Modification	At what stage is this document in the process?
# DCRP/21/08 “Fast Track” scheme ## Replacement of the “Integrated Microgeneration and Storage” process	01 Modification 02 DCRP report 03 Public Consultation 04 Final Modification Report

The purpose of this document is to assist the Authority in its decision to implement the proposed process within the Distribution Code of GB for Distribution Network Operators.

The proposed modifications were subject to industry consultation from 15 October 2021 to 17 November 2021.

Date of publication: 04 May 2022

Recommendation

The Distribution Code Review Panel (DCRP) and distribution network licensees recommend that the proposed modifications are made to the most recent versions of EREC G98, EREC G99 and the Distribution Code of GB.

	The DCRP and distribution network licensees recommends that this modification should be: Submitted to the Authority for approval.
	High Impact: Customers with existing small scale generation who wish to connect more small scale generation or storage to their installations, or those customers wishing to connect small scale generation for the first time.
	Medium Impact:
	Low Impact:

Contents

Timetable

Initial Report presented to DCRP	07 October 2021
Draft report issued for public consultation	15 October 2021
Consultation Closed	17 October 2021
Final Modification Report available for Panel	06 April 2022
Final Modification Report submitted to Authority	04 May 2022

Any questions?

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1 Background

In December 2018 the Integrated Microgeneration and Storage procedure (usually referred to as the fast track procedure) was introduced into EREC G99. 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.

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;
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 Defect

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 procedure 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 larger.

2.3 Volume of new generation and storage

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 procedure does not recognize this and the installation of such larger devices is out of scope.

3 Details of the 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 procedure and also on the assessment of domestic equipment outside the scope of the existing procedure, the DNOs are proposing a modification to the procedure so that:

(a) The pre-existence of generation ≤16 A is no longer required.

(b) The overall installed capacity of generation can be as high as 60 A per phase.

(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 ≤ 32 A per phase.

(e) The system impedance at the connection point must be less than a DNO determined value (initially proposed to be 0.18Ω).

The new procedure would work in the same way as the existing fast track procedure. 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 this initial assessment, the DNO would immediately inform the customer and installation could start. If the application fails criterion (e) or is otherwise unsuccessful, it would transfer into the normal application procedure, with a formal response provided within the next 35 working days (at most).

The maximum value of 60A has been chosen to align with the smallest common DNO cut-out fuse, and also with the threshold for connecting electric vehicles and heat pumps without prior application.

This proposal retains the existing fast track procedure (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 limited (generally on a temporary basis) to <16 A can be connected under EREC G98 whilst that limit is still active.

This gives rise to a three strand fast track procedure. The first strand, designated small generation installation procedure 1 (or SGI-1), is the hitherto undocumented procedure for installing devices >16A which have a temporary limitation to 16 A. SGI-2 is the existing fast track procedure, and SGI-3 would become the new procedure 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 form A1-2;
- The creation of a new installation notification form, A3-3; and
- Several other minor associated changes.

The proposal also makes a change to the definition of Registered Capacity in EREC G98, to align with that in EREC G99.

As part of the initial analysis under SGI-3 DNOs will have the opportunity to 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 procedures. This is attached as Appendix 2.

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 Distribution Code. These editorial changes to Annex 1 of the Distribution Code are shown below:

- 9 Engineering Recommendation G98 Issue 1 Amendment 7
- 10 Engineering Recommendation G99 Issue 1 Amendment 9

The proposed revisions to EREC G98 and G99 are detailed in Appendix 1.

4 Impacts and Other Considerations

Impacts on Users of The Distribution Code

The proposed revised process will enable a greater number of customers to fast track their applications for new generation and storage.

Impacts on Total System and the DNOs System

The proposal will have no adverse impact as DNOs still have the opportunity to both react to individual applications and track the combined effects of customers' new equipment.

Environmental Impact Assessment

There is expected to be a marginal benefit in encouraging domestic customers to install low carbon technologies as the application process is more streamlined.

5 Impact on other Industry documents

There are no impacts on other industry documents.

6 Assessment against Distribution Code Objectives

The proposed amendments better facilitate the Distribution Code objective:

(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the distribution of electricity.

The proposal is neutral against this objective as it improves customer service, whilst retaining overall DNO scrutiny of what is connected to the system.

(ii) to facilitate competition in the generation and supply of electricity

This modification will have a positive effect by easing the connexion of customers' low carbon technology.

(iii) to 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

The proposal has a neutral impact on this objective.

(iv) to promote efficiency in the implementation and administration of the Distribution Code.

The proposal has a neutral impact on this objective.

7 Recommendations

The DNOs recommend that the existing "fast track" procedure is replaced with the proposed small generation installation procedures.

8 Implementation

If approved by the Authority an implementation date 2 months after the date of decision is proposed. This will be to allow DNOs time to put in place all necessary systems of work.

9 Consultation

There was only one response to the formal consultation that ran from 15 October 2021 to 17 November 2021. However the issue has been discussed at length at meetings with stakeholders occasioned by the interaction with stakeholders in the discussions relating to the proposed modification of G100. The proposals have also been presented to the ENA's DER Technical Forum on 07 June 2021, 21 September 2021 and 30 November 2021. The formal response is attached as Appendix 3.

10 Distribution Code Review Panel Discussion

The Final Modification Report was presented to the DCRP at the Panel meeting held on 06 April 2022. The Panel agreed to submit before the DCRP meeting in June, and that should the modification be approved the changes will be implemented into a housekeeping modification to EREC G98 and G99 as soon as is reasonably practicable.

11 Recommendation

The Distribution Code Review Panel and licenced Distribution Network Operators recommend that this modification report should:

- be submitted to the Authority for approval; and
- subject to the agreement of the Authority the modification should be implemented from 04 July 2022

12 Appendices

Appendix 1 – Proposed changes to EREC G98 and EREC G99

Appendix 2 – Plain English version of the proposed Small Generation Installation processes

Appendix 3 – Consultation response

Part 1 Key Changes to G98 and G99.

The key proposed changes to G98 and G99 are shown below.

Text in italics is explanatory for the purpose of this note and will not form part of the proposed revised text in G98 and G99.

The text proposed in this Part 1 is written as simple replacements for, and additions to, the existing relevant text in G98 and G99.

EREC G98

The only change proposed to G98 is to align, although not duplicate, its definition of Registered Capacity with that proposed for EREC G99. It is intended to simply replace the current definition in G98 with the new text below.

Registered Capacity

The designed maximum **Active Power** capacity of a **Micro-generator**, as declared by the **Manufacturer** which should exclude the **Active Power** consumed by the **Micro-generator** when producing the **Registered Capacity**; ie this will relate to the maximum level of **Active Power** deliverable from the **Micro-generating Plant**. For **Micro-generators** connected to the **DNO's Distribution Network** via an **Inverter**, the **Registered Capacity** of the **Micro-generator** is the lesser of the **Inverter**(s) rating or the rating of the energy source.

EREC G99

The changes to EREC G99 include the introduction of a new definition of Intrinsic Design Capacity (IDC), and modifications to the definitions of Fully Type Tested and Registered Capacity to recognize the IDC concept. It is proposed to add the IDC definition and replace the existing definitions of Fully Type Tested and Registered Capacity with the drafting shown below. A new definition of Small Generation Installation is also proposed to be added.

Fully Type Tested

A **Power Generating Module** with an **Intrinsic Design Capacity** of ≤ 50 kW which has been tested to ensure that the design meets the relevant technical and compliance requirements of this EREC G99, and for which the **Manufacturer** has declared that all similar **Power Generating Module**s supplied will be constructed to the same standards and will have the same performance. In the case where **Interface Protection** functionality is included in the tested equipment, all similar products will be manufactured with the same protection settings as the tested product.

Intrinsic Design Capacity

The designed maximum **Active Power** capacity of a **Generating Unit** or a **Power Generating Module**. In general this will be identical to the **Registered Capacity**, but can be a higher value where the **Manufacturer** has made specific provision for the maximum **Active Power** output to be limited to a defined value less than the designed

maximum **Active Power** capacity. Such a limitation will be semi-permanent and designed in by the **Manufacturer**. It will not be amenable to adjustment by the **Generator**; any such adjustment shall be undertaken by personnel specifically empowered and equipped for that task by the **Manufacturer**.

Small Generation Installation

A **Generator's Installation** that comprises one or more **Low Voltage Power Generating Module**s[1] each with an **Intrinsic Design Capacity** of no more than 32 A and where the aggregate **Registered Capacity** of all the **Power Generating Module**s is no more than 60 A.

Registered Capacity

The normal maximum **Active Power** capacity of:

- A **Generating Unit**; or
- A **Power Generating Module** (in the case of a **Power Park Module**, the lesser of the **Inverter**(s) rating or the rating of the energy source); or
- A **Power Generating Facility**,

as declared by the **Generator** taking into account the **Active Power** consumed when producing the same and the production of the required **Reactive Power** at the **Connection Point**. For the purposes of the **Small Generation Installation** procedure the **Registered Capacity** of a **Power Generating Module** can be a limited (eg by software) to be less than the **Intrinsic Design Capacity** of the **Power Generating Module**.

It is proposed to replace the existing "Integrated Micro Generation and Storage procedure", colloquially referred to as the fast track process, contained in 6.2.2 with the revised section 6.2.2 show below.

6.2.2 Small Generation Installation procedures

6.2.2.1 Where, typically in a domestic, or similarly small **Low Voltage** installation, the **Generator** wishes to install one or more small **Generating Units** where the **Intrinsic Design Capacity** of all existing and intended **Generating Units** is not greater than 32 A per phase, the provisions of the appropriate **Small Generation Installation** procedure can be followed provided that the **Generator's Installation** meets the appropriate conditions set out below. Different connection procedures apply depending on the exact capacities and capabilities of the **Generating Units** and control equipment installed, as summarised in the table below:

[1] In EREC G98 a **Power Generating Module** with nominal current up to and including 16 A per phase is known as a Micro-generator.

Application Procedure	All individual **Intrinsic Design Capacities**	All individual **Registered Capacities**	Aggregate of **Registered Capacities**	EREC G100 limitation scheme required?
EREC G98	-[2]	≤ 16 A	≤ 16 A	No
EREC G99 SGI-1	≤ 32 A	≤ 16 A	≤ 16 A	No
EREC G99 SGI-2	≤ 32 A	≤ 16 A	≤ 32 A	16 A
EREC G99 SGI-3	≤ 32 A	≤ 32 A	≤ 60 A	32 A

6.2.2.2 Small Generation Installation Procedure-1

(a) This procedure SGI-1 applies where the following conditions are met:

1. The new and existing **Generating Units** are located in a single **Generator**'s **Installation**;
2. All of the **Generating Units** (including **Electricity Storage** devices) are connected via EREC G98 or G99 **Fully Type Tested** inverters;[3]
3. The **Intrinsic Design Capacity** of each **Generating Unit** is no more than 32 A;
4. Any **Generating Unit** with an **Intrinsic Design Capacity** of greater than 16 A has its **Registered Capacity** limited to 16 A; and
5. The total aggregate **Registered Capacities** of all **Generating Units** (including **Electricity Storage** devices) is no more than 16 A per phase;

(b) If all the conditions above are satisfied, the **Generator** can install and commission all the **Power Generating Modules** and shall submit notification in the format as shown in Form A3-3 (Annex A.1). Note that the **DNO** may provide a method of submitting this information electronically on line etc.

(c) If the **Generator** wishes to increase the **Active Power** output of one or more **Generating Unit**s comprising the **Power Generating Module** from its current **Registered Capacity** such that condition 4 above is no longer satisfied, ie to change or remove the limitation on output, an application in a format as shown in Form A1-1 or Form A1-2 (as applicable and included in Annex A.1) shall be submitted to the **DNO**.

6.2.2.3 Small Generation Installation Procedure-2.

[2] G98 does not include the concept of **Intrinsic Design Capacity**.

[3] Or **Type Tested** to EREC G83 or G59 where the **Power Generating Module** was connected prior to 27 April 2019.

(a) This procedure SGI-2 applies where the **Generator** wishes to install one or more **Generating Units** and the following conditions, which are essentially the conditions that were applicable for the "Integrated Micro Generation and Storage" procedure in previous versions of EREC G99, are met:

1. The new and existing **Generating Unit**s are located in a single **Generator**'s **Installation**;

2. All of the **Generating Unit**s (including **Electricity Storage** devices) are connected via EREC G98 or G99 **Fully Type Tested** inverters;[4]

3. The **Intrinsic Design Capacity** of each new and existing **Generating Unit** is no more than 32A per phase;

4. The **Registered Capacity** of each new and existing **Generating Unit** is no more than 16A per phase;

5. The total aggregate **Registered Capacities** of all the **Generating Unit**s (including **Electricity Storage** devices) is less than 32 A per phase; and

6. An EREC G100 compliant export limitation scheme is present that limits the export from the **Generator's Installation** to the **Distribution Network** to no more than 16 A per phase.

(b) If all the conditions above are satisfied, the **Generator** should complete an application in a format as shown in Form A1-2 (Annex A.1). Note that the **DNO** may provide a method of submitting this information electronically on line etc.

(c) The **DNO** will assess the application. No **Power Generating Modules** should be installed or commissioned before this **DNO** assessment is complete and the **Generator** has been advised of the outcome of this assessment. The **DNO** will provide the results of the assessment within 10 working days of receiving the application in (b) above. Given the lower limit of **Registered Capacities** allowed in this procedure SGI-2 compared to that of SGI-3, the **DNO** will generally apply less complex checks than in procedure SGI-3.

(d) The planned commissioning date stated on the application form shall be between 10 working days and 3 months from the date that the application is submitted to the **Distribution Network Operator**. Confirmation of the commissioning of each **Power Generating Module** shall be made no later than 28 days after commissioning (where tests and checks are not witnessed in accordance with 16.3.1). Confirmation shall be provided in a format as shown in Form A3-2 (Annex A.3). In addition to Form A3-2, an EREC G100 export limitation scheme Installation and Commissioning Tests form shall be submitted to the **DNO**. Confirmation shall be provided in a format as shown in EREC G100 Appendix B.

(e) If, at (c) above, the **DNO** determines that further analysis is required before a connection offer can be made, the **DNO** will confirm this. This confirmation ends the SGI-2 process for this application which will then be progressed in line with the

[4] Or **Type Tested** to EREC G83 or G59~~,~~ where the **Power Generating Module** was connected prior to 27 April 2019.

DNO's standard application process. No **Power Generating Modules** should be installed or commissioned before the standard application process completes.

6.2.2.4 Small Generation Installation Procedure-3.

(a) This procedure SGI-3 applies where the following conditions are met:

1. The new and existing **Generating Unit**s are located in a single **Generator's Installation**;

2. All of the **Generating Unit**s (including Electricity Storage devices) are connected via EREC G98 or EREC G99 **Fully Type Tested** inverters;[5]

3. The **Intrinsic Design Capacity** of each new and existing **Generating Unit** is no more than 32 A.

4. The total aggregate **Registered Capacities** of all the **Generating Unit**s (including **Electricity Storage** devices) is less than 60 A per phase; and

5. An EREC G100 compliant export limitation scheme is present that limits the export from the **Generator's** installation to the **Distribution Network** to 32 A per phase.

6. Condition 5 above can be waived if the aggregate of the **Registered Capacities** of the **Power Generating Units** is no more than 32 A.

(b) If all the conditions above are satisfied, the **Generator** should submit an application in a format as shown in Form A1-2 (Annex A.1). Note that the **DNO** may provide a method of submitting this information electronically on line etc.

(c) The **DNO** will make an initial assessment of the application. No **Power Generating Modules** should be installed or commissioned before this initial **DNO** assessment is complete and the **Generator** has been advised of the outcome of this initial assessment. The **DNO** will confirm within 10 working days of the submission whether it is necessary for the **DNO** to undertake site specific analysis of the application, taking into account the **Intrinsic Design Capacities**, the aggregated **Registered Capacities** of the **Generating Units** and the local network conditions. Where the **DNO** has identified there is a need for further analysis, no further submission of information is required, but installation and commissioning must not proceed until the **DNO** has established if it is necessary to upgrade the network, and whether such work may be chargeable to the **Generator**, if the **Generator** wishes to go ahead with the installation.

(d) The planned commissioning date stated on the application form shall be between 10 working days and 3 months from the date that the application is submitted to the **DNO**. Confirmation of the commissioning of each **Power Generating Module** shall be made no later than 28 days after commissioning (where tests and checks are not witnessed in accordance with 16.3.1). Confirmation shall be provided in a format as shown in Form A3-2 (Annex A.3). In addition to Form A3-2, if an EREC

[5] Or **Type Tested** to EREC G83 or G59, where the **Power Generating Module** was connected prior to 27 April 2019.

G100 export limitation scheme has been installed, then the G100 Installation and Commissioning Tests form shall also be submitted.

Part 2 Consequential amendments to EREC G98 and EREC G99.

The other proposed consequential changes to the two documents are shown in tracked change mark up.

Consequential G99 amendments

2.4 Specific separate requirements apply to **Power Generating Facilities** connected at **LV** comprising **Fully Type Tested, Type A, Power Generating Module**s 16 A/phase or less (micro-generators) and these are covered in EREC G98. All **Power Generating Module**s 16 A/phase or less connecting to the **DNO**'s **Distribution Network** shall be **Fully Type Tested**.[6]

4.2 Illustrative examples of **Power Generating Module** types and categorisation

Figures 4.2 to 4.6 illustrate examples of different **Power Generating Module**s comprising **Power Park Module**s and **Synchronous Power Generating Module**s to assist with the interpretation of **Power Park Module** categorisation.

Figure 4.7 illustrates an example of an ~~**Integrated Micro Generation and Storage**~~ **Small Generation ~~I~~Installation**.

Figure 4.7 Example of a ~~Integrated Micro Generation and Storage~~Small Generation Installation

Figure 6.10 Example of a Vehicle to Grid Electric Vehicle where the charging device is included in the EV and there is a stationary Electricity Storage device and a solar PV Power Park Module at the same premises

The **Vehicle to Grid Electric Vehicle** is a ~~**Power**~~ **Generating Unit**. The **Power Generating Module** is comprised of the stationary **Electricity Storage** device**,** the solar PV **Power Park Module** and the **Vehicle to Grid Electric Vehicle**.

Before a **Vehicle to Grid Electric Vehicle** is connected to the fixed installation the **Customer** must ensure there is an appropriate **Connection Agreement** with the **DNO** and that the whole **Power Generating Module** is compliant with this EREC G99.

[6] This EREC G99 contains ~~an **Integrated Micro Generation and Storage**~~ **Small Generation Installation** procedure**s**, details of which are given in 0.

Figure 6.11 Example of a Vehicle to Grid Electric Vehicle where the Inverter is located in the Customer's Installation and there is a stationary Electricity Storage device and a solar PV Power Park Module at the same premises

The **Vehicle to Grid Electric Vehicle** charging device in the **Customer's Installation** is a ~~**Power**~~ **Generating Unit**. The **Power Generating Module** is comprised of the stationary **Electricity Storage** device**,** the solar PV **Power Park Module** and the **Vehicle to Grid Electric Vehicle** ~~**Power**~~ **Generating Unit**.

Before an **Vehicle to Grid Electric Vehicle** is connected to the fixed installation the **Customer** must ensure there is an appropriate **Connection Agreement** with the **DNO** and that the whole **Power Generating Module** is compliant with EREC G99.

6.4.1.2 Except for **Fully Type Tested Type A Power Generating Module**s (including ~~**Integrated Micro Generation and Storage i**~~**Small Generation I**nstallations), **Generator**s shall provide the following minimum information to the **DNO** during the connection application process or otherwise as requested by the **DNO**:-

14.3.1 In order to comply with the Distribution Planning and Connection Code DPC 5.4.3 of the **Distribution Code** a Site Responsibility Schedule (SRS) should be prepared by the **DNO** in conjunction with the **Generator**. The SRS should clearly indicate the ownership, operational and maintenance responsibility of each item of equipment at the interface between the **Distribution Network** and the **Power Generating Module**, and should include an operational diagram so that all persons working at the interface have sufficient information so that they can undertake their duties safely and to minimise the risk of inadvertently interrupting supplies. The SRS should also record the agreed method of communication between the **DNO** and the **Generator**. Where the **Power Generating Facility** has a **Registered Capacity** of 50 kW (or 17 kW per phase) or less and is connected at **LV** then only compliance with paragraph 14.3.3 is required (this includes ~~**Integrated Micro Generation and Storage i**~~**Small Generation I**nstallations).

15.1.3 Compliance at a **Customer's Installation** with, for example:

- both **Electricity Storage** devices and demand, or
- both ~~**Power**~~ **Generating Unit**s and/or **Power Generating Modules** that are not **Electricity Storage** devices, and **Electricity Storage** devices,

can be demonstrated through the combined capability of all **Power Generating Modules** that form the **Generator's Installation**. Demonstration that each **Power Generating Module** (including **Electricity Storage** devices) individually meets the requirements in this EREC G99 is required where the **Generator** intends to operate the ~~**Power**~~ **Generating Unit**s in their installation individually, for example, if the **Electricity Storage** devices are out of service.

For a **Type A Power Generating Module** comprised of more than one ~~**Power**~~ **Generating Unit** with separate primary energy sources, demonstration of compliance of each group of ~~**Power**~~ **Generating Unit**s with a separate primary energy source is an acceptable method of demonstrating compliance for the **Power Park Module**.

15.3.2 The following tests shall be carried out by the **Installer** at all **Power Generating Facilities** and on all **Power Generating Module**s irrespective of whether they have been **Fully Type Tested** or **Type Tested**:

(a) Complete functional tests to ensure each **Power Generating Module** synchronises with, and disconnects from, the **DNO**'s **Distribution Network** successfully and that it operates without tripping under normal conditions;

…….

(e) For any installations using an export limitation scheme, including those connecting under the ~~**Integrated Micro Generation and Storage**~~ **Small Generation Installation** procedure**s**, the commissioning tests detailed in EREC G100 shall be carried out for the export limitation scheme, with the results recorded in the form contained in the relevant EREC G100 appendix. This is in addition to the **Power Generating Module** compliance and commissioning tests required by EREC G98 and EREC G99.

16.2.1 The **Installer** shall discuss the installation project with the local **DNO** at the earliest opportunity. The connection application will need to be in format as shown in Form A1-1 (Annex A.1) for **Power Generating Module**s less than 50 kW, Form A1-2 (Annex A.1) for ~~**Integrated Micro Generation and Storage**~~ **Small Generation i**~~I~~**nstallations**, or for **Power Generating Module**s greater than 50 kW by using the Standard Application Form (generally available from the **DNO**'s website). Where a **Power Generating Module** is **Fully Type Tested** and registered with the Energy Networks Association Type Test Verification Report Register, the application should include the **Manufacturer**'s reference number (the system reference), and the compliance test results do not need to be submitted as part of the application.

16.2.6 Where commissioning tests are not witnessed, confirmation of the commissioning of each **Power Generating Module** will need to be made no later than 28 days after commissioning; the format and content shall be as shown in Form A3-1 (Annex A.3) Installation Document for **Type A Power Generating Module**s or Form A3-2 (Annex A.3) Installation Document for **Small Generation Installations**~~**Integrated Micro Generation and Storage** installations~~. The **Installer** or **Generator**, as appropriate, shall complete the declaration at the bottom of the Installation Document (Form A3-1 or Form A3-2) noting that this declaration also covers the Site Compliance and Commissioning Test Form Form A2-4 (Annex A.2). Where the tests are witnessed a copy shall be provided to the **DNO** at the time of commissioning.

16.3.1The **DNO** will not normally witness the commissioning checks and tests for **Fully Type Tested Power Generating Module**s or **Small Generation Installations**~~**Integrated Micro Generation and Storage** installations~~ connected to the **DNO**'s **Distribution Network** at **LV**. In such cases, where the **DNO** does decide to witness it will advise this as part of the connection offer. Reasons for witnessing such installations may include:

16.4.2 The **Installer**, or an agent acting on behalf of the **Installer**, shall supply separate Installation Documents (Form A3-1 (Annex A.3) for **Type A Power Generating Module**s or Form A3-2 (Annex A.3) for **Small Generation Installations**~~**Integrated Micro Generation and Storage** installations~~) for each **Power Generating Facility** installed under EREC G99 to the **DNO**. Documentation shall be supplied either at the time of commissioning (where tests are witnessed) or within 28 days of the commissioning date (where the tests are not witnessed) and may be submitted electronically

22.2 Annex Contents and Form Guidance

Annex	**Application**	**Form Title**
A.0	Cover Sheet for **Type A Power Generating Facility** Forms	
A.1	Connection Application for **Type A Fully Type Tested** (<50 kW) **Power Generating Module**s Connection Application for **Small Generation Installations**~~**Integrated Micro Generation and Storage**~~ Note for all other **Power Generating Module**s the **DNO**'s Standard Application Form shall be used.	Form A1-1: Application for connection of **Power Generating Module**(s) with Total Aggregate Capacity <50 kW 3-phase or 17 kW single phase Form A1-2: Application for connection of a~~n~~ **Small Generation Installation** ~~**Integrated Micro Generation and Storage** installation~~
A.2	Compliance report for **Type A Type Tested**	Form A2-1: Compliance Verification Report for **Synchronous Power Generating Module**s up to and including 50 kW Form A2-2: Compliance Verification Report for **Synchronous Power Generating Module**s > 50 kW and also for **Synchronous Power Generating Module**s ≤ 50 kW where the approach of this form is preferred to that in Form A2-1 Form A2-3 Compliance Verification Report for **Inverter** Connected **Power Generating Module**s
A.2	Additional Compliance and Commissioning test requirements for **Type A Power Generating Module**s	Form A2-4: Site Compliance and Commissioning test requirements for **Type A Power Generating Module**s
A.3	Installation and Commissioning a **Power Generating Facility** comprising one or more **Type A Generating Module**s	Form A3-1: Installation Document for **Type A Power Generating Module**s Form A3-2: Installation Document for **Small Generation Installation**~~**Integrated Micro Generation and Storage** installations~~

		Form A3-3: Installation Notification Form for **Small Generation Installation** Procedure 1

A.0 Type A Power Generating Module Forms Cover Sheet

A number of forms are required to be completed and submitted to the **DNO** for the connection of **Type A Power Generating Modules** and any subsequent **Modifications** to equipment, and/or permanent decommissioning. These are summarised in the table below. The stages in the table below are described in more detail in the Distributed Generation Connection Guides, which are available free of charge on the Energy Networks Association website.

Stage	**Form**	**Notes / Description**	**Complete Y/N**
1. Find an **Installer**	N/A	No form required – see ENA Distributed Generation Connection Guides for more information. Outside of the scope of this document.	
2. Discuss with the **DNO**	N/A	As above.	
3. Submit application	Form A1-1: Application Form (< 50 kW) OR Form A1-2: Application Form (~~**Integrated Micro Generation and Storage**~~**Small Generation Installations**) OR Standard Application Form (> 50 kW)	Submit an application, so that the **DNO** can assess whether there is a requirement for network studies and network reinforcement, and whether it wants to witness the commissioning. For **Power Generating Module**s < 50 kW three phase or 17 kW single phase, Form A1-1 should be used. For **Small Generation Installations** ~~**Integrated Micro Generation and Storage** installations~~, Form A1-2 should be used. For larger schemes, the Standard Application Form should be used, which is generally available on **DNO** websites.	
4. Application acceptance	N/A	If the **DNO** determines that network reinforcement is required to facilitate connecting your **PGM**s, it will make you a Connection Offer. Once you have accepted the **DNO**'s Connection Offer, construction can begin. See ENA Distributed Generation Connection Guides for more information.	

EREC G99 Form A1-1

It is proposed to replace Form A1-1 with the form shown below:

Connection Application Forms for Type A Power Generating Facility (< 50 kW) (Form A1-1) and Small Generation Installation (Forms A1- 2)

Form A1-1 : Application for connection of Power Generating Module(s) with Total Aggregate Capacity <50 kW 3-phase or 17 kW single phase

For **Power Generating Module**s with an aggregate capacity < 50 kW 3-phase or 17 kW single-phase, this simplified application form can be used. For **Power Generating Module**s with an aggregate capacity > 50 kW 3-phase, the connection application should be made using the Standard Application Form (generally available from the **DNO** website).

If the **Power Generating Module** is **Fully Type Tested** and registered in the ENA Type Test Verification Report Register, this application form should include the **Manufacturer**'s reference number (the Product ID).

If part of the **Power Generating Module** is **Type Tested** and registered with the ENA Type Test Verification Report Register, this application form should include the **Manufacturer**'s reference number (the Product ID) and Form A2-1 or A2-2 or A2-3 (as appropriate) should be submitted to the **DNO** with this form.

If the **Power Generating Module** is neither **Fully Type Tested** or **Type Tested** then and Form A2-1 or A2-2 or A2-3 should be submitted to the **DNO** with this form. Alternatively the Standard Application Form should be submitted instead of this form.

To ABC electricity distribution **DNO**

99 West St, Imaginary Town, ZZ99 9AA abced@wxyz.com

Generator ~~Details~~details:	
Generator (name)	
Address	
Post Code	
Contact person (if different from **Generator**)	
Telephone number	
E-mail address	
MPAN(s)	
Installer ~~Details~~details:	
Installer	
Accreditation / Qualification	
Address	
Post Code	

EREC G99 Form A1-1

Contact person	
Telephone Number	
E-mail address	
Installation details:	
Address	
Post Code	
MPAN(s)	

Details of ~~Existing PGMs~~existing Generating Units – where applicable:

Manufacturer	Approximate Date of Installation	Technology Type	**Manufacturer**'s Ref No. where available	**~~PGM~~Generating Unit Registered Capacity** (kW)				
				3-phase units	Single Phase Units			**Power Factor**
					PH1	PH2	PH3	

Details of ~~Proposed Additional~~proposed additional Generating Unit(s):

Manufacturer	Approximate Date of Installation	Technology Type	**Manufacturer**'s Ref No. where available	**Generating Unit Registered Capacity** (kW)				
				3-phase units	Single Phase Units			**Power Factor**
					PH1	PH2	PH3	

Balance of ~~Multiple Single Phase~~multiple single phase Generating Units – where applicable

I confirm that design of the **Generator's Installation** has been carried out to limit output power imbalance to below 16A/phase, as required by EREC G99.

Signed :	Date :

Use continuation sheet where required.

Record ~~Power~~ **Generating ~~Module~~Unit Registered Capacity** kW at 230 AC, to one decimal place, under PH1 for single phase supplies and under the relevant phase for two and three phase supplies.
Detail on a separate sheet if there are any proposals to limit export to a lower figure than the aggregate **Registered Capacity** of all the ~~Power~~ **Generating ~~Modules~~Units** in the **Power Generating Facility**.

EREC G99 Form A1-2

It is proposed to replace the existing Form A1-2 with the form shown below:

Form A1-2 : Application for connection of Fully Type Tested ~~Integrated Micro~~ Generation ~~and Storage installations~~

~~For Integrated Micro~~under the Small Generation ~~and Storage installations~~Installation Procedure

For **Small Generation Installation** Procedures 2 or 3, this simplified application form can be used where all of the following eligibility ~~criteria apply~~conditions are met:

- The ~~**Power**~~new and existing **Generating** ~~**Modules**~~**Units** are located in a single **Generator's Installation**;
- The ~~total aggregate capacity~~**Intrinsic Design Capacity** **(IDC)** of ~~the **Power**~~each new and existing **Generating** ~~**Modules**~~**Unit** is no more than 32 A;
- All of the **Generating Unit**s (including **Electricity Storage** devices) ~~is between 16 A and 32 A per phase;~~are connected via EREC G98 or EREC G99 **Fully Type Tested** inverters;[7]
- The total aggregate ~~capacity~~**Registered Capacities** of all the ~~**Power**~~ **Generating** ~~**Module**~~**Unit**s (including **Electricity Storage** devices~~ do not exceed 16~~) is less than 60 A per phase; and
- Where required by the ~~total aggregate capacity of the **Power Generating Module**s that are not **Electricity Storage** devices do not exceed 16 A per phase. Note that if the total aggregated capacity of **Electricity Storage** and non-**Electricity Storage** devices is no greater than 16 A per phase, the single premises~~relevant **Small Generation Installation** procedure ~~described in EREC G98 applies;~~
- ~~All of the **Power Generating Module**s (including **Electricity Storage** units) are connected via EREC G98 **Type Tested Inverter**s (or EREC G83 **Type Tested Inverter**s, where the **Power Generating Module** was installed prior to 27 April 2019)~~
- ~~An~~SGI-2 or SGI-3, an EREC G100 compliant export limitation scheme is present that limits the export from the **Generator's Installation** to the **Distribution Network**~~ to 16 A per phase; and~~;
- ~~The **Power Generating Module**s will not operate when there is a loss of mains situation.~~

DNOs may have their own forms; refer to the **DNO**'s websites and online application tools. ~~If the **Power Generating Module** is registered with the ENA Type Test Verification Report Register, the~~ The application should include the **Manufacturer's** reference number (the ~~Product ID).~~system reference) from the ENA Type Test Verification Report Register.

If all the eligibility ~~criteria~~conditions apply the **DNO** will confirm that the installation can proceed. The planned commissioning date stated on the application shall be ~~within~~between 10 working days and 3 months from the date the application is submitted.

On completion of the installation the **Installer** shall submit the commissioning sheets, as required in EREC G100 alongside the EREC G99 forms.

[7] Or **Type Tested** to EREC G83 or G59~~,~~ where the **Generating Unit** was connected prior to 27 April 2019.

EREC G99 Form A1-2

To ABC electricity distribution **DNO** 99 West St, Imaginary Town, ZZ99 9AA abced@wxyz.com	
Generator ~~Details~~details:	
Generator (name)	
Address	
Post Code	
Contact person (if different from **Generator**)	
Telephone number	
E-mail address	
MPAN(s)	
Installer ~~Details (Generation):~~details:	
Installer	
Accreditation / Qualification	
Address	
Post Code	
Contact person	
Telephone Number	
E-mail address	
~~**Installer Details (Electricity Storage, if different from above):**~~	
~~**Installer**~~	
~~Accreditation / Qualification~~	
~~Address~~	
~~Post Code~~	
~~Contact person~~	
~~Telephone Number~~	

EREC G99 Form A1-2

~~E-mail address~~	
Installation details:	
Address	
Post Code	
MPAN(s)	

Details of ~~Existing PGMs~~existing Generating Units – where applicable:

~~**Manufacturer**~~	~~Approximate Date of Installation~~	~~Technology Type (e.g. Solar, Wind, Biomass, Diesel/CHP)~~	~~**Manufacturer's Ref No. where available**~~	~~**PGM Registered Capacity** (kW)~~				
				~~3 – phase units~~	~~Single Phase Units~~			~~**Power Factor**~~
					~~PH1~~	~~PH 2~~	~~PH3~~	

~~**Details of Proposed Additional Generating Unit(s) (including Electricity Storage):**~~

Manufacturer	Approximate Date of Installation	~~Technology Type (e.g. Solar, Wind, Biomass, Diesel/CHP, **Electricity Storage**)~~Energy source and energy conversion technology (enter codes from tables 1 and 2 below form)	**Manufacturer**'s Ref No. where available	**Generating Unit Intrinsic Design Capacity & Registered Capacity** (kW~~)~~)*		Energy storage capacity for **Electricity Storage** devices (kWh)
				3 -phase units	Single Phase Units	
				~~PH1~~	~~PH 2~~	~~PH3~~

~~**Please confirm all of the statements are true by ticking each box:**~~

EREC G99 Form A1-2

~~The **Power Generating Module**s are located in a single **Generator's Installation**.~~	
~~The total aggregate capacity of the **Power Generating Module**s (including **Electricity Storage** units) is between 16 A and 32 A per phase.~~	
~~The total aggregate capacity of the **Power Generating Module**s that are **Electricity Storage** devices do not exceed 16 A per phase and the total aggregate capacity of the **Power Generating Modules** that are not **Electricity Storage** devices do not exceed 16 A per phase.~~	
~~All of the **Power Generating Modules** (including **Electricity Storage** devices) are connected via EREC G98 **Type Tested Inverters** (or EREC G83 **Type Tested Inverter**s, where the **Power Generating Module** was installed prior to 27 April 2019)~~	
~~An EREC G100 compliant export limitation scheme is present that limits the export from the **Generator's Installation** to the **Distribution Network** to 16 A per phase; and~~	
~~The **Power Generating Module**s will not operate when there is a loss of mains situation.~~	

				IDC	RC	IDC	RC	

Details of proposed additional Generating Unit(s):

Manufacturer	Approximate Date of Installation	Energy source and energy conversion technology (enter codes from tables 1 and 2 below)	**Manufacturer**'s Ref No. where available	**Generating Unit Intrinsic Design Capacity** & **Registered Capacity** (kW)*				Energy storage capacity for **Electricity Storage** devices (kWh)
				3-phase units		Single Phase Units		
				IDC	RC	IDC	RC	

Details of Export Limitation Scheme

Where an export limitation scheme is required by SGI-2 or SGI-3 please state export limit setting in amps.	

Please confirm all of the statements below are true by ticking each box:

EREC G99 Form A1-2

The **Generating Unit(s)** is located in a single **Generator's Installation**.	
The **Intrinsic Design Capacity** of each new and existing **Generating Unit** is no more than 32 A.	
All of the **Generating Units** (including **Electricity Storage** devices) are connected via EREC G99 or G98 **Type Tested Inverters** (or EREC G59 or G83 **Type Tested Inverters**, where the **Power Generating Unit** was installed prior to 27 April 2019)	
The total aggregate **Registered Capacity** of the **Generating Units** (including **Electricity Storage** devices) is no more than 60 A per phase.	
An EREC G100 compliant export limitation scheme is present that limits the export from the **Generator's** installation to the **Distribution Network** if required by SGI-2 or SGI-3.	
The following information should be submitted with the application:	
Copy of single line diagram of export limitation scheme.	
Explanation / description of the EREC G100 export limitation scheme operation including a description of the fail-safe functionality ~~eg,~~ ie the response of the scheme following failure of ~~a:~~any component or device of the fail-safe system, or following any loss of communication between the components and devices of the scheme. • ~~Power monitoring unit~~ • ~~Control unit~~ • ~~**Power Generating Module** interface unit~~ • ~~Demand control unit~~ • ~~Communication equipment~~ Note, fail-safe tests are not required at installations where all **Generating Unit**s are EREC G83 or EREC G98 **Type Tested**, aggregated capacity is not more than 32 A per phase and export ~~capacity~~ is limited to 16 A per phase.	

Additional details:		
Target date for provision of connection / commissioning of ~~**Electricity Storage** devices:~~*new **Generating Units**:**		
EREC G100 compliance declaration / EREC G100 Type Test reference as applicable:		
Signed :		Date :

Use continuation sheet where required.

* Record **Power Generating Module Registered Capacity** kW at 230 AC, to one decimal place~~, under PH1 for single phase supplies and under the relevant phase for two and three phase supplies~~.

~~Include a schematic diagram for the proposed scheme.~~

~~*~~** The planned commissioning date shall be ~~at least~~between 10 working days and 3 months from the date of application but not more than 3 months in advance (connection offers are only valid for 3 months).

EREC G99 Form A3-2

It is proposed to replace Form A3-2 with the form shown below

Form A3-2: Installation ~~Document~~Notification Form for ~~Integrated Micro~~Small Generation Installation Procedures 2 and ~~Storage~~ 3

Please complete and provide this document for each ~~Integrated Micro Generation and Storage~~ installation.

Part 1 should be completed for the ~~Integrated Micro Generation and Storage~~overall installation.

Part 2 should be completed for each of the ~~Power~~ **Generating** ~~Modules~~**Units** (ie for the **Electricity Storage** ~~Inverters~~devices and non-**Electricity Storage** ~~Power~~ **Generating** ~~Module Inverters~~**Unit** inverters) being commissioned. Where the installation is phased the form should be completed on a per **Generating Unit** basis as each part of the installation is completed in accordance with EREC G99 paragraph 15.3.3. For phased installations reference to **PGM** in this form should be read as reference to **Generating Unit**s.

Form A3-2 Part 1

To ABC electricity distribution **DNO**

99 West St, Imaginary Town, ZZ99 9AA abced@wxyz.com

Generator ~~Details~~details:	
Generator (name)	
Address	
Post Code	
Contact person (if different from **Generator**)	
Telephone number	
E-mail address	
MPAN(s)	
Generator signature	
Installer ~~Details~~details:	
Installer	

EREC G99 Form A3-2

Accreditation / Qualification	
Address	
Post Code	
Contact person	
Telephone Number	
E-mail address	
Installer signature	
Installation details:	
Address	
Post code	
Location within **Generator's Installation**	
Location of Lockable Isolation Switch	

**Summary details of ~~Power~~ Generating ~~Module~~s ~~(including Electricity Storage)~~ Units - where multiple ~~Power~~ Generating ~~Modules~~Units will exist within one Generator's Installation~~.~~

Manufacturer / Reference	Date of Installation	~~Technology Type~~Energy source and energy conversion technology (enter codes from tables 1 and 2 below)	**Manufacturer**s Ref No. ~~(Product ID~~(system reference) or Reference to Form A2-3	~~Power~~ Generating ~~Module~~Unit **Registered Capacity** in kW				
				3-Phase Units	Single Phase Units			**Power Factor**
					PH 1	PH 2	PH 3	

Emerging technology classification (if applicable~~):~~)

EREC G99 Form A3-2

Commissioning Checks~~:~~	
Description	**Confirmation**
Generator's Installation satisfies the requirements of BS7671 (IET Wiring Regulations).	Yes / No*
Suitable lockable points of isolation have been provided between the ~~**PGMs**~~**PGM(**s) and the rest of the **Generator's Installation**.	Yes / No*
Labels have been installed at all points of isolation in accordance with EREC G99.	Yes / No*
Interlocking that prevents ~~**PGMs**~~the **PGM(**s) being connected in parallel with the **DNO**'s **Distribution Network** (without synchronising) is in place and operates correctly.	Yes / No*
Balance of Multiple Single Phase ~~**PGMs**~~**Generating Unit**s. Confirm that design of the **Generator's Installation** has been carried out to limit output power imbalance to below 16 A per phase, as required by EREC G99.	Yes / No*
The **PGM** complies with cyber security requirements	Yes / No*
Export limitation scheme meets the requirements of EREC G100 and has been commissioned in accordance with EREC G100.	Yes / No*
Information to be enclosed~~:~~	
Description	Confirmation *
As installed Standard Application Form data, unless already provided.	Yes / No*
Final copy of circuit diagram	Yes / No*
EREC G100 Export limitation scheme installation and commissioning test form.	Yes / No*

EREC G99 Form A3-2

Form A3-2 Part 2	
Power Generating Module reference or name	
Information to be enclosed~~.~~	
Description	Confirmation *
Schedule of protection settings (may be included in circuit diagram)	Yes / No*
Commissioning ~~Checks.~~checks	
The **Interface Protection** settings have been checked and comply with EREC G99.	Yes / No*
The **PGM** successfully synchronises with the **DNO**'s **Distribution Network** without causing significant voltage disturbance.	Yes / No*
The **PGM** successfully runs in parallel with the **DNO**'s **Distribution Network** without tripping and without causing significant voltage disturbances.	Yes / No*
The **PGM** successfully disconnects without causing a significant voltage disturbance, when it is shut down.	Yes / No*
Interface Protection operates and disconnects the **DNO**'s **Distribution Network** quickly (within 1 s) when a suitably rated switch, located between the **PGM** and the **DNO**'s incoming connection, is opened.	Yes / No*
The **PGM** remains disconnected for at least 20 s after switch is reclosed.	Yes / No*
Loss of tripping and auxiliary supplies. Where applicable, loss of supplies to tripping and protection relays results in either ~~**PGM**~~the forced trip of the **PGM** (or relevant **Generating Unit)** or an alarm to a 24 hour manned control centre.	Yes / No*
*Circle as appropriate. If "No" is selected the **Power Generating Facility** is deemed to have failed the commissioning tests and the ~~**Power Generating Module**~~**PGM** shall not be put in service.	
Additional comments / observations:	

EREC G99 Form A3-2

Declaration – to be completed by **Generator** or **Generator's** Appointed Technical Representative.	
I declare that for the **Power Generating Module** within the scope of this EREC G99, and the installation: 1. Compliance with the requirements of EREC G99 and EREC G100 is achieved. 2. The **Power Generating Module** is **Fully Type Tested**. 3. The commissioning checks detailed in this Form A3-2 Part 2 have been successfully completed.	
Name:	
Signature:	Date:
Company Name:	
Position:	

EREC G99 Form A3-3

It is proposed to add a new Form A3-3 as shown below:

Form A3-3 – Installation Notification Form for Small Generation Installation Procedure 1

This form is to be used for the notification to the **DNO** of **Generating Units** installed and commissioned under **Small Generation Installation** Procedure 1 and where the eligibility conditions are met:

- The new and existing **Generating Units** are located in a single **Generator's Installation**;
- The **Intrinsic Design Capacity** of each new and existing **Generating Unit** is no more than 32 A per phase;
- The **Registered Capacity** of each new or existing **Generating Unit** is no more than 16A per phase;
- All of the **Generating Unit**s (including **Electricity Storage** devices) are connected via EREC G98 or EREC G99 **Fully Type Tested** Inverters;[8]
- The total aggregate **Registered Capacities** of all the **Generating Units** (including **Electricity Storage** devices) is less than 16 A per phase; and

DNOs may have their own forms; refer to the **DNO**'s websites and online application tools. The application should include the **Manufacturer's** reference number (the system reference) from the ENA Type Test Verification Report Register.

On completion of the installation the **Installer** shall submit this form A3-3, alongside an application for the removal of the limitation on the appropriate EREC G99 forms (if permission is being sought for the removal of the limitation at the same time as submitting this notification).

Please complete and provide this document for each premises, once the installation is complete.

To ABC electricity distribution **DNO**

99 West St, Imaginary Town, ZZ99 9AA abced@wxyz.com

Customer details:	
Customer (name)	
Address	
Post Code	
Contact person (if different from **Customer**)	

[8] Or **Type Tested** to EREC G83 or G59~~,~~ where the **Generating Unit** was connected prior to 27 April 2019.

EREC G99 Form A3-3

Telephone number	
E-mail address	
Customer signature	
Installer details:	
Installer	
Accreditation / Qualification	
Address	
Post Code	
Contact person	
Telephone Number	
E-mail address	
Installer signature	
Installation details	
Address	
Post Code	
MPAN(s)	
Location within **Customer's Installation**	
Location of Lockable Isolation Switch	

Details of Generating Units. Use a separate line for new and existing installations and for different technology types. Use PH 1 column for single phase supply.

Manufacturer	Date of Installation	Energy source and energy conversion technology (enter codes from tables 1 and 2 below)	**Manufacturer**'s Ref No (this number should be registered on the ENA **Type Test Verification Report** Register as the system reference)	**Generating Unit** capacities in kW				Energy storage capacity for **Electricity Storage** devices (kWh)
				3-Phase Units	Single Phase Units			
					PH1	PH2	PH3	
				Intrinsic Design Capacity (kW)*				

EREC G99 Form A3-3

				Registered Capacity (kW)*					
				Intrinsic Design Capacity (kW)					
				Registered Capacity (kW)					
				Intrinsic Design Capacity (kW)					
				Registered Capacity (kW)					
				Intrinsic Design Capacity (kW)					
				Registered Capacity (kW)					
Declaration – to be completed by Installer for Generating Units tested to EREC G98 or EREC G99.									
I declare that the relevant **Generating Units** and the installation which together form a **Power Generating Module** at the above address, conform to the requirements of EREC G99.									
Signature:				Date:					

* **Intrinsic Design Capacity** is the basic design capacity of the **Generating Unit** (and will be the value of **Registered Capacity** in the ENA's Type Test Register). For SGI-1, where the **Registered Capacity** is limited and is less than the **Intrinsic Design Capacity**, both values should be recorded here.

Table 1

	Energy Source
A	Advanced Fuel (produced via gasification or pyrolysis of biofuel or waste)
B	Biofuel - Biogas from anaerobic digestion (excluding landfill & sewage)
C	Biofuel - Landfill gas
D	Biofuel - Sewage gas
E	Biofuel - Other

EREC G99 Form A3-3

	Energy Source
F	Biomass
G	Fossil - Brown coal/lignite
H	Fossil - Coal gas
I	Fossil - Gas
J	Fossil - Hard coal
K	Fossil - Oil
L	Fossil - Oil shale
M	Fossil - Peat
N	Fossil - Other
O	Geothermal
P	Hydrogen
Q	Nuclear
R	Solar
S	Stored Energy (all stored energy irrespective of the original energy source)
T	Waste
U	Water (flowing water or head of water)
V	Wind
W	Other

Table 2

	Energy Conversion Technology
1	Engine (combustion / reciprocating)
2	Fuel Cell
3	Gas turbine (OCGT)
4	Geothermal power plant
5	Hydro - Reservoir (not pumped)
6	Hydro - Run of river
7	Hydro - Other
8	Interconnector
9	Offshore wind turbines
10	Onshore wind turbines
11	Photovoltaic
12	Steam turbine (thermal power plant)
13	Steam-gas turbine (CCGT)
14	Tidal lagoons

EREC G99 Form A3-3

	Energy Conversion Technology
15	Tidal stream devices
16	Wave devices
17	Storage - Chemical - Ammonia
18	Storage - Chemical - Hydrogen
19	Storage - Chemical - Synthetic Fuels
20	Storage - Chemical - Drop-in Fuels
21	Storage - Chemical - Methanol
22	Storage - Chemical - Synthetic Natural Gas
23	Storage - Electrical - Supercapacitors
24	Storage - Electrical - Superconducting Magnetic ES (SMES)
25	Storage - Mechanical - Adiabatic Compressed Air
26	Storage - Mechanical - Diabatic Compressed Air
27	Storage - Mechanical - Liquid Air Energy Storage
28	Storage - Mechanical - Pumped Hydro
29	Storage - Mechanical - Flywheels
30	Storage - Thermal - Latent Heat Storage
31	Storage - Thermal - Thermochemical Storage
32	Storage - Thermal - Sensible Heat Storage
33	Storage - Electrochemical Classic Batteries -Lead Acid
34	Storage - Electrochemical Classic Batteries -Lithium Polymer (Li-Polymer)
35	Storage - Electrochemical Classic Batteries -Metal Air
36	Storage - Electrochemical Classic Batteries -Nickle Cadmium (Ni-Cd)
37	Storage - Electrochemical Classic Batteries -Sodium Nickle Chloride (Na-NiCl2)
38	Storage - Electrochemical Classic Batteries -Lithium Ion (Li–ion)
39	Storage - Electrochemical Classic Batteries -Sodium Ion (Na–ion)
40	Storage - Electrochemical Classic Batteries -Lithium Sulphur (Li-S)
41	Storage - Electrochemical Classic Batteries -Sodium Sulphur (Na-S
42	Storage - Electrochemical Classic Batteries -Nickle –Metal Hydride (Ni-MH)
43	Storage - Electrochemical Flow Batteries - Vanadium Red-Oxide
44	Storage - Electrochemical Flow Batteries - Zinc – Iron (Zn –Fe)
45	Storage - Electrochemical Flow Batteries - Zinc – Bromine (Zn –Br)
46	Storage - Other
47	Other

EREC G99 Small Generation Installation Process

Guidance on the EREC G99 connection application procedures for small generation.

Introduction

This document describes three processes to allow the rapid connection of small generation equipment in customers' installations. The process that applies depends on the type, size and quantity of generation that is to be connected and the generation that is already installed.

These processes apply when:

- All existing and new generation and/or storage equipment is type tested to meet the requirements of G83, G59, G98 or G99;
- All of the generation and/or storage equipment is located in a single customer's premises;
- The basic design of each device is such that its maximum rating is 32A (per phase) or less.

Generation equipment can now be supplied by manufacturers where the output can be limited, for example, by software. This allows equipment that otherwise might be too large to be connected, if running at full power, to have its output power limited such that it can be connected. This is especially useful if the limit is expected to be temporary whilst an investigation is undertaken to confirm whether the restriction can be removed and the equipment run at full power.

Electric vehicles are considered as storage equipment if, and only if, they operate in vehicle to grid mode.

Customers can also take advantage of G100 Customer Limitations Schemes where the export of power to the distribution network is limited by a system that measures the current at the connection point. Such systems/schemes have to comply with G100. Two of the three Small Generation Installation processes use G100 schemes.

The existing G98 and three G99 Small Generation Installation Processes can be summarised as follows:

G98	All generation/storage devices are each rated at no more than 16A and the total of all ratings is also no more than 16A. [+]
G99 SGI-1	All generation/storage devices are each rated* at no more than 16A and the total of all the ratings* is also no more than 16A. [+]
G99 SGI-2	All generation/storage devices are each rated* at no more than 16A and the total of all the ratings* is no more than 32A. A G100 scheme limits the export to the distribution network to no more than 16A.
G99 SGI-3	All generation/storage devices are each of rated* at no more than 32A and the total of all the ratings is no more than 60A. A G100 scheme limits the export to the distribution network to no more than 32A.

+ Note that the difference between the G98 process and G99 SGI-1 process is that in the G99 SGI-1 process the rating can be limited by the manufacture to less than the basis design capacity, which is not permitted in the G98 process. Both process are, however both 'install and notify' processes.

** For Small Generation Installation purposes the rating can be less than the basic design capacity if the manufacturer has limited the output to the lower rating. This is not allowable for connections under G98.*

The procedures described below refer to the paper forms included in the appendices of G99. However note that the DNO may provide a method of submitting the same information by electronic means, on line etc.

Small Generation Installation – Procedure 1

(a) This process applies if all these conditions are met:

1. All of the generation and/or storage equipment is located in a single installation, ie in a single customer's premises;
2. All existing and new generation and/or storage equipment is type tested to G83, G59, G98 or G99;
3. The basic design capacity of each piece of equipment is 32 A (per phase) or less;
4. Any equipment that has a basic design capacity of greater than 16 A is making use of the manufacturer's facility to limit its output to 16 A; and
5. The sum of all the ratings of all the equipment is no more than 16 A per phase.

(b) If all the conditions in (a) are met, the equipment can be connected and Form A3-3 (attached) submitted to the DNO. Where the DNO provides an on-line application tool for SGI-1, this can be used instead of Form A3-3.

(c) Before any restriction on output can be removed, a formal application must be made to the DNO using either Form A1-1 or Form A1-2 as appropriate (attached). Again, where the DNO provides an on-line application tool, this can be used instead of Forms A1-1 or A1-2.

Small Generation Installation – Procedure 2

Note - this process is the existing Integrated Microgeneration and Storage process, sometimes called the fast track process. It has been retained so as not to apply any new requirements to installations that meet the requirements of this existing process.

(a) This process applies if all these conditions are met:

1. All of the generation and/or storage equipment is located in a single installation, ie in a single customer's premises;
2. All existing and new generation and/or storage equipment is type tested to G83, G59, G98 or G99;

3. The basic design capacity of each piece of equipment is 32A (per phase) or less;
4. Any equipment that has a basic design capacity of greater than 16 A is making use of the manufacturer's facility to limit its output to 16 A;
5. The sum of all the ratings of all the equipment is no more than 32 A per phase; and
6. A G100 export limitation scheme limits the export to the distribution network to be no more than 16 A.

(b) If all the conditions in (a) are met the customer should apply to connect the equipment using form A1-2 (attached). Where the DNO provides an on-line application tool for SGI-2, this can be used instead of Form A1-2.

(c) The DNO will confirm whether the installation and commissioning can go ahead within ten days. Given the lower limit of capacities allowed in this procedure SGI-2 compared to that of SGI-3, the DNO will generally apply less complex than in procedure SGI-3.

(d) The planned commissioning date stated on the application form must be between 10 working days and 3 months from the date that the application is submitted to the network operator.

(d) If the DNO confirms in (c) above that commissioning can go ahead, confirmation of the commissioning of the equipment must be made no later than 28 days after commissioning. Confirmation shall be provided in a format as shown in Form A3-2 (attached). In addition to Form A3-2, an EREC G100 export limitation scheme Installation and Commissioning Tests form (attached) must be submitted along with the commissioning confirmation form. Again, where the DNO provides an on-line application tool, this can be used instead of the forms listed in this paragraph.

(e) If the DNO needs to undertake further analysis, the DNO will confirm this at (c) above. This effectively ends the SGI-2 process and the application will be progressed by the DNO in the normal way.

Small Generation Installation – Procedure 3

(a) This process applies if all these conditions are met:

1. All of the generation and/or storage equipment is located in a single installation, ie in a single customer's premises;
2. All existing and new generation and/or storage equipment is type tested to meet the requirements of G83, G59, G98 or G99;
3. The basic design capacity of each piece of equipment is such that its maximum rating is 32A (per phase) or less;
4. The sum of all the ratings of all the equipment is no more than 60 A per phase; and
5. A G100 export limitation scheme limits the export to the distribution network to be no more than 32 A.

(b) If all the conditions in (a) are met the customer should apply to connect the equipment using Form A1-2 (attached). Where the DNO provides an on-line application tool for SGI-3, this can be used instead of Form A1-2.

(c) The DNO will confirm within 10 working days of the submission whether it is necessary for a site specific analysis of the application, taking into account the basic design of each piece of equipment, the overall effect of all the equipment and the local network conditions. Where the network operator identifies there is a need for further analysis, no further submission of information is required, but commissioning must not proceed until the network operator has established if it is necessary to upgrade the network, and whether such work may be chargeable.

(d) The planned commissioning date stated on the application form must be between 10 working days and 3 months from the date that the application is submitted to the network operator.

(e) If the DNO confirms in (c) above that commissioning can go ahead, confirmation of the commissioning of the equipment must be made no later than 28 days after commissioning. Confirmation shall be provided in a format as shown in Form A3-2 (attached). In addition to Form A3-2, an EREC G100 export limitation scheme Installation and Commissioning Tests form (attached) must be submitted along with the commissioning confirmation form. Again, where the DNO provides an on-line method, this can be used instead of the forms listed in this paragraph.

Form G99 Form A1-2

Form A1-2 : Application for connection of Fully Type Tested Generation under the Small Generation Installation Procedure

For **Small Generation Installation** Procedures 2 or 3, this simplified application form can be used where all of the following eligibility conditions are met:

- The new and existing **Generating Unit**s are located in a single **Generator's Installation**;
- The **Intrinsic Design Capacity** of each new and existing **Generating Unit** is no more than 32 A;
- All of the **Generating Unit**s (including **Electricity Storage** devices) are connected via EREC G98 or EREC G99 **Fully Type Tested** inverters;[9]
- The total aggregate **Registered Capacities** of all the **Generating Unit**s (including **Electricity Storage** devices) is less than 60 A per phase; and
- Where required by the relevant **Small Generation Installation** procedure SGI-2 or SGI-3, an EREC G100 compliant export limitation scheme is present that limits the export from the **Generator's Installation** to the **Distribution Network**;

DNOs may have their own forms; refer to the **DNO**'s websites and online application tools. The application should include the **Manufacturer's** reference number (the system reference) from the ENA Type Test Verification Report Register.

If all the eligibility conditions apply the **DNO** will confirm that the installation can proceed. The planned commissioning date stated on the application shall be between 10 working days and 3 months from the date the application is submitted.

On completion of the installation the **Installer** shall submit the commissioning sheets, as required in EREC G100 alongside the EREC G99 forms.

To ABC electricity distribution **DNO**

99 West St, Imaginary Town, ZZ99 9AA abced@wxyz.com

Generator Details:	
Generator (name)	
Address	
Post Code	
Contact person (if different from **Generator**)	
Telephone number	

[9] Or **Type Tested** to EREC G83 or G59 where the **Generating Unit** was connected prior to 27 April 2019.

Form G99 Form A1-2

E-mail address	
MPAN(s)	
Installer Details:	
Installer	
Accreditation / Qualification	
Address	
Post Code	
Contact person	
Telephone Number	
E-mail address	
Installation details:	
Address	
Post Code	
MPAN(s)	

Details of Existing Generating Units **– where applicable:**

Manufacturer	Approximate Date of Installation	Energy source and energy conversion technology (enter codes from tables 1 and 2 below form)	**Manufacturer**'s Ref No. where available	**Generating Unit Intrinsic Design Capacity** & **Registered Capacity** (kW)*				Energy storage capacity for **Electricity Storage** devices (kWh)
				3 -phase units		Single Phase Units		
				IDC	RC	IDC	RC	

Details of Proposed Additional Generating Unit(s):

Appendix 2 – Plain English explanation of the proposed SGIs

Form G99 Form A1-2

Manufacturer	Approximate Date of Installation	Energy source and energy conversion technology (enter codes from tables 1 and 2 below)	**Manufacturer**'s Ref No. where available	**Generating Unit Intrinsic Design Capacity** & **Registered Capacity** (kW)*				Energy storage capacity for **Electricity Storage** devices (kWh)
				3-phase units		Single Phase Units		
				IDC	RC	IDC	RC	

Details of Export Limitation Scheme	
Where an export limitation scheme is required by SGI-2 or SGI-3 please state export limit setting in amps.	

Please confirm all of the statements below are true by ticking each box:	
The **Generating Unit(s)** is located in a single **Generator's Installation**.	
The **Intrinsic Design Capacity** of each new and existing **Generating Unit** is no more than 32 A.	
All of the **Generating Units** (including **Electricity Storage** devices) are connected via EREC G99 or G98 **Type Tested Inverters** (or EREC G59 or G83 **Type Tested Inverter**s, where the **Power Generating Unit** was installed prior to 27 April 2019)	
The total aggregate **Registered Capacity** of the **Generating Unit**s (including **Electricity Storage** devices) is no more than 60 A per phase.	
An EREC G100 compliant export limitation scheme is present that limits the export from the **Generator's** installation to the **Distribution Network** if required by SGI-2 or SGI-3.	

The following information should be submitted with the application:
Copy of single line diagram of export limitation scheme.
Explanation / description of the EREC G100 export limitation scheme operation including a description of the fail-safe functionality, ie the response of the scheme following failure of any component or device of the fail-safe system, or following any loss of communication between the components and devices of the scheme. Note, fail-safe tests are not required at installations where all **Generating Unit**s are EREC G83 or EREC G98 **Type Tested**, aggregated capacity is not more than 32 A per phase and export is limited to 16 A per phase.
Additional details:

Form G99 Form A1-2

Target date for provision of connection / commissioning of new **Generating Units**:**		
EREC G100 compliance declaration / EREC G100 Type Test reference as applicable:		
Signed :		Date :
Use continuation sheet where required. * Record **Power Generating Module Registered Capacity** kW at 230 AC, to one decimal place,. ** The planned commissioning date shall be between 10 working days and 3 months from the date of application but not more than 3 months in advance (connection offers are only valid for 3 months).		

Form G99 A3-2

Form A3-2: Installation Notification Form for Small Generation Installation Procedures 2 and 3

Please complete and provide this document for each installation.

Part 1 should be completed for the overall installation.

Part 2 should be completed for each of the **Generating Units** (ie for the **Electricity Storage** devices and non-**Electricity Storage Generating Unit** inverters) being commissioned. Where the installation is phased the form should be completed on a per **Generating Unit** basis as each part of the installation is completed in accordance with EREC G99 paragraph 15.3.3. For phased installations reference to **PGM** in this form should be read as reference to **Generating Unit**s.

Form A3-2 Part 1

To ABC electricity distribution **DNO**

99 West St, Imaginary Town, ZZ99 9AA abced@wxyz.com

Generator details:	
Generator (name)	
Address	
Post Code	
Contact person (if different from **Generator**)	
Telephone number	
E-mail address	
MPAN(s)	
Generator signature	
Installer details:	
Installer	

Form G99 A3-2

Accreditation / Qualification	
Address	
Post Code	
Contact person	
Telephone Number	
E-mail address	
Installer signature	
Installation details:	
Address	
Post code	
Location within **Generator's Installation**	
Location of Lockable Isolation Switch	

Summary details of Generating Units **-** where multiple **Generating Units** will exist within one **Generator's Installation**

Manufacturer / Reference	Date of Installation	Energy source and energy conversion technology (enter codes from tables 1 and 2 below)	**Manufacturer**s Ref No. (system reference) or Reference to Form A2-3	**Generating Unit Registered Capacity** in kW				
				3-Phase Units	Single Phase Units			**Power Factor**
					PH 1	PH 2	PH 3	

Emerging technology classification (if applicable)

Form G99 A3-2

Commissioning Checks	
Description	**Confirmation**
Generator's Installation satisfies the requirements of BS7671 (IET Wiring Regulations).	Yes / No*
Suitable lockable points of isolation have been provided between the **PGM(**s) and the rest of the **Generator's Installation**.	Yes / No*
Labels have been installed at all points of isolation in accordance with EREC G99.	Yes / No*
Interlocking that prevents the **PGM(**s) being connected in parallel with the **DNO**'s **Distribution Network** (without synchronising) is in place and operates correctly.	Yes / No*
Balance of Multiple Single Phase **Generating Unit**s. Confirm that design of the **Generator's Installation** has been carried out to limit output power imbalance to below 16 A per phase, as required by EREC G99.	Yes / No*
The **PGM** complies with cyber security requirements	Yes / No*
Export limitation scheme meets the requirements of EREC G100 and has been commissioned in accordance with EREC G100.	Yes / No*
Information to be enclosed	
Description	Confirmation *
As installed Standard Application Form data, unless already provided.	Yes / No*
Final copy of circuit diagram	Yes / No*
EREC G100 Export limitation scheme installation and commissioning test form.	Yes / No*

Form G99 A3-2

Form A3-2 Part 2	
Power Generating Module reference or name	
Information to be enclosed	
Description	Confirmation *
Schedule of protection settings (may be included in circuit diagram)	Yes / No*
Commissioning checks	
The **Interface Protection** settings have been checked and comply with EREC G99.	Yes / No*
The **PGM** successfully synchronises with the **DNO**'s **Distribution Network** without causing significant voltage disturbance.	Yes / No*
The **PGM** successfully runs in parallel with the **DNO**'s **Distribution Network** without tripping and without causing significant voltage disturbances.	Yes / No*
The **PGM** successfully disconnects without causing a significant voltage disturbance, when it is shut down.	Yes / No*
Interface Protection operates and disconnects the **DNO**'s **Distribution Network** quickly (within 1 s) when a suitably rated switch, located between the **PGM** and the **DNO**'s incoming connection, is opened.	Yes / No*
The **PGM** remains disconnected for at least 20 s after switch is reclosed.	Yes / No*
Loss of tripping and auxiliary supplies. Where applicable, loss of supplies to tripping and protection relays results in either the forced trip of the **PGM** (or relevant **Generating Unit)** or an alarm to a 24 hour manned control centre.	Yes / No*
*Circle as appropriate. If "No" is selected the **Power Generating Facility** is deemed to have failed the commissioning tests and the **PGM** shall not be put in service.	
Additional comments / observations:	

Form G99 A3-2

Declaration – to be completed by **Generator** or **Generator's** Appointed Technical Representative	
I declare that for the **Power Generating Module** within the scope of this EREC G99, and the installation: 1. Compliance with the requirements of EREC G99 and EREC G100 is achieved. 2. The **Power Generating Module** is **Fully Type Tested**. 3. The commissioning checks detailed in this Form A3-2 Part 2 have been successfully completed.	
Name:	
Signature:	Date:
Company Name:	
Position:	

Form G99 Form A3-3

Form A3-3 – Installation Notification Form for Small Generation Installation Procedure 1

This form is to be used for the notification to the **DNO** of **Generating Units** installed and commissioned under **Small Generation Installation** Procedure 1 and where the eligibility conditions are met:

- The new and existing **Generating Units** are located in a single **Generator's Installation**;
- The **Intrinsic Design Capacity** of each new and existing **Generating Unit** is no more than 32 A per phase;
- The **Registered Capacity** of each new or existing **Generating Unit** is no more than 16A per phase;
- All of the **Generating Unit**s (including **Electricity Storage** devices) are connected via EREC G98 or EREC G99 **Fully Type Tested** Inverters;[10]
- The total aggregate **Registered Capacities** of all the **Generating Units** (including **Electricity Storage** devices) is less than 16 A per phase; and

DNOs may have their own forms; refer to the **DNO**'s websites and online application tools. The application should include the **Manufacturer's** reference number (the system reference) from the ENA Type Test Verification Report Register.

On completion of the installation the **Installer** shall submit this form A3-3, alongside an application for the removal of the limitation on the appropriate EREC G99 forms (if permission is being sought for the removal of the limitation at the same time as submitting this notification).

Please complete and provide this document for each premises, once the installation is complete.

To ABC electricity distribution **DNO**

99 West St, Imaginary Town, ZZ99 9AA abced@wxyz.com

Customer details:	
Customer (name)	
Address	
Post Code	
Contact person (if different from **Customer**)	
Telephone number	

[10] Or **Type Tested** to EREC G83 or G59 where the **Generating Unit** was connected prior to 27 April 2019.

Form G99 Form A3-3

E-mail address	
Customer signature	
Installer details:	
Installer	
Accreditation / Qualification	
Address	
Post Code	
Contact person	
Telephone Number	
E-mail address	
Installer signature	
Installation details	
Address	
Post Code	
MPAN(s)	
Location within **Customer's Installation**	
Location of Lockable Isolation Switch	

Details of Generating Units. Use a separate line for new and existing installations and for different technology types. Use PH 1 column for single phase supply.

Manufacturer	Date of Installation	Energy source and energy conversion technology (enter codes from tables 1 and 2 below)	**Manufacturer**'s Ref No (this number should be registered on the ENA **Type Test Verification Report** Register as the system reference)	**Generating Unit** capacities in kW				Energy storage capacity for **Electricity Storage** devices (kWh)
				3-Phase Units	Single Phase Units			
					PH1	PH2	PH3	
				Intrinsic Design Capacity (kW)*				
				Registered Capacity (kW)*				

Form G99 Form A3-3

				Intrinsic Design Capacity (kW)				
				Registered Capacity (kW)				
				Intrinsic Design Capacity (kW)				
				Registered Capacity (kW)				
				Intrinsic Design Capacity (kW)				
				Registered Capacity (kW)				

Declaration – to be completed by Installer for Generating Units tested to EREC G98 or EREC G99.	
I declare that the relevant **Generating Units** and the installation which together form a **Power Generating Module** at the above address, conform to the requirements of EREC G99.	
Signature:	Date:

* **Intrinsic Design Capacity** is the basic design capacity of the **Generating Unit** (and will be the value of **Registered Capacity** in the ENA's Type Test Register). For SGI-1, where the **Registered Capacity** is limited and is less than the **Intrinsic Design Capacity**, both values should be recorded here.

Table 1

	Energy Source
A	Advanced Fuel (produced via gasification or pyrolysis of biofuel or waste)
B	Biofuel - Biogas from anaerobic digestion (excluding landfill & sewage)
C	Biofuel - Landfill gas
D	Biofuel - Sewage gas
E	Biofuel - Other
F	Biomass
G	Fossil - Brown coal/lignite

Form G99 Form A3-3

	Energy Source
H	Fossil - Coal gas
I	Fossil - Gas
J	Fossil - Hard coal
K	Fossil - Oil
L	Fossil - Oil shale
M	Fossil - Peat
N	Fossil - Other
O	Geothermal
P	Hydrogen
Q	Nuclear
R	Solar
S	Stored Energy (all stored energy irrespective of the original energy source)
T	Waste
U	Water (flowing water or head of water)
V	Wind
W	Other

Table 2

	Energy Conversion Technology
1	Engine (combustion / reciprocating)
2	Fuel Cell
3	Gas turbine (OCGT)
4	Geothermal power plant
5	Hydro - Reservoir (not pumped)
6	Hydro - Run of river
7	Hydro - Other
8	Interconnector
9	Offshore wind turbines
10	Onshore wind turbines
11	Photovoltaic
12	Steam turbine (thermal power plant)
13	Steam-gas turbine (CCGT)
14	Tidal lagoons
15	Tidal stream devices
16	Wave devices

Form G99 Form A3-3

	Energy Conversion Technology
17	Storage - Chemical - Ammonia
18	Storage - Chemical - Hydrogen
19	Storage - Chemical - Synthetic Fuels
20	Storage - Chemical - Drop-in Fuels
21	Storage - Chemical - Methanol
22	Storage - Chemical - Synthetic Natural Gas
23	Storage - Electrical - Supercapacitors
24	Storage - Electrical - Superconducting Magnetic ES (SMES)
25	Storage - Mechanical - Adiabatic Compressed Air
26	Storage - Mechanical - Diabatic Compressed Air
27	Storage - Mechanical - Liquid Air Energy Storage
28	Storage - Mechanical - Pumped Hydro
29	Storage - Mechanical - Flywheels
30	Storage - Thermal - Latent Heat Storage
31	Storage - Thermal - Thermochemical Storage
32	Storage - Thermal - Sensible Heat Storage
33	Storage - Electrochemical Classic Batteries -Lead Acid
34	Storage - Electrochemical Classic Batteries -Lithium Polymer (Li-Polymer)
35	Storage - Electrochemical Classic Batteries -Metal Air
36	Storage - Electrochemical Classic Batteries -Nickle Cadmium (Ni-Cd)
37	Storage - Electrochemical Classic Batteries -Sodium Nickle Chloride (Na-NiCl2)
38	Storage - Electrochemical Classic Batteries -Lithium Ion (Li–ion)
39	Storage - Electrochemical Classic Batteries -Sodium Ion (Na–ion)
40	Storage - Electrochemical Classic Batteries -Lithium Sulphur (Li-S)
41	Storage - Electrochemical Classic Batteries -Sodium Sulphur (Na-S
42	Storage - Electrochemical Classic Batteries -Nickle –Metal Hydride (Ni-MH)
43	Storage - Electrochemical Flow Batteries - Vanadium Red-Oxide
44	Storage - Electrochemical Flow Batteries - Zinc – Iron (Zn –Fe)
45	Storage - Electrochemical Flow Batteries - Zinc – Bromine (Zn –Br)
46	Storage - Other
47	Other

G100 Form B – Export Limitation Scheme Installation and Commissioning Tests

Commissioning test requirements for **Export Limitation Scheme**s, in addition to those required by EREC G83 or G59.

DNO Ref. No.: _ _ _ _ _ _ _	**MPAN[1] (21/13-digits):** _
Customer Name	……..
Address of ELS (where equipment will be used)	…….. …….. ……..
Installer	……..
Installer Address	…….. …….. ……..

Information to be Provided	
Description	Confirmation
Final copy of Single Line Diagram of **Export Limitation Scheme**	Yes / No*
Copy of Manufacturers G100 Product Declaration (Appendix C)	Yes / No*
Explanation of **Export Limitation Scheme** operation	Yes / No*
Description of the fail-safe functionality (Interruption of sensor signals, disconnection of load, loss of power, internal fault detection etc.) "Fail safe tests are not required at installations where all of the **Generating Units** are **Type Tested SSEGs,** with a **Power Station Capacity** of not more than 7.36kW per phase (i.e. 32A per phase at 230V) and an **Export Capacity** of not more than 3.68kW per phase (i.e. 16A per phase at 230V).	Yes / No*
Agreed Export Capacity as provided by the **DNO**	_____kW
Export Limitation Scheme export setting	_____kW

G100 Form B

The **Export Limitation Scheme** has secure communication links between the various component parts of the **Export Limitation Scheme** as specified in section 5.1.3	Yes / No*

Commissioning Checks	
The **Export Limitation Scheme** is fail-safe and limits export if any of the discrete units or communication links that comprise the **Export Limitation Scheme** fail or lose their source of power. All components have been tested in line with section 7.	Yes / No*
When the **Export Limitation Scheme** operates it reduces the exported **Active Power** to a value that is equal to, or less than, the **Agreed Export Capacity** within 5s.	Yes / No*
A reverse power relay is fitted which will disconnect the generation if the export goes 5% above the **Agreed Export Capacity** for longer than 5s (not required for fail-safe **LV** metered connections).	Yes / N/A Setting _____kW Time _____Sec
On completion of commissioning, all settings are restored to normal operating values and password protected or sealed to prevent **Customer** access. A description of the scheme, its settings, and a single line diagram is displayed on site.	Yes / No*

* Circle as appropriate. If “No” is selected the **Power Station** is deemed to have failed the commissioning tests and the **Generating Units** shall not be put in service.

Additional Comments / Observations:

Insert here any additional tests which have been carried out

G100 Form B

Declaration – to be completed by Generator or Generators Appointed Technical Representative.	
I declare that the **Export Limiting Scheme** and the installation comply with the requirements of this document and the additional commissioning checks noted above have been successfully completed in addition to those required by EREC G83 or G59	
Signature:	Date:
Position:	
Declaration – to be completed by DNO Witnessing Representative	
I confirm that I have witnessed the tests specified in this document on behalf of _____and that the results are an accurate record of the tests.	
Signature:	Date:

This form should be appended to those provided in appendix 3 of EREC G83 or appendix 13.2 and 13.3 in EREC G59.

Generating Units and Generating Modules

Description of the terms Power Generating Facility, Power Generating Module and Generating Unit.

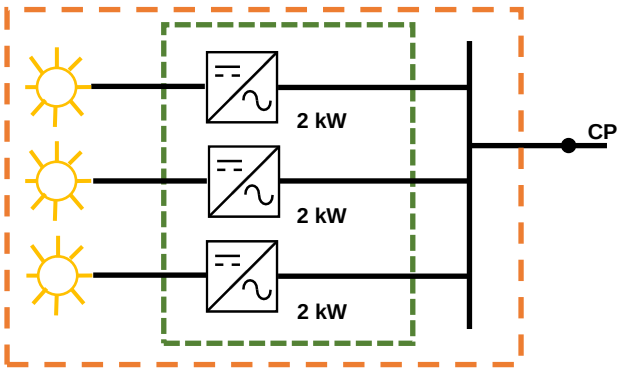
EREC G99 (and G98) uses the terms Power Generating Facility, Power Generating Module, and Generating Unit.

A Power Generating Facility is the formal legal term for whole installation. In general in the SGI processes we refer to Customer's Installation instead (mainly for compatibility with historic terminology in Great Britain).

A Generating Unit is the key component of a Power Generating Module. A Power Generating Module might consist of one or many Generating Units. A Power Generating Module is defined by the number and types of the Generating Units it is composed of. G99 requires compliance of the Power Generating Module, not of individual Generating Units. G99 does not specify how a Power Generating Module should be built up of Generating Units – just how the overall Power Generating Module behaves.

Therefore a Power Generating Module cannot really exist on its own – it only has legal meaning when commissioned and in service. If a new Generating Unit is added to an existing Power Generating Module, the old Power Generating Module ceases to exist and the new Power Generating Module is made up of the old and new Generating Units.

A single Generating Unit cannot exist on its own in a Customer's Installation. Once it is commissioned it becomes a Power Generating Module.



CP = Connection Point

= Generating Unit

Power Generating Facility (PGF)

Power Generating Module (PGM) / Power Park Module (PPM)

DCRP/21/08/PC: Revision to the Integrated Microgeneration and Storage procedure

Stakeholders are invited to respond to this consultation, expressing their views or providing any further evidence on any of the matters contained within the consultation document. Stakeholders are invited to supply the rationale for their responses to the set questions.

Please send your responses and comments by **17:00, 12th November 2021** to dcode@energynetworks.org and please title your email 'Consultation Response DCRP/21/08/PC Revision to the Integrated Microgeneration and Storage procedure Please note that any responses received after the deadline may not receive due consideration by the Working Group.

Any queries on the content of the consultation pro-forma should be addressed to DCode Administrator on 020 7706 5105, or to dcode@energynetworks.org

Respondent	*Alan Creighton*
Company Name	*Northern Powergrid*
No. of DCode Stakeholders Represented	
Stakeholders represented	
Role of Respondent	*Distributor*

We intend to publish the consultation responses on the DCode website. Do you agree to this response being published on the DCode website? [Y/N]	*Y*

	Question	**Response**	**Secretariat Response**
Q1	Do you agree with the general intent of the proposed modification? If not, please explain your views.	Yes. Although there is no specific question about the implementation approach we would expect that, assuming a generally positive response to the consultation, EREC G98, EREC G99 and the Distribution Code would be revised and a RTA issued to Ofgem. We would implement the proposed revised process following Ofgem's approval.	Yes, the procedure for modifying the DCode as laid out in the Constitution of Rules of the DCRP of GB v8 will be followed, and an implementation date will depend on the approval by Ofgem.
Q2	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.	Whilst at the start of the workgroup discussions there was a clear difference between the proposed SGI-2 and SGI-3 processes, we are aware that during the development of the EREC G99 proposals this difference reduced. As drafted whilst the applicability criteria are different between SGI-2 and SGI-3, from the customers' perspective the difference is small as in both SGI-2 and SGI-3 the customer would be advised within 10 days whether they could continue and connect the equipment or whether the DNO need to undertake further	The similarity between SGI-2 and SGI-3 has been discussed again by the DNOs, including Northern Powergrid representation, and it has been agreed that the differences in approach, based on the size of the customers' equipment and network risk, remains appropriate. However, a minor wording change is proposed to the legal text clarify the differences between the two procedures. As regards the definition of Registered Capacity the definitions used in documents need to be tailored for their use in those

	Question	Response	Secretariat Response
		assessment. The difference between the procedures relates more to the expectation that the DNO will carry out analysis under SGI-3, and that they are less likely to carry out analysis under SGI-2. It may be appropriate to combine SGI-2 and SGI-3 to reduce any confusion for customers. We note that the modification proposes changes to the definitions of Registered Capacity; there may be merit in considering whether the definition of Registered Capacity in the DCode should be updated accordingly so that there is alignment.	documents. Alignment between documents is a secondary consideration – although highly desirable. The definitions are already closely aligned. However this aspect can be kept under review and it might be appropriate to make the alignment even closer in the future. We are aware that the currently active GC0117 Grid Code modification might have a future effect on the definition of Registered Capacity in both the D Code and G99.
Q3	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?	Yes, 60A relates to a standard DNO cut-out rating and is a sensible threshold that also relates to the LCT connection application processes.	Thank you, this figure was selected as it is used as the lower figure for most domestic cut out fuses, and will also allow for the manufacture of generation equipment to a higher kW rating than currently allowed for.
Q4	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?	Yes, our experience to date is that connections to a network with an impedance of 0.18Ω or less would generally not create any network issues, other than potentially where there was a high penetration of generation connected to a feeder.	The figure 0.18Ω was discussed and agreed upon by the working group, who feel this figure provides a stable baseline for circuits in a condition that are unlikely to cause any negative affects to the network.
Q5	Do you agree that the proposed modifications satisfy the applicable Distribution Code	Yes.	Noted, thank you.

Please provide comments relating to the specific technical content of the proposed modifications[1]

Page / line No	**Clause/ Subclause**	**Paragraph Figure/ Table**	**Type of comment** (General/ Technical/Editorial)	**COMMENTS**	**Proposed change**	**OBSERVATIONS OF THE SECRETARIAT** on each comment submitted
G99	16.4.2		Editorial	Full stop missing from the end of the sentence	Add full stop	Agree, this change will be made to the text.

[1] Add more rows if required