to Demand groups of various sizes ER P2/5

Security of the System as a whole. NSP366

Complexity of (132 kV) circuits. ER P18

Transient stability criteria NSP366 & PLMST-4

System Phasing TPS 13/4

Criteria for System Voltage Control and Reactive Compensation Studies TDM13/9

Planning Limits for Voltage Fluctuations Caused by Industrial, Commercial and Domestic Equipment in the United Kingdom ER P28

Limits for Harmonics in the United Kingdom Electricity Supply System ER G5/4 (Supported by ACE Report No.73)

AC Traction Supplies to British Rail ER P24

Operational Memoranda (SOM)

Main System operating procedure.	SOM 1
Operational standards of security.	SOM 3
Voltage and reactive control on main system.	SOM 4
System warnings and procedures for instructed load reduction.	SOM 7
Continuous tape recording of system control telephone messages and instructions.	SOM 10
Emergency action in the event of an exceptionally serious breakdown of the main system.	SOM 15

Planning Limits for Voltage Unbalance in the United Kingdom. ER P29

3.2 Additional Scottish Grid Code Standards

The Scottish Grid Code Review Panel should review whether the standards identified below are relevant to defining the requirements of the Scottish Grid Codes.

Engineering Recommendation G75 Recommendations for the connection of embedded generating plant to Public Electricity Suppliers' distribution systems above 20kV or with outputs over 5MW.

Engineering Recommendation G74 Procedure to meet the requirements of IEC 909 for the calculation of short-circuit currents in three-phase AC power systems.

Engineering Recommendation P29 Planning limits for voltage unbalance in the United Kingdom for 132kV and below.

Each Scottish Company should also review the schedules of referenced standards in Appendix A of the Planning Code above to determine whether the lists are complete taking into account the scope of the two company lists in aggregate.