Frequency Changes during Large Disturbances and their Impact on the Total System

Volume 3

This document contains responses to the second industry consultation and network licensees' replies.

Document Control

Version	Date	Change Reference
1.0	9 May 2014	Report to the Authority

Ref	Company	Supportive
GC0035 (2) - CR-01	London Underground	Yes
GC0035 (2) - CR-02	Northern Powergrid	Yes
GC0035 (2) - CR-03	EDF Energy	Yes
GC0035 (2) - CR-04	RWE	No
GC0035 (2) - CR-05	Scottish Power Generation	Yes (subject to amendments)
GC0035 (2) - CR-06	E.ON UK	Yes
GC0035 (2) - CR-07	SSE Generation Ltd & SSE Renewable UK Ltd	Mixed
GC0035 (2) - CR-08	ESB	Mixed
GC0035 (2) - CR-09	Energy UK	Yes
GC0035 (2) - CR-10	Electricity North West	Yes
GC0035 (2) - CR-11	Western Power Distribution	Yes

Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Russell Fleetwood*
Company Name:	*London Underground*

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Yes it does although I query as to why there is a difference in settings recommended for synchronous generators commissioned before 1st July 2016 of a minimum setting of 0.5Hzs-1. I would expect it would be preferable and easier for one change fits all, i.e. 1Hzs-1, using a delay setting of 500ms.
(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	Yes, although refer to statement above.

(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Yes
(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity Yes, in providing better security of supply and managing risk/safety mitigation.
		(ii) to facilitate competition in the generation and supply of electricity Yes, for the reasons given in (i) above.
		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators. Yes, for the reasons given in (ii) above.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

6th Floor, Dean Bradley House
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www.energynetworks.org

"By Email"

Mr Russell Fleetwood
London Underground
55 Broadway
London
SW1H 0BD

2 May 2014

Dear Russell,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation.

Licensees agree, in the absence of other considerations, that it would be preferable and easier for all generators to have the same setting of $1Hzs^{-1}$. Feedback from the first consultation indicated that, whilst new generators are able to specify plant which can meet a $1Hzs^{-1}$ setting, existing generators may not be able to meet the required setting so a minimum setting of $0.5Hzs^{-1}$ has been recommended for such plant.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

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Date: 2014.05.01 13:43:05 +01'00'

Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Mick Walbank*
Company Name:	*Northern Powergrid*

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Yes.
(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	Yes

(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Yes
(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity No – The proposed changes are neutral to the facilitation of the Distribution Code objectives in that the proposed changes neither improve nor reduce the development, maintenance, operation of an efficient, co-ordinated and economical system. However, the proposed changes do better facilitate the Grid Code objectives of an efficient, co-ordinated and economical system as shown in the cost benefit analysis
		(ii) to facilitate competition in the generation and supply of electricity No – the proposed changes are neutral to the facilitation of competition in generation and supply as the proposed changes are applied to all new participants greater than 5MW

		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators. No – The obligations imposed on the distribution company will not change with this proposed change in protection settings. Therefore we believe that the changes are neutral.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Mr Mick Wallbank
Northern Powergrid
98 Aketon Road
Castleford
West Yorkshire
WF10 5DS

2 May 2014

Dear Mick,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

The licensees would like to thank you for your response to this consultation.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

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Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
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Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

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Respondent:	Paul Mott
Company Name:	EDF Energy

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Yes, the proposed drafting is thoughtful in ensuring that no un-necessary costs are incurred by any category of embedded generator of above 5 MW, yet ensuring also that the move to resilience against 1 Hz per second is made in good time. The approach appears exemplary.
(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	Yes, the recommendation is unambiguous, and therefore easy to comprehend

(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Yes
(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes. We would make one comment : it is currently the case that G59 is treated by the ENA as a proprietary, copyright document, for which a licence fee of £185 per user (not even per firm) is charged, after a copyright agreement has been agreed-to by said user. This is inappropriate, and archaic, for what is in effect a public standards document, that has been publicly agreed (including, via this public consultation). Compliance will be made far easier if the document is open-access, and free to view – just like the Distribution Code proper, of which it is an exhibit.
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity Yes (avoids power cuts and resultant undesirable effects on all transmission system users, in future)
		(ii) to facilitate competition in the generation and supply of electricity Yes (risk of collapse of transmission system is commercially damaging to all participants)
		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators. Not directly relevant, but we note that the same issue is in play in other member states, and that this change was given effect to in Ireland from 6th September 2013. We also note that the tables 1 and 3 in article 19 the current draft of the operational security electricity network code, a draft new European code, is consistent with resilience to a value of 1 Hz per second.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"
Mr Paul Mott
EDF Energy
40 Grosvenor Place
London
SW1X 7EN

2 May 2014

Dear Paul,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation and thank you for highlighting areas of support.

The Licensees note your comment regarding the licence fee for G59 and respond that the costs for G59 defray the maintenance costs of the document (including this current exercise). Charging for the document has the advantage of ensuring there is no cross subsidy to the document users from the pools of distribution network customers. However the DNOs will not be charging those who have a current copy of G59/3 – a revised version will be provided free of charge. The costs are modest and not out of line with the costs of British Standards which in many ways are equivalent documents.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

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Date: 2014.05.01 13:16:08 +01'00'

Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	John Norbury Network Connections Manager RWE Supply & Trading GmbH Windmill Hill Business Park Whitehill Way Swindon SN5 6PB T +44 (0)1793 89 2667 M +44 (0)7795 354 382 john.norbury@rwe.com
Company Name:	RWE Group of GB companies, including RWE Npower plc, RWE Innogy UK Limited and RWE Supply & Trading GmbH.

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	G59 Clause 10.5.7.1 – it is suggested that the footnote labelled 'Ω' be amended as follows: "Unless agreed otherwise in accordance with the provisions of DPC7.4.3.6, the minimum setting is 0.5Hz/s...." DPC7.4.3.4 – Table, RoCoF settings. It is not clear why different settings have been proposed for synchronous generators, pre-2016 (0.5Hzs-1) and post-2016 (1.0Hzs-1). All synchronous generators will be subject to a mal-sync risk, irrespective of the completion date. There is no alternative solution that can be engineered for new generators as opposed to existing generators that would reduce this risk. It is therefore suggested that the requirements be amended to recommend a setting of 0.5Hzs-1 for all embedded synchronous generators between 5MW and 50MW, whilst noting the 1Hzs-1 is preferable but also that a risk assessment may indicate a more sensitive setting of 0.125Hzs-1.

(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	G59 Clause 10.5.7.1 (4) It is proposed that the commissioning date and hence the required RoCoF settings be dependent on the date by which the G59 tests have been completed to the DNO's satisfaction. This date which determines which settings should apply may be difficult to implement, since an unexpected delay to the tests may trigger the requirement for different settings. It may therefore be preferable to relate the required settings to the date upon which the generating unit first exports power to the distribution system.

(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	G59 Clause 13.11.2 – Guidance The term 'failed' implies incorrect operation which would not be the case. It is therefore suggested that the final sentence be amended as follows: "...and the loss of mains protection has ~~failed to disconnect~~ not operated due to insufficiently sensitive LoM setting, resulting in no disconnection of the Generating Unit before the supply is restored..." Clause G59 13.11.4 – Guidance An estimate of the trapped load is not sufficient information to enable the Generator to carry out a risk assessment. Details of the trapped generation, including maximum and minimum stable generation, and the inertia of the trapped network is also required to assess the rate of change frequency for a given MW mismatch. Please amend the text to reflect this. Furthermore, it is not clear how future changes in the network would be communicated to Generators. Although some information is currently available in the public domain, it is not sufficiently detailed to enable a risk assessment to be carried out. It is therefore requested that a requirement be included within the text for the DNOs to inform all relevant embedded generators of any significant network changes. G59 Clause 13.11.8 - Guidance To provide flexibility in the information that may be provided by the DNO, it is suggested that this clause be amended as follows: "DNOs will provide the information above and also any additional information reasonably required, within a reasonable time when requested by the Generator" G59 Clause 13.11.10 – Guidance It is questionable what the benefit would be of the proposed modelling and simulation study, given the high numbers of possible demand/generation combinations and network configurations. It is suggested that a simplistic and high-level comparison of connected demand and generation to identify any gross mismatches would be sufficient to capture the magnitude of the risk to embedded generators. It is requested that the text be amended to include the mitigation options that might be adopted by the Generator. These options are expected to include the use of lower RoCoF settings, modification to auto-reclose times, use of check-sync at auto switching locations and the installation of intertripping schemes.

(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes subject to section 10.3.18 being amended as follows:- "It is the responsibility of the **Generator** to incorporate the most appropriate technique or combination of techniques to detect a LoM event in his protection systems. This will be based on knowledge of the **Generating Unit,** site and network load conditions. The **DNO** will assist in the decision making process by providing sufficient information on the **Distribution System** and its loads as reasonably requested by the Generator to achieve this. The technique and settings applied must be biased to ensure detection of islanding under all operating conditions as far as is reasonably practicable and with due consideration being given to the risk of non-detection of a LOM event ...."
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity No. The consultation paper describes the potential wider savings identified by National Grid but does not quantify the additional costs and risks that would be imposed on the Generator as a result of this change. Given that these savings would be achieved at the unquantified expense and risk to a single party (i.e. the Generator), we do not consider that this Distribution Code objective would be met.
		(ii) to facilitate competition in the generation and supply of electricity

		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Mr John Norbury
RWE Supply & Trading GmbH
Windmill Hill Business Park
Whitehill Way
Swindon
SN5 6PB

2 May 2014

Dear John,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during Spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation.

The licensees do not agree with your proposed change to G59 clause 10.5.7.1. We do not expect there to be reasons in general to agree other settings and an exception process already exists under Distribution Code governance.

You suggest that it is unclear why there are different permissible settings for pre and post 2016 generators. Feedback from the first consultation indicated that, whilst new generators are able to specify plant which can meet a $1Hzs^{-1}$ setting, existing generators may not be able to meet the required setting so a minimum setting of $0.5Hzs^{-1}$ has been recommended for such plant.

Regarding your comments on the commissioning date, the licensees note that commissioning date is now proposed to be defined in the Distribution Code. Although the licensees understand the risk articulated in your response, there is seldom any substantial delay in commissioning power stations of less than 50MW capacity.

The licensees have amended G59 clause 13.11.2 taking account of your suggested words.

For G59 clause 13.11.4, the licensees indicate that it will be the responsibility of the generator's consultant to estimate the information you list. G59 provides examples for completing this sort of calculation.

In relation to future network changes, the licensees indicate that for generators in this size range, the topology changes will be notified using established planning and information exchange processes.

The licensees agree that flexibility in the information that the DNO may provide is desirable, as such *"and any other relevant information reasonably required*", has been added to G59 clause 13.11.8

You requested that the text in G59 clause 13.11.10 be amended to included the mitigation options that might be adopted by the generator. At this stage it seems prudent to allow discussions between generator and network operator to develop sensible mitigations rather than presuppose a menu of options, although this might become clear in time. The intent of 13.11 is to give broad guidance to engineers to resolve these issues for themselves rather than provide prescriptive theoretical solutions.

The licensees agree that the addition of *"as reasonably requested by the generator"* is a useful addition to G59 section 10.3.18, but believe that the second addition to that paragraph is unnecessary.

You have commented that the proposals do not better facilitate the Distribution Code objectives. The licensees have received varying responses to this question with some respondents suggesting the proposals are strongly aligned with Grid Code objectives, a point which the licensees would not dispute. However, licensees remain of the view that proposals do better facilitate the Distribution Code objectives and facilitate the efficient operation of the networks in Great Britain in general.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

Digitally signed by Mike Kay
DN: cn=Mike Kay, o=Electricity North West, ou=Network Strategy, email=mkay@iee.org, c=GB
Date: 2014.05.01 13:48:22 +01'00'

Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	Alastair Frew
Company Name:	ScottishPower Generation

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Not clearly for Synchronous Generators commissioned before 1 July 2016. The recommendation on page 1 requires for Synchronous Generator “a minimum setting of 0.5Hz/s is permissible” Both the Executive Summary section 1.8 (d) &(e) & Revised Proposal sections 5.1 (d) & (e) specify an actual setpoint of 0.5Hz/s. The new tables in DPC7.4.3.4 & Engineering Recommendation G59 section 10.5.7.1 have the following:- Top row commissioned before 01/4/14 permitted until 01/7/16 “not greater than 0.5Hz/s” Both the second & third rows specify an actual value of 0.5Hz/s. All these values in the table have a reference to Ω in the notes which states “Ω The minimum setting is 0.5Hz/s...settings closer to 1.0Hz/s are desirable” I believe the intention for Synchronous Generators commissioned before 1/7/16 is 1.0Hz/s but lower levels down to 0.5Hz/s will be permitted, which is not clear from the above. Assuming my belief is correct I have attached at the end of the document what I believe the tables should look like.

(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	No. The new tables in DPC7.4.3.4 & Engineering Recommendation G59 section 10.5.7.1 cover in the top row plant commissioned before 1/4/14 and then in third row plant commissioned between1/7/14 and 30/6/16. Plant commissioned between the 1/4/14 and the 1/7/14 is not covered in these tables.
(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Yes
(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity

		(ii) to facilitate competition in the generation and supply of electricity
		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators.

Suggested new table for DPC7.4.3.4 & Engineering Recommendation G59 section 10.5.7.1

RoCoF§ settings for Power Stations ≥5MW				
Date of Commissioning		Small Power Stations		Medium Power Stations
		Asynchronous	Synchronous	
Generating Plant Expected Commissioned before 01/07/14	Settings permitted until 01/07/16	Not to be less than K2 x 0.125 Hz/s# and not to be greater than 1Hz/s¶#, time delay 0.5s	Not to be less than K2 x 0.125 Hz/s# and not to be greater than 1Hz/s¶#Ω, time delay 0.5s	Intertripping expected
	Settings permitted on or after 01/07/16	1Hz/s¶#, time delay 0.5s	Not to be less than 0.5Hz/s¶#Ω, time delay 0.5s and not to be greater than 1Hz/s¶#Ω, time delay 0.5s	Intertripping expected
Generating Plant commissioned between 01/07/14 and 30/06/16 inclusive		1Hz/s¶#, time delay 0.5s	Not to be less than 0.5Hz/s¶#Ω, time delay 0.5s and not to be greater than 1Hz/s¶#Ω, time delay 0.5s	Intertripping expected
Generating Plant commissioned on or after 01/07/16		1Hz/s¶#, time delay 0.5s	1Hz/s¶#, time delay 0.5s	Intertripping Expected

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Mr Alastair Frew
Scottish Power Generation Ltd
Cathcart House
Spean Street
Glasgow, G44 4GP

2 May 2014

Dear Alastair,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation.

With regard to your comments on the permitted settings, the Licensees note that, although alternative protection settings are allowed, the table details the preferred settings which would be applied in the majority of circumstances.

The licensees note that there was a typographical error in the tables in DPC7.4.3.4 and Engineering Recommendation G59 section 10.5.7.1. The top row of both tables stated 1/4/14 but should have stated 1/7/14, this has been corrected in the version that will be submitted to the Authority.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

Digitally signed by Mike Kay
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Date: 2014.05.01 13:45:01 +01'00'

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Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Guy Phillips*
Company Name:	*E.ON UK*

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Yes.
(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	Yes.

(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Yes.
(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes.
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity Based on the presented post consultation review cost benefit case yes, although as we previously stated it is not clear that the change proposed will have any tangible benefit prior to 2020 when the system ROCOF levels are predicted to exceed $0.5Hzs^{-1}$.
		(ii) to facilitate competition in the generation and supply of electricity We remain concerned about the potential cost to affected existing generators of complying with the new settings. This will place the affected estimated 146 existing distribution connected generators at a disadvantage as they will have to bear the additional cost of compliance unless an alternative source of funding can be provided.
		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators. We have no comments in relation to this objective.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Mr Guy Phillips
EON UK
Westwood Way
Westwood Business Park
Coventry
West Midlands
CV4 8LG

2 May 2014

Dear Guy,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation.

You stated that it is not clear that the change proposed will have any tangible benefit prior to 2020. The licensees recognise that there is always some uncertainty in any forecast of potential savings, but believe that these have been given appropriate consideration. National Grid's assessment is that benefits can be realised as soon as the proposed changes are implemented, and that these benefits will be greater than the costs of making the changes in a little over two years.

With regard to your comments on cost recovery, Network Licensees see the costs of risk assessment and any mitigation as a consequence of overall energy policy changes emanating from government. In the absence of any specific impact assessment by Government picking up this issue, the operation of normal practice is assumed to apply with costs lying where they fall, ie affected parties funding their own costs. However we know that Ofgem may consider this aspect in considering the Network Licensees recommendation. It should be noted that issues such as protection setting change are normal operational actions required for a variety of reasons, are marginal, and should not, in Network Licensees' opinion, be compensated for

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

Digitally signed by Mike Kay
DN: cn=Mike Kay, o=Electricity North West, ou=Network Strategy, email=mkay@iee.org, c=GB
Date: 2014.05.01 13:40:39 +01'00'

Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Jane McArdle*
Company Name:	*SSE Generation / SSE Renewables/Medway Power station Keedby Power Station*

Industry Consultation Questions

	Intro	SSE would like noted that these changes are as a result of the increase to the largest in-feed, which will now be 1,800MW. At the time this was never considered as a cost, but now, it looks like the cost could be borne by the smaller Distribution connected generators. This is an unfair allocation. The benefit to the balancing services pot will be borne by the end user, but to the cost of the small generators. SSE appreciates that cost recovery is not in the scope of this working group but it makes it challenging to agree to these changes without clarity on this.
(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Yes it is clear. However SSE would like to identify that the D Code will be going through changes linked to the new European RfG which are due to come into effect in ~2017. So these requirements are clear as long as the D Code and G59 are in force.
(b)	Does the proposed	The timelines in the proposal have a lead in of 2 years for making changes. Some sites will require more

	Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	work that others i.e risk assessment and and/or mitigation. In some circumstances older sites may be decommissioning and if the mitigation measures are significant in cost it should be feasible to apply a dispensation or derogation. Additionally some mitigation measures could take longer than the 2 years to commission and this should be considered. In general terms, the setting changes and risk assessments can be budgeted for and achieved within the timeframe – however as stated above its difficult to be certain about the mitigation measures. Again SSE believes cost recovery should be available for these implementation tasks. Large generators are benefitting from these changes to RoCoF protection settings. As for new connections synchronous and non synchronous, with the SSE pipelines we may not be significantly impacted in these changes.
(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Could require more than a simulation which could be more costly to the generator. No mechanism of knowing. It is important that the generator is able to determine in the risk assessment how many breakers could open, if open point moves and/or if a sustainable island could move on the DNO network. It would be important that the DNO informs estimates of trapped load against **all** of the scenarios that the generator could be exposed to. SSE would need a guarantee that the estimate of the trapped load is against 'a most probable worst case scenario or a worst case scenario'. Periodic re-assessments should only occur if the DNO notifies of a significant change. It is unlikely a generator will conduct periodic re-assessments without being prompted by the DNO. Again SSE believes cost recovery should be available for these Risk Assessments. Large generators are benefitting from these changes to RoCoF.

(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity Short term yes, but once the RfG comes into effect this may change.
		(ii) to facilitate competition in the generation and supply of electricity Short term yes, but once the RfG comes into effect this may change.
		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators. Short term yes, but once the RfG comes into effect this may change.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Ms Jane McArdle
SSE Generation
Red Oak South,
South Dublin Business Park,
Leopardstown,
Dublin 18

2 May 2014

Dear Jane,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation.

With regard to your comments on cost recovery, Network Licensees see the costs of risk assessment and any mitigation as a consequence of overall energy policy changes emanating from government. In the absence of any specific impact assessment by government picking up this issue, the operation of normal practice is assumed to apply with costs lying where they fall, ie affected parties funding their own costs. However we know that Ofgem may consider this aspect in considering the Network Licensees recommendation. It should be noted that issues such as protection setting change are normal operational actions required for a variety of reasons, are marginal, and should not, in Network Licensees' opinion, be compensated for.

The licensees acknowledge that the Distribution Code and any associated documents will change as a result of implementation of the European Network Codes, including the Requirements for Generators code; the nature and structure of any changes are being discussed in other industry forums.

You commented that the timescales for implementation may not be met for all sites and some sites may be decommissioning or result in significant cost for older sites, sites where it may not be economic to make such changes. The licensees believe

that two years is sufficient time for relatively small plant and, subject to individual assessment and request, derogations are possible should the circumstances demand it. The Licensees note that the pipeline of your new projects should not be adversely affected by this

In relation to your comments on the risk assessment guidance, the licensees note that it is only important to assess against those locations where an autoreclose can be effected from, not all scenarios of trapped load. Whilst the DNOs cannot guarantee that the estimates of trapped load capture an absolute worst case, estimates, they will include all information necessary to progress an assessment. The licensees note that protection of the generator's equipment is the generator's responsibility. When considering re-assessment, topology changes will be notified using established planning and information exchange processes.

I anticipate the publication of the final report to the authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

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Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

Response to:

"Frequency Changes during Large Disturbances and their Impact on the Total System – 2nd Consultation"

Introduction

ESB Generation and Wholesale Markets (GWM) welcome the opportunity to provide feedback on the 2nd consultation of "Frequency Changes during Large Disturbances and their Impact on the Total System". The ESB GWM generation portfolio in Great Britain comprises of both conventional and renewable generators, hence, this issue is important to the ESB GWM business.

Main Comments

ESB GWM's feedback on the 2nd consultation are summarised below.

1. The introduction of a 0.5Hz/s requirement for existing synchronous plant is welcomed by ESB GWM. This should allow the continued facilitation of renewables without unfairly imposing excessive costs on existing generators. However, ESB GWM would question if the cut off date of 1 July 2016 is reasonable. There may be projects connecting after this date which have already signed contracts with OEMs for equipment and therefore, they may not be able to make economic or commercial adjustments at this stage.
2. ESB GWM would strongly question the assumptions of the cost benefit analysis. As per the consultation the analysis estimates the savings that could be achieved (potential reduction in Balancing Services Costs) by implementing a RoCoF protection setting change. However, to allow higher levels of RoCoF on the system (which gives the reduction of Balancing Services Costs) it is not only the settings change that is required but the RoCoF Withstand Capability, across both transmission and distribution, which will also have to be in place. The costs associated with the implementation of this RoCoF Withstand Capability could be in excess of the costs estimated for the settings change. Hence, to allow for an accurate cost benefit the costs associated with the RoCoF Withstand Capability need to be included.
3. ESB GWM would like to again reiterate that it is of the opinion that the costs associated with the changes should be recoverable for generators. ESB GWM would also indicate that since the first consultation there has been some investigations into making such settings changes. ESB GWM have found that the application of new settings at the connection point can have implications for settings within the generation site (i.e. at all individual wind turbines) and so the costs may be greater than originally envisaged.
4. Regarding the proposed text for the Distribution Code and Engineering Recommendation G59 ESB GWM are of the opinion that the text (and the approach) omits one important element. The text and the Risk Assessment focuses on out of phase re-closure alone. It is the experience of ESB GWM that there can also be

issues for plant surviving a RoCoF on the system without any re-closure. Electrical stability (Pole Slip) and mechanical stability (torque oscillations) are two such issues. ESB GWM has had some preliminary studies done in this area and would happily share the results if it was so desired. As outlined in the CER Final Decision paper (attached with this response), such issues would ultimately require detailed investigations by OEMs. As a consequence this would increase the cost of assessment.

ESB GWM would be happy to discuss any aspects of the above.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

NOT FOR PUBLICATION

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"By Email"

Mr Paul Doyle
ESB GWM
27 Lr Fitzwilliam Street
Dublin 2
Ireland

2 May 2014

Dear Paul,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during Spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation.

The licensees thank you for supporting the proposed setting of $0.5Hzs^{-1}$. The cut off date of 1 July 2016 has been developed following feedback from the first consultation. If the implementation date of the text changes goes beyond 1 July 2014, the cut off date will be modified to maintain a 2 year period.

With regard to your comments on cost recovery, Network Licensees see the costs of risk assessment and any mitigation as a consequence of overall energy policy changes emanating from government. In the absence of any specific impact assessment by Government picking up this issue, the operation of normal process is assumed to apply with costs lying where they fall, ie affected parties funding their own costs. However we know that Ofgem will consider this aspect in considering the Network Licensees recommendation. It should be noted that issues such as protection setting change are normal operational actions required for a variety of reasons, are marginal, and should not, in Network Licensees' opinion, be compensated for.

Thank you for highlighting some of the issues to be considered in assessing whether plant will "survive" a high RoCoF. We acknowledge the possible effects and believe that these need to be considered in the Workgroup's development of RoCoF withstand proposals. Whilst Licensees are confident that a general protection setting of 1.0Hzs^{-1} is appropriate for many generators, with lower settings for existing synchronous generators, Licensees have not yet concluded that long term operation at risk to RoCoF of greater than 0.5Hzs^{-1} (and up to 1.0Hzs^{-1}) is appropriate and cannot do so until further work on RoCoF withstand is complete. This is consistent with the cost benefit analysis the Licensees have used to assess the proposals where break even is achieved in just over 2 years without pushing the system RoCoF risk above 0.5Hzs^{-1}. Subject to the required further work, it is possible however that higher limits are appropriate in the future.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

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Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

The voice of the energy industry

ENC 10 -14

Energy UK's response to the Industry Consultation: Frequency Changes during Large Disturbances and their Impact on the Total System

7th April 2014

Introduction

Energy UK is the trade association for the energy industry. We represent over 80 members made up of generators and gas and electricity suppliers of all kinds and sizes as well as other businesses operating in the energy industry. Together our members generate more than 90 per cent of the UK's total electricity output, supplying more than 26 million homes and investing in 2012 more than £11 billion in the British economy.

The consultation proposes changes to distribution connected generation to ensure that the Rate of Change of Frequency (RoCoF) for loss of main protection settings are appropriate for the current operation of the UK's electricity network. Due to changes in the composition of generation in the UK, National Grid believes that the future frequency of electricity on the network could vary more dramatically than seen before during severe incidents. Currently many distributed generators would not be able to remain connected during sudden changes in frequency due to their current RoCoF for loss of mains protection being set at a low level which could potentially amplify the impact of the original incident as distributed generation is subsequently forced to disconnect.

The aim therefore is to increase the required maximum RoCoF setting to 1Hz per second from 0.19 Hz per second, with allowances for the size of the generator, type and date built. Energy UK supports the change to the Distribution Code and Engineering Recommendation G59 to ensure that the UK electricity network remains stable.

Response

1. **Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?**

We consider that the drafting ensures there are no unnecessary costs for different types of generators above 5MW whilst ensuring a speedy move towards improved resilience to 1.0Hz per second, instead of the former setting of 0.19 Hz per second.

Energy UK, Charles House, 5-11 Regent Street, London, SW1Y 4LR
www.energy-uk.org.uk

However, for synchronous generators commissioned before the 1/7/16 the recommendations are not clear. The recommendation on page 1 for Synchronous Generator states “a minimum setting of 0.5Hz/s is permissible”

Both the Executive Summary section 1.8 (d) and (e) and Revised Proposal sections 5.1 (d) & (e) specify an actual setting of 0.5Hz/s. The new tables in DPC7.4.3.4 and Engineering Recommendation G59 section 10.5.7.1 state the following:

Top row commissioned before 01/4/14 permitted until 01/7/16 “not greater than 0.5Hz/s”

Both the second and third rows specify an actual value of 0.5Hz/s. All these values in the table have a reference to Ω in the notes which states “Ω *The minimum setting is 0.5Hz/s. For overall system security reasons. Settings closer to 1.0Hz/s are desirable, subject to the capability of the generating plant to work to higher settings*”.

If the intention is that Synchronous Generators commissioned before 1/7/16 should adhere to a Loss of Mains Protection Setting of 1.0Hz/s but allow for lower levels down to 0.5Hz/s to be permitted then we consider that this needs to be made clear in the Engineering Recommendation G59.

2. Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?

Energy UK considers that the recommendations for the implementation of timescales for different categories of distributed generation are generally clear and unambiguous.

The new tables in DPC7.4.3.4 & Engineering Recommendation G59 section 10.5.7.1 cover plant commissioned before 1/4/14 in the first row and then in the third row plant commissioned between1/7/14 and 30/6/16. Plant commissioned between the 1/4/14 and the 1/7/14 are not covered in these tables. We ask that this is clarified in the final drafting of the DCP and Engineering Recommendation G59.

3. Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?

Energy UK believes the proposed G59 drafting is clear and unambiguous.

4. Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?

Energy UK considers that the document provides useful information to affected parties; however we would also say that the current status of G59 under the Energy Networks Association (as a copyrighted document with a licence fee of £185 per user) is inappropriate especially as G59 is a publicly agreed standards document. Compliance will be made far easier if the document is open-access, and free to view (similar to the Distribution Code).

5. **Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.**

The Distribution code objectives are as follows:
(i) Permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity
(ii) To facilitate competition in the generation and supply of electricity
(iii) Efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators.

Energy UK believes that the proposals meet the first objective, as it will help to avoid power cuts in future incidents. As a risk of collapse of the transmission system is commercially damaging to all market participants, these proposals will also meet the second objective of improving competition.
We believe that the third objective is not directly relevant; however we would note that this issue has been encountered in other European countries, notably Ireland which implemented a similar regulation on 6th September 2013. More broadly we would note that tables 1 and 3 in Article 19 of the current draft of the operational security electricity network code, a draft new European code, are consistent with the proposed new requirements.

Should you require any further information regarding the details of this submission please contact Kyle Martin on 020 7747 1834 or kyle.martin@energy-uk.org.uk

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Policy & External Affairs Executive
Energy UK
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London SW1Y 4LR

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Glossary

G59	Exhibit to the Distribution Code Recommendations for the connection of generating plant to the Distribution System of Licensed Distribution Network Operators
Distribution Code	Wider regulations for the distribution of electricity from the transmission network to end users.
Loss of Mains	When parts of the Transmission and/or distribution system become isolated from the national system.
Distributed Generation	Decentralised generation which is not connected to the National Transmission system, but is instead connected to a regional distribution system.
Frequency	In this case refers to the number of times per second (Hz) the alternating current used in the UK completes a cycle. The convention currently is to aim for 50Hz, so 50 complete cycles a second.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Mr Kyle Martin
Energy UK
Charles House
5-11 Regent Street
London
SW1Y 4LR

2 May 2014

Dear Kyle,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

Licensees have worked together to respond to any specific comments raised during this consultation.

With regard to your comments on the permitted settings, the Licensees note that, although alternative protection settings are allowed, the table details the preferred settings which would be applied in the majority of circumstances.

The Licensees note that there was a typographical error in the tables in DPC7.4.3.4 and Engineering Recommendation G59 section 10.5.7.1. The top row of both tables stated 1/4/14 but should have stated 1/7/14, this has been corrected.

The Licensees note your comment regarding the licence fee for G59 and respond that the costs for G59 defray the maintenance costs of the document (including this current exercise). Charging for the document has the advantage of ensuring there is no cross subsidy to the document users from the pools of distribution network customers. However the DNOs will not be charging those who have a current copy of G59/3 – a revised version will be provided free of charge. The costs are modest and not out of line with the costs of British Standards which in many ways are equivalent documents.

I anticipate the publication of the final report to the authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay
Networks Strategy and Technical Support Director
Electricity North West
Chairman of the Distribution Code Review Panel of Great Britain

Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Dan Randles*
Company Name:	*Electricity North West*

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Yes
(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	Yes

(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Yes
(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity Yes
		(ii) to facilitate competition in the generation and supply of electricity Yes
		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators. Yes.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Mr Dan Randles
Electricity North West Limited
304 Bridgewater Place
Birchwood Park
Warrington
WA3 6XG

2 May 2014

Dear Dan,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

The licensees would like to thank you for your response to this consultation.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

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Industry Consultation Response Proforma

Frequency Changes during Large Disturbances and their Impact on the Total System

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **04 April 2014** to david.spillett@energynetworks.org.

Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Andy Hood*
Company Name:	*Western Power Distribution*

Industry Consultation Questions

(a)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting implement the Workgroup's recommendations for Loss of Mains Protection settings effectively and unambiguously?	Yes
(b)	Does the proposed Distribution Code and Engineering Recommendation G59 drafting set out implementation timescales for the different categories of distributed generation clearly and unambiguously?	Yes

(c)	Does the proposed Engineering Recommendation G59 drafting capture the Workgroup's risk assessment guidance effectively and unambiguously?	Yes
(d)	Does the informative text in Section 10 of the Engineering Recommendation G59 drafting provide useful guidance to affected parties?	Yes
(e)	Do you believe the proposals better facilitate the Distribution Code objectives? Please include your reasoning.	(i) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity Yes, the changes should improve the security of the network.
		(ii) to facilitate competition in the generation and supply of electricity Yes, the proposals do not have a significant impact on competition aspects.
		(iii) efficiently discharge the obligations imposed upon distribution licensees by the distribution licences and comply with the Regulation and any relevant legally binding decision of the European Commission and/or the Agency for the Co-operation of Energy Regulators. Yes.

FROM THE CHAIRMAN OF THE DISTRIBUTION CODE REVIEW PANEL OF GREAT BRITAIN

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"By Email"

Mr Andy Hood
Western Power Distribution
Avonbank
Feeder Road
Bristol
BS2 0TB

2 May 2014

Dear Andy,

Frequency Changes during Large Disturbances and their Impact on the Total System

Thank you for your response to the consultation which took place during spring 2014 on proposals to modify the Distribution Code and Engineering Recommendation G59 requirements relating to frequency changes during large disturbances and their impact on the total system.

Licensees received valuable input from the industry with responses received from eleven industry parties. The majority of responses were in favour of the proposals and recommended its implementation.

The licensees would like to thank you for your response to this consultation.

I anticipate the publication of the final report to the Authority to be at the end of April 2014. If you have any queries, or outstanding issues, please contact the Workgroup via grid.code@nationalgrid.com.

Yours sincerely,

Mike Kay

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