

Modification proposal:	Changes to the Distribution Code and Engineering Recommendation G59: Generator Connection Requirements – a review of Engineering Recommendation G59/3-1		
Decision:	The Authority ¹ directs that the proposed modification to the Distribution Code be made		
Target audience:	Parties to the Distribution Code and Engineering Recommendation G59 and other interested parties		
Date of publication:	17 August 2015	Implementation Date:	1 September 2015

Background to the modification proposal

Electricity Distribution Licence holders are required by Standard Condition (“SLC”) 20 of their licences to have in force, implement and comply with the Distribution Code. SLC 21 imposes, in effect, a duty on licence holders to review and, where appropriate, seek our approval for modification of the Distribution Code so as to better achieve the requirements of SLC 21. The Distribution Network Operators (DNOs) may propose changes to the Distribution Code and initiate work on a review of the Code through the Distribution Code Review Panel (“DCRP”).

The Energy Networks Association (“ENA”)’s Engineering Recommendation G59 (“ER G59”) provides recommendations for the connection of embedded (or ‘distributed’) generators to the distribution systems of electricity distribution licence holders, except for Small Scale Embedded Generators (“SSEGs”) which are covered by Engineering Recommendation G83/2 (“ER G83/2”). ER G59 is referenced in Annex 1 of the Distribution Code and is incorporated within the Distribution Code as part of the Code’s technical requirements. Therefore, any change to ER G59 constitutes a change to the Distribution Code and has to be approved by us. The current version, ER G59/3-1, came into effect in August 2014.

Drivers for the proposed changes to ER G59/3-1

The introduction of ER G59/3-1 clarified the procedure for carrying out a specific on-site commissioning test. This test is described in section 12.4.1 (f) of ER G59/3-1 and is designed to prove that the generator will trip in the event of a local single phase network fault. Having clarified the procedure, it has been found that this test presents two problems. Firstly, in order to execute this test properly, the primary current in one phase has to be interrupted by a device that is separate from the main generator circuit breaker. In many situations (generally smaller generators), it is expensive to provide the facility to do this. Secondly, we understand that DNOs are now reluctant to remove a cut-out fuse under load conditions due to concerns about interruptions to customers’ supplies and the need to meet appropriate notice conditions. As this test is not designed to test any specific element of the overall protection, it is argued that the cost and

¹ References to the ‘Authority’, ‘Ofgem’, ‘we’ and ‘our’ are used interchangeably in this document. The Authority refers to GEMA, the Gas and Electricity Markets Authority. The Office of Gas and Electricity Markets (Ofgem) supports GEMA in its day to day work.

inconvenience of carrying it out cannot be justified. In addition, some typographical errors in ER G59/3-1 require correction to improve clarity of understanding.

Industry consultation process

In December 2014, the DCRP approved the setting up of a Workgroup (WG) to consider and address the issues raised. The first meeting of the WG was held in January 2015. The WG comprised the six main GB DNOs and also included direct representation from the renewable energy industry, including installers and manufacturers.

The DCRP consulted with stakeholders likely to be affected by the proposed changes to ER G59/3-1. The DCRP consultation opened on 16 March 2015 and a consultation pack was circulated to industry stakeholders and also published on the Distribution Code website.² The consultation paper explained the reasoning behind each of the proposed changes.

Comments were invited from all industry participants and stakeholders by a deadline of 13 April 2015. In total, nine responses were submitted by industry stakeholders. There were four responses from DNOs, four responses from relevant trade associations and installers and one response from the Health and Safety Executive (HSE).

The proposals have not brought forward any comments from stakeholders that suggest any material detriment to any User or prospective User.

The only objection to the removal of the single phase test was from a DNO. It highlighted that the single phase test was the only required test that proves the functionality of the complete protection system, including the operation of the circuit breaker. In response to this concern, a new test has been included at section 12.3.1 (g) of ER G59/3-1 which gives an alternative test methodology to address this problem. On this basis, the DNO accepted the removal of the single phase test.

The modification proposal

The modification proposal has a number of elements. The main change proposed is to remove the requirement to carry out the single phase test as described in section 12.4.1 (f) of ER G59/3-1 for the reasons explained above.

In addition, the following changes are proposed:

- The procedure described in section 12.4.1 for testing the Rate of Change of Frequency (ROCOF) and Vector Shift relays has had minor modifications made to it;
- Changes are also proposed to the on-site test schedule (in section 13.3) to make it consistent with the other changes proposed; and
- 'Housekeeping' changes are proposed for sections 7.3.4 and 13.3.

DCRP recommendation

At its meeting on 4 June 2015, the DCRP agreed to the submission to us of the Final Modification Report (FMR) for the modification proposal. The FMR, the proposed legal text and supporting information were submitted to us on 29 June 2015.

² <http://www.dcode.org.uk/consultations/>

Our decision

We have considered the issues raised by the modification proposal and in the FMR dated 25 June 2015. We have considered and taken into account the responses to the consultation on the modification proposal, included in the FMR. We have concluded that:

1. implementing the modification will better facilitate the achievement of the Objectives of the Distribution Code³; and
2. approving the modification is consistent with our principal objective and statutory duties⁴.

Reasons for our decision

We set out below our views on which of the Applicable Distribution Code Objectives are better facilitated by the modification proposal. We focus here on the primary proposal to remove the requirement for the single phase test as described above. We consider the additional changes proposed to be either consequential to the primary change or essentially 'housekeeping' changes. We also consider that the modification has no impact on Applicable Distribution Code Objective (c).

Objective (a): "permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity"

The main reason for this change is to reduce the cost and inconvenience of testing and commissioning some distributed generation installations.

The protection required by G59 does not include a specific element to detect a single phase failure on the network. In spite of this, the 12.4.1 (f) test requires that the generator should trip in the event of a single phase failure on the network. As explained above, carrying out this test has cost and customer convenience implications. As all the elements of the generator protection equipment are proven by other tests, it is argued that the single phase test is not required.

The only real downside of not requiring this test is that the ability of the overall protection to disconnect the generator in the event of a single phase fault is not demonstrated. This theoretically introduces increased risk that a generator could back-feed a section of network that has been disconnected from the system by network protection. The DNOs have judged this to be a small and manageable increase in this risk.

Because of the safety dimension involved here, we have discussed this directly with the Health and Safety Executive (HSE). The HSE has confirmed to us that it reviewed this modification at the consultation stage and concluded that there were no issues of concern from a safety perspective.

Taking all these factors into consideration, overall we consider that the proposal better facilitates Objective (a).

³ As set out in SLC 21.4 of the Electricity Distribution Licence, see: <https://epr.ofgem.gov.uk/Content/Documents/Electricity%20Distribution%20Consolidated%20Standard%20Licence%20Conditions%20-%20Current%20Version.pdf>

⁴ The Authority's statutory duties are wider than matters which distribution licensees must take into consideration and are detailed mainly in the Electricity Act 1989 as amended.

Objective (b): "facilitate competition in the generation and supply of electricity"

We consider that the impacts of this modification in respect of this objective are small. However, there is a case that by reducing the overall cost of connecting generators, competition (ie with larger generators) is enhanced.

Decision notice

In accordance with paragraph 10 of SLC 21 of the Electricity Distribution Licence, we direct that modification proposal 'Generation Connection Requirements – a review of Engineering Recommendation G59/3-1' be made. We note that the effect of our decision is that the revised document will be re-issued as ER G59/3-2 and references to it in the Distribution Code will be updated accordingly.

We approve the modification proposal and direct that it is implemented on 1 September 2015.

This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989.

Anna Rossington

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Signed on behalf of the Authority and authorised for that purpose