

# Distribution Code Consultation DCRP/21/08/PC

## Title: Revision to the EREC G99 Integrated Microgeneration and Storage procedure

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**Target Audience:** All current and prospective manufacturers, developers, owners and operators of generation (and storage) of sizes appropriate for domestic installations. Domestic customers and their service providers.

**Date Published:** 15<sup>th</sup> October 2021

**Deadline for responses:** 17:00 12<sup>th</sup> November 2021

### Summary:

This Distribution Code public consultation is seeking the views from stakeholders on proposed modifications to existing Distribution Code documents to extend the existing fast track process for connecting domestic scale generation, including storage, such that more customers' equipment and many more customers' installations are allowed within its scope. This should facilitate the installation of low carbon technologies in customers' installations.

### 1 Introduction

In December 2018 the Integrated Microgeneration and Storage procedure (usually referred to as the fast track procedure) was introduced. This allowed a quicker application process for the connection of new storage devices to domestic scale installations where certain criteria were met. The quicker application process requires the DNO to respond to an application that meets the criteria within ten days, instead of the more normal process, which can take up to 45 days.

Included in this consultation document are the following appendices:

- Appendix 1: Plain English version of the proposed three small generation installation processes.
- Appendix 2: Legal text changes to Engineering Recommendations G98 & G99 to formally implement the three small generation installation processes.

The existing criteria for fast track are:

1. All the generation and storage is located in a single installation (the generation needs to be a mixture of storage and non-storage technologies);
2. The total aggregate capacity of the generation, including the storage, is between 16 A and 32 A per phase;
3. The total aggregate capacity of the storage device does not exceed 16 A per phase and the total aggregate capacity of the existing generation does not exceed 16 A per phase. Note that if the total aggregated capacity of storage and existing generation is no greater than 16 A per phase, the single premises procedure described in EREC G98 applies;

4. All of the generation including the storage device(s) are connected via EREC G98 Fully Type Tested inverters;<sup>1</sup>
5. An EREC G100 compliant export limitation scheme is present that limits the export from the installation to 16 A per phase; and
6. All the generation (including the storage) will not operate when there is a loss of mains situation.

## **2 The Defects**

Since the fast track procedure was introduced it has been recognized as a very useful step in assisting domestic customers to connect storage devices. However it is becoming clear that there are a number of limitations in the procedure.

### **2.1 Application to existing generation**

As drafted, the fast track process can only be applied where there is existing generation (ie typically solar PV) and where the additional equipment to be connected is storage. In a few cases this has found to be unduly limiting, for example in the case where the customer might have installed battery storage first, and then wishes to apply for an EV connection where the EV would run in vehicle to grid mode. In this situation both devices are storage devices; there is no existing non-storage generation. Another example is where a customer has installed battery storage, and subsequently decides to fit PV generation. These two cases are not strictly within the scope of the existing formal fast track procedure.

### **2.2 Size limitation of 16A + 16A**

A more significant limitation is the 16A limit applied to both the existing and new devices. Manufacturers are typically producing storage devices (including vehicle to grid applications) in size ranges for domestic installations of up to 10kW (43A single phase). It is also not uncommon for domestic PV installations to be 4kW, 5kW or even more.

Particularly for storage and PV installations, the natural operation of such installations is for the storage to absorb the generation, and for the storage to back off the demand on the distribution system when the generation is not generating. Hence flows onto the network are often closer to zero than the flows implied by the simple ratings of the separate devices. However the current fast track process does not recognize this and the installation of such larger devices is out of scope.

### **2.3 Volume of new generation and storage**

The volume of new equipment of domestic scale is increasing and is likely to continue to do so driven by government decarbonisation policies. It is in the interests of both DNOs and their customers to find administratively simple ways to manage this growth.

## **3 Proposal**

The DNOs have considered how generation and storage can affect the distribution network, especially in terms of voltage rise and also the effects of harmonics on power quality.

Building on the experience of the existing fast track process and also on the assessment of domestic equipment outside the scope of the existing process, the DNOs are proposing a modification to the process so that:

- (a) The pre-existence of generation  $\leq 16$  A is no longer required.
- (b) The overall installed capacity of generation can be as high as 60 A per phase.

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<sup>1</sup> Or Type Tested to EREC G83, where the Power Generating Module was connected prior to 27 April 2019.

- (c) Individual generation devices up to 32 A per phase can be connected.
- (d) The export to the DNO's system must be constrained to be  $\leq 32$  A per phase.
- (e) The system impedance at the connection point must be less than an agreed value.

The new process would work in the same way as the existing fast track process. If the customer meets criteria (a) to (d) above the customer would submit an application. Within ten days the DNO would assess the application, principally against criterion (e) and the quantity of existing generation locally. If the application passes, the DNO would immediately inform the customer and installation could start. If the application fails criteria (e) or is otherwise unsuccessful, it would fall into the normal application process, with a formal response provided within the next 35 working days (at most).

This proposal retains the existing fast track process (where those criteria are still met) and also formally incorporates an approach that has been adopted by DNOs whereby a storage (or generation) device that has been temporarily limited to  $<16$  A can be connected under EREC G98.

This gives rise to a three strand fast track process. The first strand, designated small generation installation process 1 (or SGI-1), is the hitherto undocumented process for installing devices  $>16$  A which have a temporary limitation to 16 A; SGI-2 is the existing fast track process and SGI-3 would become the new process applying the criteria (a) to (e) above.

The proposal makes the following changes to EREC G99:

- Section 6.2.2;
- Revisions to the definition of Registered Capacity and Fully Type Tested;
- A new definition of Intrinsic Device Capacity;
- Replacement of Integrated Microgeneration and Storage as a defined term with Small Generation Installation, and in the 28 places it is used, including the application from A1-2;
- The creation of a new installation notification form, A3-3; and
- Several other minor associated changes.

The proposal would make the change the definition of Registered Capacity in EREC G98, to align with that in EREC G99.

DNOs, having considered the power quality and voltage rise effects, are proposing that one threshold for acceptance of SGI-3 fast track applications should be for the system impedance at the point of connection to be  $0.18\Omega$  or less; ie loop impedances up to this value this would be accepted for power quality compliance without further analysis, whereas loop impedances above it would need to be subject to routine analysis before acceptance. DNOs would welcome views on the appropriateness of this value.

As part of this initial analysis DNOs may also review the existence of other sources of generation in the immediate network vicinity. The presence of other generation will raise the local voltage and eventually DNOs will need to plan mitigations when the amount of generation locally reaches a critical threshold. DNOs will undertake this analysis, where it is necessary, within the ten day period.

Recognizing the importance of this process to domestic customers and those who service the domestic market, it is proposed that the DNOs publish a plain English version of the three small generation installation processes. This is attached as Appendix 1. Appendix 2 is the legal text changes that will need to be made to EREC G98 and EREC G99 to formalize the processes.

In line with amendments required to EREC G98 and G99, two minor editorial changes to their issue numbers will need to be made within the DCode, and the changes are also dependent on the current Minor Technical Modification currently with Ofgem. These editorial changes to Annex 1 of the DCode are shown below:

9      **Engineering Recommendation G98 Issue 1 Amendment 7**

10     **Engineering Recommendation G99 Issue 1 Amendment 9**

#### **4 Applicable Distribution Code Objectives**

The applicable Distribution Code Objectives are to:

- (a) permit the development, maintenance, and operation of an efficient, co-ordinated, and economical system for the distribution of electricity; and
- (b) facilitate competition in the generation and supply of electricity; and
- (c) 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; and
- (d) promote efficiency in the implementation and administration of the Distribution Code.

#### **5 Consultation Questions**

1. Do you agree with the general intent of the proposed modification? If not, please explain your views.
2. If you have any detailed comments on the proposed drafting, please provide those comments in the proforma provided, or by marking up Appendices 1 and 2 as appropriate.
3. Do you agree that 60 A per phase is a sensible upper limit of a fast track scheme? This is 13.8 kW. Would a value representing, say 14 kW (61 A) or 15 kW (65 A) be a better nominal limit?
4. Do you agree with the value of 0.18Ω as an appropriate threshold up to which acceptance of power quality compliance could be automatically accepted?
5. Do you agree that the proposed modifications satisfy the applicable Distribution Code objectives? If not, please explain your concerns.

#### **6 Next Steps**

Responses to this consultation should be sent to the Distribution Code Review Panel Secretary at [dcode@energynetworks.org](mailto:dcode@energynetworks.org) by 1700 on Friday 12<sup>th</sup> November, on the pro-forma provided expressly for the purpose.

**For more information, please contact:**

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## **Appendix 1: Plain English version of the three small generation installation procedures**

The document in this Appendix outlines in plain English the three modification proposals to the small generation installation process. The intention is that this could be used as general briefing and dissemination material and included in the next version of the ENA Distributed Generation Guides – see separate document.

## **Appendix 2: Legal text changes**

The document in this Appendix outlines the required amendments to Engineering Recommendations G98 & G99 – See separate document.