

A REPORT TO THE AUTHORITY
Pursuant to Paragraph 2 of Condition C14 of the
Transmission Licence

Grid Code Changes to Appendix 5 of the Connection
Conditions: Technical Requirements for Low
Frequency Relays

The purpose of this document is to assist the Authority in its
decision of whether to implement the proposed
Grid Code Modification

Consultation Paper Ref	A/06
Issue	1.0
Date of Issue	5 th June 2006
Prepared by	National Grid

DISTRIBUTION

Name	Organisation
Authority	Ofgem
Grid Code Review Panel Members	Various
National Grid Industry Information Website	

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SUMMARY OF PROPOSALS

- 0.1 At the Grid Code Review Panel in February 2006, National Grid proposed that the Low Frequency Relay specification (CC.A.5) should be updated to align it with the recent introduction of ENA Technical Specification 48-6-5 Issue 1, 2005 that deals with the functional testing of Low Frequency Relays.
- 0.2 The changes proposed within this report would see inclusion of a new Grid Code provision for the functional testing of Low Frequency Relays and the addition of a new technical requirement covering the area of accuracy.
- 0.3 National Grid has consulted Authorised Electricity Operators' on this issue. All parties who responded to the consultation supported the proposed changes subject to minor changes to the legal text. These changes provide additional clarity to Users regarding the testing requirements and have no impact on the original intention of the amendment.
- 0.4 National Grid recommends to the Authority that these proposals be approved as they will allow for greater consistency between the Grid Code technical requirements and the ENA's technical specification used by the DNOs. National Grid also believes that the changes, if approved, will improve transparency by publicising the functional test requirements that embedded Low Frequency Relays will be required to meet.

A INTRODUCTION

1. Paragraph 2 of Condition C14 of the Transmission Licence granted to the National Grid Electricity Transmission plc ("National Grid") provides that National Grid shall, in consultation with Authorised Electricity Operators liable to be materially affected thereby, periodically review the Grid Code and its implementation. That paragraph also requires National Grid, following such review, to send to the Authority:-
 - (a) a report on the outcome of such review;
 - (b) any proposed revisions to the Grid Code as National Grid (having regard to the outcome of such review) reasonably thinks fit for the achievement of the objectives set out in sub-paragraph (b) of Condition C14 of the Transmission Licence; and
 - (c) any written representations or objections from authorised electricity operators (including any proposals by such operators for revisions to the Grid Code not accepted by National Grid in the course of the review) arising during the consultation process and subsequently maintained.
2. National Grid has just completed a review of the Grid Code. The review is concerned with amending Appendix 5 of the Grid Code that includes an indication of the technical requirements of Low Frequency Relays used as part of the automatic low frequency demand disconnection scheme specified under Operating Code OC6.6. The proposed change is to ensure that the Grid Code requirements are consistent with those contained in Energy Networks Association (ENA) Technical Specification 48-6-5 Issue 1, 2005, used by the Distribution Network Operators.
3. The proposed changes to the Grid Code were discussed at the Grid Code Review Panel meeting on 23rd February 2006. Panel Members agreed that having taken account of comments received, National Grid should issue a Consultation Paper.
4. National Grid, in accordance with its obligations under its Transmission Licence, consulted authorised electricity operators by including Consultation Paper A/06 on the National Grid Industry Information website. Consultation Paper A/06 contained an explanation of the proposed amendments to the Grid Code and a copy of Consultation Paper A/06 is attached to this Report as Appendix B. National Grid informed interested parties that a copy of the Consultation Paper had been placed on its website to ensure its wide availability.
5. Comments were invited from all such authorised electricity operators by 10th May 2006. National Grid received four responses from authorised electricity operators.
6. The proposed revisions to the Grid Code are explained below.

B. DESCRIPTION OF THE PROPOSED AMENDMENTS AND THEIR EFFECTS

Background

7. The electricity system in Great Britain is protected against system collapse due to a severe fall in system frequency by the national automatic low frequency demand disconnection scheme specified under Grid Code OC6.6. This was originally conceived by the CEGB and the Scottish companies in the late 1960's and further developed in the 1970's and 1980's. In the event of a large fall in system frequency caused by very severe generation deficits beyond normal planning and operational security standards, the relays are specified to operate to disconnect customer demand in stages. In total, up to 60% of system demand in England and Wales (and 40% in Scotland) can be disconnected by the Low Frequency Relays.
8. An indication of the technical requirements for these relays can be found in Appendix 5 to the Connection Conditions and is referenced from CC.6.4.3. Further requirements on National Grid and Distribution Network Operators relating to the settings and operation of the automatic low frequency demand disconnection scheme are included in OC6.6.
9. A review of the relay settings and overall performance of the scheme carried out by National Grid identified the need to replace the old slow relays with modern fast acting ones, in addition to some setting changes. Some relays have already been replaced by the DNOs but for the remaining ones, a DNO replacement programme over their Price Control Review period and funding was agreed by Ofgem in 2002.
10. National Grid has supported the DNOs and the Energy Network Association subgroup 'Protection Relay Assessment and Approval Panel' to ensure that the specification and functional testing for approval of modern replacement relays was adequate and consistent. Relays from a number of manufacturers have now been approved by the ENA.
11. Based on this experience, the ENA introduced during 2005, a technical specification on functional test requirements for voltage and frequency protection relays. This specification covers the functional testing of Low Frequency Relays required to meet the Grid Code CC.A.5. It also includes an additional technical requirement on accuracy not specified under CC.A.5.1.1.
12. To ensure consistency between the Grid Code technical requirements and the ENA's technical requirements used by the DNOs, it is proposed that the technical requirements included in CC.A.5.1.1 are updated to line up with the ENA technical specification and functional test requirements. This would improve transparency by publicising the functional test requirements that embedded Low Frequency Relays will be required to meet.

C. CONSULTATION RESPONSES

13. As indicated above National Grid received responses from four Authorised Electricity Operators. These responses along with National Grid's replies are included as Appendix C.

14. All respondents indicated their support for the proposed changes as it would ensure that the Grid Code technical requirements for Low Frequency Relays are consistent with those contained in Energy Networks Association (ENA) Technical Specification 48-6-5 Issue 1, 2005.
15. Respondent A/06-CR-01 (E.ON UK) was supportive of the proposed changes to Connection Conditions Appendix 5.
16. Respondent A/06-CR-02 (Magnox Electric Ltd) indicated their support for the proposed Grid Code modification as they believed it was sensible to update the Grid Code to recognise advances in technology with respect to low frequency relays.
17. Respondent A/06-CR-03 (SP Transmission and Distribution) was generally supportive of the proposed modifications. SP Transmission and Distribution had concerns that the proposed legal text for paragraph CC.A.5.4.1 could be interpreted incorrectly by users. National Grid has agreed to provide additional clarity to paragraph CC.A.5.4.1 so that the associated wording reflects that the ENA specification is concerned with the **TYPE** testing of Low Frequency Relays.
18. Respondent A/06-CR-04 (United Utilities) was also supportive of the proposed changes to Connection Conditions Appendix 5.

D. LEGAL TEXT AND RECOMMENDATIONS

19. Connection Conditions – Appendix 5
It is proposed to amend Appendix 5 of the Connection Conditions so that the provisions are updated to line up with the ENA technical specification and functional test requirements. It is also proposed to introduce new provisions for the type testing of Low Frequency Relays.
20. The Proposed Grid Code changes are shown in Appendix A with deletions shown struck through and insertions highlighted by text in red and double underlined. Changes to the legal text which was consulted upon are highlighted in yellow.
21. As indicated above, having regard to the outcome of the review described in this Report, National Grid proposes the revisions to the Grid Code set out in Appendix A, which revisions we reasonably think fit for the achievement of the objectives referred to in sub-paragraph (b) of paragraph 1 of Condition C14 of the Transmission Licence. In view of this, National Grid would be grateful if the Authority would approve the revisions pursuant to paragraph 3 of Condition C14 of the Transmission Licence.
22. Given the logistic exercise of organising replacement pages to reflect the changes required by your letter of approval, I would be grateful if you would contact me prior to issuing any letter specifying an effective date, in order to seek to ensure that the date is consistent with any other Code changes which may then be approved or be close to being approved.

Lilian Macleod

APPENDIX A: PROPOSED REVISIONS TO THE GRID CODE

Proposed Connection Conditions – Appendix 5 Changes

APPENDIX 5

TECHNICAL REQUIREMENTS LOW FREQUENCY RELAYS FOR THE AUTOMATIC DISCONNECTION OF SUPPLIES AT LOW FREQUENCY

CC.A.5.1

LOW FREQUENCY RELAYS

CC.A.5.1.1

The **Low Frequency Relays** to be used shall be in accordance with the requirements of the **Bilateral Agreement**. They should have a setting range of 47.0 to 50Hz and be suitable for operation from a nominal AC input of 63.5, 110 or 240V. The following general parameters on the requirements of approved **Low Frequency Relays** for automatic installations is given as an indication, without prejudice to the provisions that may be included in a **Bilateral Agreement**:

- (a) **Frequency** settings: 47-50Hz in steps of ~~0.05Hz~~ or better, preferably 0.01Hz;
- ~~(b) Measurement period~~ Within a minimum ~~settings:~~ selectable settings range of 4 to 6 cycles;
- ~~(be)~~ Operating time: Between 100 and 150ms dependent on measurement period ~~setting~~;
- ~~(cd)~~ Voltage lock-out: Selectable within a range of 55 to 90% of nominal voltage;
- ~~(de)~~ Facility stages: One or two stages of **Frequency** operation;
- ~~(ef)~~ Output contacts: Two output contacts per stage to be capable of repetitively making and breaking for 1000 operations.
- ~~(f)~~ Accuracy: 0.01 Hz maximum error under reference environmental and system voltage conditions.
0.05 Hz maximum error at 8% total harmonic distortion Electromagnetic Compatibility Level.

Insert new paragraph after CC.A.5.3

CC.A.5.4 **LOW FREQUENCY RELAY TESTING**

CC.A.5.4.1 **Low Frequency Relays** installed and commissioned after 1st January 2007 shall be **be-type** tested in accordance with and comply with the functional test requirements for **Frequency Protection** contained in Energy Networks Association Technical **Specification 48-6-5 Issue 1** dated 2005 “**ENA Protection Assessment Functional Test Requirements – Voltage and Frequency Protection**”.

For the avoidance of doubt, **Low Frequency Relays** installed and commissioned before 1st January 2007 shall comply with the version of CC.A.5.1.1 applicable at the time such **Low Frequency Relays** were commissioned.

APPENDIX B: CONSULTATION PAPER A/06



**GRID CODE
CONSULTATION DOCUMENT**

**Grid Code Changes to Appendix 5 of the Connection
Conditions: Technical Requirements for Low
Frequency Relays**

The purpose of this document is to consult on the above Grid Code Modification Proposal with authorised electricity operators liable to be materially affected by the proposed changes and forms the basis of the subsequent Report to the Authority

Consultation Ref	A/06
Issue	1
Date of Issue	12 th April 2006
Responses required by	10th May 2006
Prepared by	National Grid

DOCUMENT LOCATION

National Grid website:

<http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/consultationpapers/>

DISTRIBUTION

Name	Organisation
AEO's	Various
GCRP Members/Alternates	Various
Interested Parties	Various
National Grid Website	

A. INTRODUCTION

1. Paragraph 2 of Condition C14 of the Transmission Licence granted to the National Grid Electricity Transmission plc ("National Grid") provides that National Grid shall, in consultation with authorised electricity operators liable to be materially affected thereby, periodically review the Grid Code and its implementation. That paragraph also requires National Grid, following such review, to send to the Authority:-
 - (a) a report on the outcome of such review;
 - (b) any proposed revisions to the Grid Code as National Grid (having regard to the outcome of such review) reasonably thinks fit for the achievement of the objectives set out in sub-paragraph (b) of Condition C14 of the Transmission Licence; and
 - (c) any written representations or objections from authorised electricity operators (including any proposals by such operators for revisions to the Grid Code not accepted by National Grid in the course of the review) arising during the consultation process and subsequently maintained.
2. This review is concerned with amending Appendix 5 of the Grid Code Connection Conditions that includes an indication of the technical requirements of Low Frequency Relays used as part of the automatic low frequency demand disconnection scheme specified under Operating Code OC6.6. The proposed change is to ensure that the Grid Code requirements are consistent with those contained in Energy Networks Association (ENA) Technical Specification 48-6-5 Issue 1, 2005, used by the Distribution Network Operators.
3. The proposed changes to the Grid Code were discussed with the Grid Code Review Panel on 23rd February 2006. Panel Members agreed that having taken account of comments received, National Grid should issue a Consultation Paper.
4. The revisions to the Grid Code proposed by National Grid and sent to the Authority, require approval by that body and will, if approved, come into force on such date (or dates) of which you will be notified by National Grid, in accordance with the Authority's approval.
5. Comments should be sent to National Grid by 10th May 2006 as detailed in section C. The comments will be reviewed and responded to.
6. Unless otherwise marked as confidential any responses including those containing objections to the proposals which are sustained will be published on our website.

B. DESCRIPTION OF THE PROPOSED AMENDMENTS AND THEIR EFFECTS

7. Background

- 7.1 The electricity system in Great Britain is protected against system collapse due to a severe fall in system frequency by the national automatic low frequency demand disconnection scheme specified under Grid Code OC6.6. This was originally conceived by the CEGB and the Scottish companies in the late 1960's and further developed in the 1970's and 1980's. In the event of a large fall in system frequency caused by very severe generation deficits beyond normal planning and operational security standards, the relays are specified to operate to disconnect customer demand in stages. In total, up to 60% of system demand in England and Wales (and 40% in Scotland) can be disconnected by the Low Frequency Relays.
- 7.2 An indication of the technical requirements for these relays can be found in Appendix 5 to the Connection Conditions and is referenced from CC.6.4.3. Further requirements on National Grid and Distribution Network Operators relating to the settings and operation of the automatic low frequency demand disconnection scheme are included in OC6.6.
- 7.3 A review of the relay settings and overall performance of the scheme carried out by National Grid identified the need to replace the old slow relays with modern fast acting ones, in addition to some setting changes. Some relays have already been replaced by the DNOs but for the remaining ones, a DNO replacement programme over their Price Control Review period and funding was agreed by Ofgem in 2002.
- 7.4 National Grid has supported the DNOs and the Energy Network Association subgroup 'Protection Relay Assessment and Approval Panel' to ensure that the specification and functional testing for approval of modern replacement relays was adequate and consistent. Relays from a number of manufacturers have now been approved by the ENA.
- 7.5 Based on this experience, the ENA introduced during 2005, a technical specification on functional test requirements for voltage and frequency protection relays. This specification covers the functional testing of Low Frequency Relays required to meet the Grid Code CC.A.5. It also includes an additional technical requirement on accuracy not specified under CC.A.5.1.1.

8. Proposed Changes

- 8.1 It is proposed that the technical requirements included in CC.A.5.1.1 are updated to line up with the ENA technical specification and functional test requirements.
- 8.2 The changes would ensure consistency between the Grid Code technical requirements and the ENA's technical specification used by the DNOs. This would also improve transparency by publicising the functional test requirements that embedded Low Frequency Relays will be required to meet.

8.3 The proposed changes to Grid Code CC.A.5 are shown in Appendix 1.

C. RESPONSES

9. This section will contain a summary of responses received during the Consultation and will be completed as part of the Report to the Authority.

10. Your formal responses may be:-

Posted to: Lilian Macleod
 Electricity Codes
 Commercial Frameworks
 National Grid Electricity Transmission plc
 National Grid House
 Warwick Technology Park
 Gallows Hill
 Warwick
 CV34 6DA

Emailed to: lilian.macleod@uk.ngrid.com

Appendix 1

Proposed Connection Conditions – Appendix 5 Changes

APPENDIX 5

TECHNICAL REQUIREMENTS LOW FREQUENCY RELAYS FOR THE AUTOMATIC DISCONNECTION OF SUPPLIES AT LOW FREQUENCY

CC.A.5.1

LOW FREQUENCY RELAYS

CC.A.5.1.1

The **Low Frequency Relays** to be used shall be in accordance with the requirements of the **Bilateral Agreement**. They should have a setting range of 47.0 to 50Hz and be suitable for operation from a nominal AC input of 63.5, 110 or 240V. The following general parameters on the requirements of approved **Low Frequency Relays** for automatic installations is given as an indication, without prejudice to the provisions that may be included in a **Bilateral Agreement**:

- (a) **Frequency** settings: 47-50Hz in steps of ~~0.05Hz~~ or better, preferably 0.01Hz;
- ~~(b)~~ **Measurement period** ~~Within a minimum~~ settings: ~~selectable settings range of~~ 4 to 6 cycles;
- ~~(b)~~ **Operating time:** Between 100 and 150ms dependent on measurement period ~~setting~~;
- ~~(c)~~ **Voltage lock-out:** Selectable within a range of 55 to 90% of nominal voltage;
- ~~(d)~~ **Facility stages:** One or two stages of **Frequency** operation;
- ~~(e)~~ **Output contacts:** Two output contacts per stage to be capable of repetitively making and breaking for 1000 operations.
- ~~(f)~~ **Accuracy:** 0.01 Hz maximum error under reference environmental and system voltage conditions.
0.05 Hz maximum error at 8% total harmonic distortion

**Electromagnetic
Compatibility Level.**

CC.A.5.2

LOW FREQUENCY RELAY VOLTAGE SUPPLIES

CC.A.5.2.1

It is essential that the voltage supply to the **Low Frequency Relays** shall be derived from the primary **System** at the supply point concerned so that the **Frequency** of the **Low Frequency Relays** input voltage is the same as that of the primary **System**. This requires either:

- (a) the use of a secure supply obtained from voltage transformers directly associated with the grid transformer(s) concerned, the supply being obtained where necessary via a suitable automatic voltage selection scheme; or
- (b) the use of the substation 240V phase-to-neutral selected auxiliary supply, provided that this supply is always derived at the supply point concerned and is never derived from a standby supply **Generating Unit** or from another part of the **User System**.

CC.A.5.3

SCHEME REQUIREMENTS

CC.A.5.3.1

The tripping facility should be engineered in accordance with the following reliability considerations:

(a) Dependability

Failure to trip at any one particular **Demand** shedding point would not harm the overall operation of the scheme. However, many failures would have the effect of reducing the amount of **Demand** under low **Frequency** control. An overall reasonable minimum requirement for the dependability of the **Demand** shedding scheme is 96%, ie. the average probability of failure of each **Demand** shedding point should be less than 4%. Thus the **Demand** under low **Frequency** control will not be reduced by more than 4% due to relay failure.

(b) Outages

Low **Frequency Demand** shedding schemes will be engineered such that the amount of **Demand** under control is as specified by **NGET** and is not reduced unacceptably during equipment outage or maintenance conditions

CC.A.5.4 **LOW FREQUENCY RELAY TESTING**

CC.A.5.4.1 **Low Frequency Relays** installed and commissioned after 1st January 2007 shall be tested in accordance with and comply with the functional test requirements for **Frequency Protection** contained in **Energy Networks Association Technical specification 48-6-5 Issue 1 dated 2005 "ENA Protection Assessment Functional Test Requirements – Voltage and Frequency Protection"**.

For the avoidance of doubt, **Low Frequency Relays** installed and commissioned before 1st January 2007 shall comply with the version of CC.A.5.1.1 applicable at the time such **Low Frequency Relays** were commissioned.

APPENDIX C: CONSULTATION RESPONSES TO THE PROPOSED CHANGE

The following Appendix contains copies of all representations received from Authorised Electricity Operators through the consultation period.

Original Responses to A/06 Consultation

No.	Company	File Number
1	E-ON UK	A/06-CR-01
2	Magnox Electric	A/06-CR-02
3	SP Transmission and Distribution	A/06-CR-03
4	United Utilities	A/06-CR-04

National Grid Replies to Consultation Responses

No.	Company	File Number
1	E-ON UK	A/06-CRR-01
2	Magnox Electric	A/06-CRR-02
3	SP Transmission and Distribution	A/06-CRR-03
4	United Utilities	A/06-CRR-04

Reference	A/06-CR-01
Company	E-ON UK



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eon-uk.com

Claire Maxim
024 7642 5378

claire.maxim@eon-uk.com

Tuesday 2nd May 2006

Dear Lilian,

**Response to Grid Code Consultation A/06 – Grid Code Changes to
Appendix 5 of the Connection Conditions: Technical Requirements for
Low Frequency Response Relays**

Thank you for the opportunity to respond to the above consultation. This response is on behalf of E.ON UK, Enfield Energy Centre Ltd and Cottam Development Centre Ltd.

We have no adverse comments on the proposals.

If you have any queries, please do not hesitate to contact me on the above number.

Yours sincerely

Claire Maxim
Lead Contract Manager

E.ON UK plc
Registered in
England and Wales
No 2366970
Registered Office:
Westwood Way
Westwood Business Park
Coventry CV4 8LG

1 | 1

Reference	A/06-CR-02
Company	Magnox Electric Ltd

From: david.m.ward@magnox.co.uk [mailto:david.m.ward@magnox.co.uk]
Sent: Thursday, April 13, 2006 1:53 PM
To: Macleod, Lillian
Subject: Fw: Grid Code Consultation A/06

Lillian Macleod
Electricity Codes
Commercial Frameworks
National Grid Electricity Transmission plc
National Grid House
Warwick Technology Park
Gallows Hill
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(By email)

Lillian

Grid Code Consultation Paper A/06
Grid Code Changes to Appendix 5 of the Connection Conditions: Technical
Requirements for Low Frequency Relays

This email is the formal response of Magnox Electric Ltd to the above
consultation paper. Magnox Electric Ltd is part of the British Nuclear Group,
which is the new name for part of BNFL. My comments are not confidential.

This proposed change appears to be a sensible updating of the Code to recognise
advances in technology with respect to low frequency relays. This change has
no effect on us as generators, and we are happy to accept it.

I hope my comments are helpful.

Regards

David Ward

Magnox Electric Ltd
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United Kingdom

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Email: david.m.ward@magnox.co.uk

Magnox Electric Ltd is a part of British Nuclear Group

Reference	A/06-CR-03
Company	SP Transmission and Distribution

From: Nicol, David [mailto:David.Nicol@scottishpower.plc.uk]
Sent: Tuesday, May 16, 2006 9:04 AM
To: Duffield, Mark; Macleod, Lilian
Subject: Grid Code Consultation A/06

SPT&D supports the underlying proposals behind A/06. However, as drafted we believe that the wording is misleading.

The phrasing "LF Relays installed and commissioned after 1st January 2007 shall be tested" implies that each individual relay should be tested. I understand that the ENA specification calls for type testing. Thus each individual relay would not necessarily be tested.

David Nicol

Reference	A/06-CR-04
Company	United Utilities



United Utilities North West
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Telephone 01925 237000
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Direct line 01925 233303
mkay@lee.org

26 April 2006

Dear Lilian

Technical Requirements for LF Relays – A/06

United Utilities supports the proposed Grid Code amendments in this consultation. We have no detailed comments, and believe the drafting to be satisfactory.

Yours sincerely,

**Mike
Kay**
Mike Kay
Chief Engineer
Electricity Business Stream

Digitally signed by Mike Kay
DN: cn = Mike Kay, c =
UK, o = United Utilities, ou =
Group Strategic Planning
Reason: I am the author of
this document.
Date: 2006.04.26 19:18:41
+01'00'

United Utilities Electricity PLC
Registered in England & Wales No. 2366949
Registered office: Dawson House, Great Sankey
Warrington WA5 3LW

Reference	A/06-CRR-01
Company	E-ON UK



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Lilian Macleod
Commercial Analyst

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22 May 2006

Dear Claire

A/06 – Grid Code Changes to Appendix 5 of the Connection Conditions: Technical Requirements for Low Frequency Relays

Thank you for your comments on the above Grid Code consultation received 2nd May 2006.

National Grid notes your support for the proposed revisions to the Grid Code. Your comments will be included in the associated Report to the Authority.

Thank you for taking time to respond to this consultation.

Yours sincerely

Lilian Macleod
Commercial Analyst, Electricity Balancing and Codes

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Registered in England and Wales, No 2366977

Reference	A/06-CRR-02
Company	Magnox Electric Ltd



National Grid House
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David Ward
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22 May 2006

Dear David

A/06 – Grid Code Changes to Appendix 5 of the Connection Conditions: Technical Requirements for Low Frequency Relays

Thank you for your comments on the above Grid Code consultation received 13th April 2006.

National Grid notes your support for the proposed revisions to the Grid Code. Your comments will be included in the associated Report to the Authority.

Thank you for taking time to respond to this consultation.

Yours sincerely

Lilian Macleod
Commercial Analyst, Electricity Balancing and Codes

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Registered in England and Wales, No 2366977

Reference	A/06-CRR-03
Company	SP Transmission and Distribution



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22 May 2006

Dear David

A/06 – Grid Code Changes to Appendix 5 of the Connection Conditions: Technical Requirements for Low Frequency Response Relays

Thank you for your comments on the above Grid Code consultation received 16th May 2006. National Grid notes your support for the underlying proposals behind this modification.

In your reply you highlight that the associated legal text for new Low Frequency Relay provisions is, in your view, potentially misleading for Users. The potential for confusion being caused by the ENA specification specifying that relays be type tested, whereas the Grid Code drafting infers that relays must be individually tested.

National Grid agrees that minor changes to CC.A.5.4.1 would be helpful in clarifying the testing requirements and would suggest the following amendments to be made to the legal text that has been consulted upon.

Paragraph CC.A.5.4.1 would read as follows:

CC.A.5.4.1 Low Frequency Relays installed and commissioned after 1st January 2007 should be **type** tested in accordance with and comply with the functional test requirements for **Frequency Protection** contained in Energy Network Association Technical Specification 48-6-5 Issue 1 dated 2005 "ENA Protection Assessment Functional Test Requirements – Voltage and Frequency Protection".

I hope that the above change mitigates the concerns that you have raised in your response and we shall include your comments in the associated Report to the Authority.

Thank you again for taking the time to respond to this consultation.

Yours sincerely

Lilian Macleod
Commercial Analyst, Electricity Balancing and Codes

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National Grid Electricity Transmission plc
Registered Office: 1-3 Strand, London WC2N 5EH
Registered in England and Wales, No 2366977

Reference	A/06-CRR-04
Company	United Utilities



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22 May 2006

Dear Mike

A/06 – Grid Code Changes to Appendix 5 of the Connection Conditions: Technical Requirements for Low Frequency Relays

Thank you for your comments on the above Grid Code consultation received 26th April 2006.

National Grid notes your support for the proposed revisions to the Grid Code. Your comments will be included in the associated Report to the Authority.

Thank you for taking time to respond to this consultation.

Yours sincerely

Lilian Macleod
Commercial Analyst, Electricity Balancing and Codes

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