

G99 Type A
Chapters C to D

C. An Overview of Getting Connected

In this section:

- The main tasks in the process of connecting **Type A Power Generating Modules under EREC G99**
- An explanation of the terms **Power Park Modules** and **Synchronous Power Generating Modules**
- **Guidance on adding new generation to an existing installation**
- The provision of information and customer service standards
- A discussion on connecting to an IDNO network
- Guidance on where to find more information

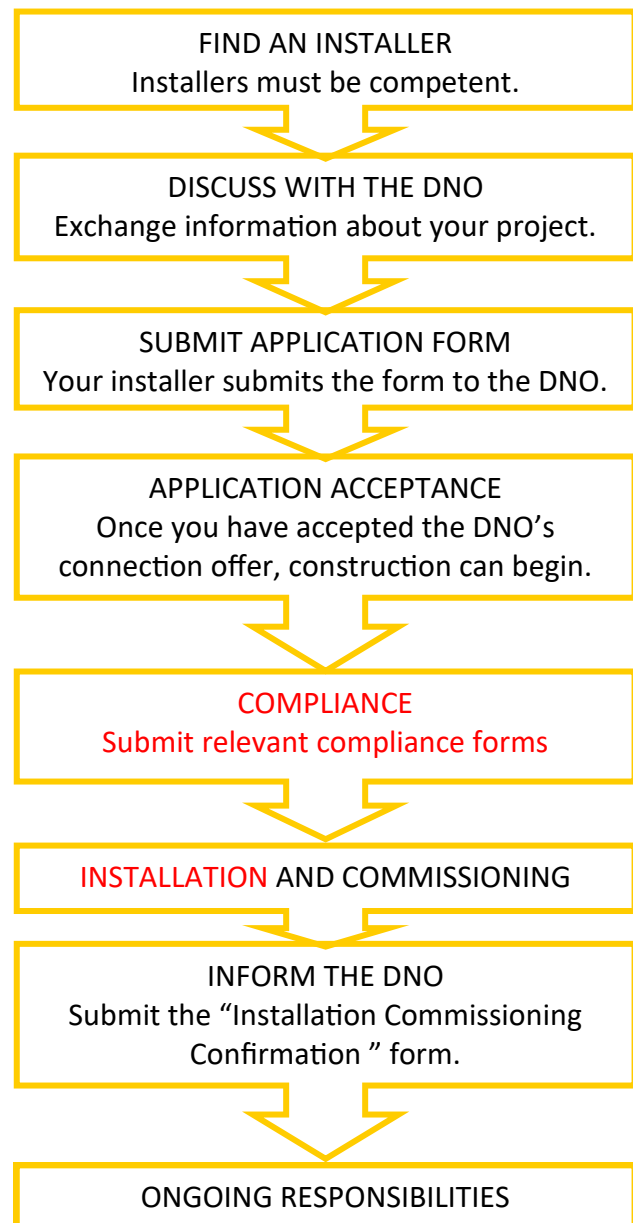
Introduction

This Guide describes the process for connecting **Type A Power Generating Modules under EREC G99**. Separate Distributed Generation Connection Guides are available for connecting under EREC G59.

Under EREC G99, the technical and compliance requirements are less onerous for **Type A Power Generating Modules**, compared with Types B to D. A **Type A Power Generating Module** has a capacity between 0.8 kW and 1 MW, and is connected below 110 kV. However, this G99 Guide only applies to **Type A Power Generating Modules > 16 A per phase**. If you are installing a **Power Generating Module** that is ≤ 16 A per phase, you should refer to the G98 Guide.

The diagram opposite shows the key steps in the connection process. These tasks are based on the requirements set out in EREC G99.

Note that this document covers the process for connecting generation to the distribution networks in Great Britain. Northern Ireland has different connection arrangements, for example different versions of Engineering Recommendations G83/G98 and G59/G99 are in use. See www.nie.co.uk



Types of Power Generating Module

Power Park Modules and Synchronous Power Generating Modules

Power Generating Modules are classified in EREC G99 as Power Park Modules (PPM) or Synchronous Power Generating Modules (SPGM). Both comprise one or more generating units, which is any apparatus that produces electricity.

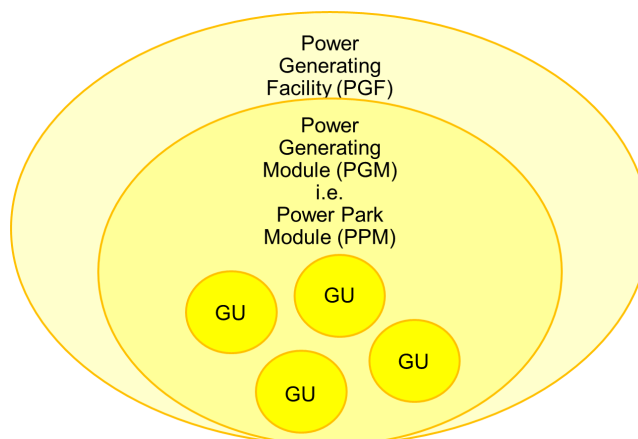
Power Park Modules (PPM) are connected to the network either through power electronics (eg. solar PV or electricity storage devices connected through an inverter) or asynchronously (eg. some wind turbines are induction or asynchronous generation). They have a single Connection Point to the distribution network.

Synchronous Power Generating Modules (SPGM) are defined in EREC G99 as “an indivisible set of Generating Units (ie one or more units which cannot operate independently of each other) which can generate electrical energy such that the frequency of the generated voltage, the generator speed and the frequency of network voltage are in a constant ratio and thus in Synchronism.” Where the generating units cannot run independently from each other – eg. if they have a common shaft – they form a Synchronous Power Generating Module.

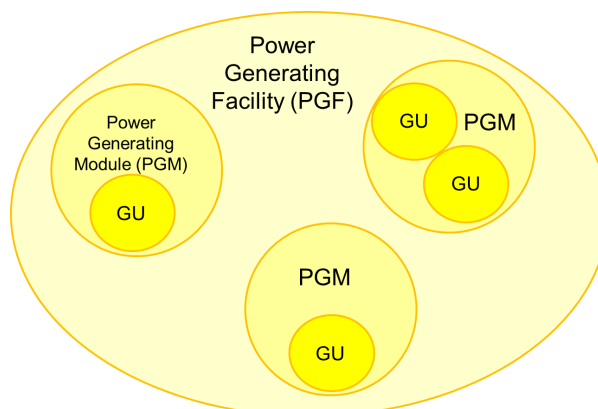
In terms of classifying your Power Generating Module as Type A to D – for a Power Park Module, this is based on **the total capacity of all generating units** in the Power Generating Facility (all behind a single Connection Point). For Synchronous Power Generating Modules, this is based on the capacity of **each** Synchronous Power Generating Module, even if there are multiple modules in a Power

Generating Facility. This is illustrated in the diagrams.

Power Park Module - the classification of Type A to D is based on the capacity of the Power Generating Module (PGM), which is the total capacity of all generating units (GU) in the Power Park Module (PPM):



Synchronous Power Generating Module – the classification of Type A to D is based on the capacity of **each** Power Generating Module (PGM) in the Power Generating Facility (PGF):



Where generating units are connected via inverters, the inverter rating is the capacity. Note that where electricity storage devices are connected via separate inverters from other generating units, their capacity does not contribute to the aggregate capacity for Type A to D classification, as storage is excluded from RfG requirements.

Types of Power Generating Module

For example: A Power Generating Facility comprises three 400 kW Synchronous Power Generating Modules (SPGM). Although the capacity of the Power Generating Facility is 1.2 MW, the threshold for requirements is based on the capacity of each Synchronous Power Generating Module. As each is 400 kW, each SPGM must meet the Type A requirements in EREC G99.

Another Power Generating Facility comprises three 400 kW generating units (eg. wind turbines), which form a Power Park Module (PPM). The capacity of the Power Park Module is the total capacity of all of the generating units, ie 1.2 MW. The Power Park Module must meet the Type B requirements in EREC G99. There are further illustrations of examples in Section 4 of EREC G99.

New and Existing Generation

Power Park Modules

If you are adding new (ie connected under EREC G99) generating units to an existing (ie connected under EREC G59) Power Park Module installation, the new generating units will be treated as a separate Power Park Module. Only the capacity of the new generating units should be taken into account when determining the Type A to D category of the new Power Park Module (even though all units are behind a single Connection Point).

However, this is not the case if you are adding new generating units to an existing Power Park Module installation, where the existing PPM was also installed under EREC G99. In this case, the total capacity of all generating units in the Power Park Module will determine the Type category.

This is the same irrespective of the technology – eg. if there are wind turbines and solar panels behind the same Connection Point, it is the total capacity of all units that determines the compliance requirements—unless there are electricity storage devices connected via separate inverters. Electricity storage devices are excluded from RfG, and their capacity does not count towards Type classification.

Synchronous Power Generating Modules

If you are adding new (ie connected under EREC G99) Synchronous Power Generating Modules (SPGM) to an existing (ie connected under EREC G59) installation, the compliance requirements for the new SPGMs are determined by the capacity of each new SPGM.

However, note that if the total capacity of all SPGMs (existing and new) exceeds the threshold for Embedded Medium or Large as defined in the Grid Code, then the Power Generating Facility will need to comply with relevant parts of the Grid Code.

There are further examples in EREC G99.

The Connection Point and Interface Protection

If you are installing new Power Generating Modules at an existing site (where the existing Power Generating Modules were connected under EREC G59), and where the interface protection is located at the connection point, you will need to consider the design of the connection including the location of the interface protection to ensure that all the generation on the site meets with all applicable requirements.

Getting Connected—Main Tasks

Finding an Installer

The first task is to find a competent installer. There are companies who design, install and commission domestic and **other smaller generation**. They can fully certify and sign off installations.

For installations up to 50 kW, certified generation products and installers can be found on the following website:

www.microgenerationcertification.org

The Microgeneration Certification Scheme is operated by the Department for Business, Energy and Industrial Strategy (BEIS).

Discussions with the DNO

You must discuss your plans with the DNO before starting work. You should do this as soon as possible in your planning, as the DNO's response may have a big impact on how you plan your project. You may discuss the feasibility of your connection, and if there will be any charges for connection (charges are discussed further in Section E: Costs and Charges).

All DNOs provide information to support generation developers, such as capacity heat maps, on their websites. These can be an important source of information. In addition, there may be dedicated generation 'surgeries' or 'drop in' sessions to discuss your project with the DNO.

Alternative Connections

Each DNO's current approach to offering alternative connection offers, such as Active Network Management, may be found on **their** website, noted in any connection offer or determined by discussion with the DNO.

Make contact with the DNO

Extra information can be obtained by making early contact with the DNO to discuss your project. This may be within dedicated generation 'surgeries' or 'drop in' sessions arranged by the DNO. Discussions might

include:

- How close your proposed generation site is to the existing network;
- Whether there are any other planned Distributed Generation projects in the same area; and
- Whether there is any "spare" capacity in the network.

Feasibility studies (Optional)

At this stage, you could have feasibility studies carried out to assess possible connection layouts and indicative costs. These studies can be conducted by the DNO or an external contractor, for a fee. If you do opt for feasibility studies, they should take into account the standard of security required in the connection between your generating equipment and the DNO's network.

Decide who will construct the connection

A key decision you have to take is whether to:

- appoint an Independent Connections Provider (ICP) to do the Contestable work and the DNO to do the Non-contestable work; or
- appoint the DNO to carry out all of the work required to provide the connection.

Using an ICP to install the contestable work allows the work to be competitively bid for, meaning that it could bring some cost advantages. At the same time, using an ICP results in an additional relationship between the DNO and ICP which will need to be managed. If you are considering contracting an ICP to undertake the Contestable work, you may wish to invite quotations from a number of ICPs, as well as the DNO for comparison.

Submitting an application form

Once you have planned the project and exchanged information about your plans with the DNO, it is time to submit an application

Getting Connected—Main Tasks

form. If your Power Generating Module is less than 50 kW three-phase or 17 kW single-phase, then you can use a simplified application form. The format of the simplified application form is given in Annex A.1 of EREC G99, [which is available from the Energy Network Association's website](#). G99 is also available via the [DCode website](#). Your installer should submit the application form on your behalf. For larger schemes, you should use the standard application form, which is generally available on DNOs' websites.

You should do your best to provide as much of the information required in the application form as possible, to ensure your quote is as accurate as it can be. If you have difficulty filling out this form, you can discuss this with your DNO or engage an adviser such as an engineering consultant to assist you.

Application Acceptance

When you submit your application form you need to include technical details of the equipment. The DNO needs this information to assess the impact that your generating equipment may have on the network.

Once the DNO has conducted these assessments, they will produce a connection offer. This will specify the conditions for your connection, and inform you of any connection charge that you may be asked to pay (charges are discussed further in Section E: Costs and Charges). You should ensure that you fully understand this offer before accepting it. You should discuss questions with your DNO if you are unsure.

Connection offers are time limited. Your DNO will inform you how long the offer is valid for. If a Connection Offer has expired, there is no guarantee that the same offer will be made again, particularly if your development is in an area where there are many Distributed Generation projects.

Once accepted, Connection Offers may be withdrawn if the DNO feels that your plant is not progressing at a reasonable rate. This is to prevent spare capacity being 'reserved' for projects that in practice are not actually being built. A [best practice guide to progression milestones](#) was published in November 2016 which your DNO may use to track the progress of your project. You may be asked to provide regular updates about the progress of your project. This will enable the DNOs to proactively manage the queue on behalf of generation customers.

Enter into agreements with the DNO

You need to enter into a number of agreements with the DNO before your generating unit(s) can start operating, such as:

- A Connection Agreement
- An Adoption Agreement (only if you are using an ICP for your project)
- An agreement covering the arrangements for operating the interface between the distribution network and your generating equipment. This may be contained in a Schedule to the Connection Agreement, or in a separate agreement such as a

Contestable and non-contestable work

There are certain tasks that DNOs do themselves, so that they can maintain co-ordination and control of their networks. These tasks are called Non-contestable work, as they are not open to competition. Conversely, when work is open to competition it is called Contestable work. Contestable work can be conducted by Independent Connections Providers (ICPs). Often, tasks that involve reinforcing existing equipment are non-contestable. Tasks which include the installation of new infrastructure or extensions to the network tend to be contestable.

Getting Connected—Main Tasks

Site Responsibility Schedule or Joint Operational Agreement

Some of these agreements will be in place before construction begins.

Compliance

Power Generating Modules can:

- Be Fully Type Tested
- Comprise some Type Tested equipment, and/or use manufacturers' information (see break out box) to demonstrate compliance, and/or also require additional site testing

If your Power Generating Module is:

- Fully Type Tested (refer to G99 Types B-D guide) and
- registered with the Energy Networks Association Type Test Verification Report Register

then your application should include the Manufacturer's reference number (the Product ID). In all other cases, you need to provide the DNO with a Compliance Verification Report. The format of these reports is given in Annex A.2 of EREC G99. There are different forms for different Synchronous Power Generating Modules and Power Park Modules.

These forms are completed by the manufacturer of your Power Generating Module. However, you (or your installer on your behalf) should obtain these and submit them to the DNO as part of the connection . commissioning process.

Installation and Commissioning

You should maintain close contact with the DNO throughout construction. This is so that you are aware of the timeline of any reinforcement works that they need to do, and you can plan your project with this in mind.

Commissioning can only take place once the construction is complete. EREC G99 details the commissioning tests that you or your installer needs to perform. For generating units covered by EREC G99, it is your obligation to undertake appropriate commissioning tests, which the DNO may choose to witness.

For a Fully Type Tested Power Generating Module connected at LV, your DNO will not normally need to witness the commissioning testing. However, your DNO may choose to do so. If this is the case, they will state this in their Connection Offer.

If your commissioning tests are being witnessed by the DNO, you or your installer should discuss the scope of the testing with the DNO from an early stage, and must submit the scope, time and date of the testing at least

Fair and Effective Management of DNO Connection Queues: Treatment of Changes to Connection Requests:

The ENA Distributed Energy Resources (DER) Connections Steering Group published a consultation in response to Ofgem's strategy to create more efficient ways to connect to the distribution network. It specifically addresses concerns that when small changes are made to connection requests, they are treated as new requests and moved to the back of the queue. This can impact project timescales, costs and the network capacity available. The purpose of this consultation document is to bring further clarity about the concept of 'allowable change'. The proposals aim to provide DNOs with a clear and consistent approach when considering change requests to a current project. DNOs are aiming to publish their position during 2018. More information is available [here](#).

Getting Connected—Main Tasks

15 days before commissioning takes place.

Informing the DNO

You should notify the DNO **at least 28 days before** commissioning the **Power Generating Module**, and provide them with information on the installation and the full results of the commissioning tests. **This information is captured in two forms, both of which are available in EREC G99 and on the ENA website:**

- The Installation Document (Form A.3)
- Site Compliance and Commissioning Test Form (Form A.2-4), where required, eg. if the interface protection is not Type Tested and needs to be tested onsite.

If your commissioning is being witnessed by the DNO, then these forms can be filled out and handed to the DNO representative witnessing.

The forms include a declaration that the installer must sign. This states that the installation complies with EREC G99.

Note: DNOs may have their own **versions of these forms** on their websites—a web search should help you locate the forms you need, or try contacting your DNO.

Put commercial arrangements in place

If you have made arrangements with a supplier to buy electricity that you export, it is your responsibility to keep them informed of the proposed commissioning programme. In particular they should know the date you

expect imports and exports across the connection to start.

Ongoing responsibilities

Although the focus of this Guide is to inform you about the process of connecting your generation to the distribution network, you should be aware that once it is connected you have some responsibilities. This includes:

- Keeping your generation equipment maintained by someone who is competent to do so;
- Performing periodic tests that are required by the DNO. They will discuss these with you;
- Informing the DNO if there are changes to the installation that affect the generating characteristics;
- Complying with Health and Safety requirements;
- **Inform the DNO if something happens that affects the compliance of your Power Generating Module with EREC G99; and**
- When you are decommissioning your generating unit(s), you need to send the DNO certain information. **This is detailed in EREC G99 Annex D.1.**

Annex D.3 in EREC G99 is called “Main Statutory and other Obligations” and summarises the main obligations on generators.

EREC G99 exceptions

If you are installing a generating unit under EREC G99 then the requirements apply in full in most circumstances. However, if your Power Generating Module is one of the following, some parts of the technical requirements in EREC G99 do not apply:

- Classified as an Emerging Technology (see Emerging Technology box on page 6)
- An electricity storage device
- Operating in infrequent short term parallel operation mode (ie operates in parallel with the distribution network no more than 5 minutes in any month, and no more frequently than once per week)

The full details of the requirements that do not apply are in EREC G99.

Getting Connected—Main Tasks

Changes to your Power Generating Module

If you need to replace a component of your Power Generating Module, or its protection system or interface protection, you must notify the DNO before making changes. You and the DNO will need to reach agreement on the significance of the change. If it is considered a small change, you will only need to confirm the compliance of the affected component with EREC G99.

However, if it is a significant change (eg you increase the capacity of your Power Generating Module), you will need to agree with the DNO the approach to be taken with the replacement equipment and in many cases submit a new Standard Application Form for the new equipment.

If you have an installation that was originally compliant with EREC G59, and you replace a major component, such as the protection system, you should notify the DNO if the change alters the operating characteristics of the Power Generating Module.

If you replace a generating unit or Power Generating Module that has been installed under EREC G59 you will need to discuss with the DNO whether the new equipment needs to comply with EREC G59 or be upgraded to be fully compliant with EREC G99.

For the addition of new Power Generating Modules, see [page 27](#).

Grace Period: EREC G99 was introduced in May 2018. It is based on EREC G59, which was revised to take account of a European Network Code called Requirement for Generators. Generation connecting before 27th April 2019 can be connected under either EREC G59 or EREC G99, depending on which document the generating units were designed to. Generation connecting from 27th April 2019 must connect under EREC G99. If you are installing your generation after 27th April 2019, you may still be able to install under EREC G59, provided that you meet the following requirements:

- You have concluded a signed final and binding contract by 17th May 2018 for the main plant items, and
- You submit evidence of the above to the DNO before 17th November 2018.

If this may apply to you, you should discuss this with your DNO.

Manufacturers' Information

Manufacturers' information is a term used in EREC G99. Along with Type Testing and onsite tests, it is another way of demonstrating compliance of a Power Generating Module with EREC G99 by providing information. The information is supplied by the manufacturer to the customer, who should send it to the DNO. The suitability of the information is agreed between the manufacturer and the DNO.

Once the DNO is satisfied that the manufacturers' information they have received accurately represents the performance of the generating unit, it may be assigned a reference ID. If your generating unit already has manufacturers' information available and a reference ID, you can use this reference ID in your compliance forms.

Manufacturers' information can currently only cover certain technical requirements – these are detailed in EREC G99.

Customer Service and Provision of Information

There are a number of drivers for DNOs to provide a good level of service to customers.

Price Control Proposals (RIIO-ED1)

Ofgem administers a price control regime which allows DNOs to earn a fair rate of return while limiting costs passed on to customers. The current price control period is called RIIO-ED1, which runs until 2023. The RIIO-ED1 proposals include a number of mechanisms to incentivise DNOs to provide a good service to Distributed Generation customers, including:

- A new Time to Connect Incentive for minor connections customers (less than 70kW and connected at LV);
- An Incentive on Connections Engagement (ICE) - to encourage DNOs to engage with and respond to the needs of major connections customers (which includes generation customers), and includes a requirement on DNOs to set out plans on what improvements they plan to make in the next regulatory year, consisting of:
 - Part 1: Plans for improvements for the forthcoming year; and
 - Part 2: Reviews the progress in the previous year.

ICE workplans can be found on individual DNO websites

- The Broad Measure of Customer Satisfaction (BMCS) surveys.

As part of the Incentive on Connections Engagement (ICE), DNOs publish annual [ICE plans for stakeholder engagement](#).

Guaranteed Standards of Performance

The guaranteed standards of Performance are set out in Standard Licence Condition 15A. They include, for example, maximum timescales in which DNOs must provide you with a quotation (Connection Offer). Ofgem has guidance documents about these Standards on their [website](#).

Distributed Energy Resources (DER) Forum

The DER Forums, hosted by the ENA on behalf of DNOs, are events that are used to explore issues and concerns around Distributed Generation connections, including barriers to Distributed Generation and process issues. They are open to anyone, and are attended by DNOs and developers. Details can be found on the [ENA Events website](#).

Improvements made to DNO Services

In recent years, there have been a number of improvements to DNO services as a response to these drivers and feedback, including:

- Increased internal resources;
- Improved provision of information, including more detailed breakdown of costs, web portals, decision support tools/application hotline, and capacity “heat maps”, indicating areas that can more readily facilitate connections;
- Holding stakeholder and customer events; and
- Exploring the possibility for discussions prior to formal application (“connection optioneering”). This process is being carried out in different ways by different DNOs. Refer to your DNO for more information.

DNOs have promised to bring about continued improvements, including:

- Shortening connection timescales;
- Enhancing the publicly available network capacity information, eg. contracted capacity reports;
- Publishing case studies; and
- Enhancing the connection application and the wayleaves/consents processes.

DNOs publish Distributed Generation 'Work Plans' that outline progress against improvement initiatives. Check your DNO's Distributed Generation web pages.

Getting Connected — Energy Storage

Storage devices for electrical energy are becoming more prevalent, and can be used as part of Distributed Generation schemes to allow generated electricity to be stored within the premises rather than exported to the distribution network.

DNOs treat storage as demand when its importing from the distribution network and generation when its exporting to the distribution network, and need to be aware of storage because of the potential impact on their networks. Therefore, storage needs to meet the relevant connection requirements (EREC G98 or G99). Some of the technical requirements in EREC G99 do not apply to storage – these are detailed in EREC G99 Annex A.4.

If you are planning to use storage in conjunction with PV (or other technologies) to offset consumption, the total connected generation is likely to be above 16A / phase and EREC G99 applies. However, DNOs have implemented a fast track application process, for domestic scale storage. This typically takes the form of an online application and reduces the connection time from 45 days to 10 days or less. If the storage is intended to be operated in island mode (during a power outage) the fast track process is not applicable and the standard G99 process applies.

Getting Connected — IDNO's Networks

The process for connecting your Distributed Generation to an IDNO's network follows EREC G99, and is therefore similar to connecting to a DNO's network. IDNOs are licensed entities and are bound by some of the same licence conditions as DNOs, including certain performance standards such as timescales for responding to requests for quotes. The majority of what is included in this guide applies to both DNO and IDNO connections.

However, there are a few key differences for a Distributed Generation connection to an IDNO network:

- **Provision of Information:** IDNOs have a reduced set of licence conditions compared with DNOs, and they are not obliged to provide the same documents for customers. IDNOs are not required to produce Long Term Development Statements nor Connection Charging methodologies and statements.
- **Interaction between the IDNO and the DNO:** When an IDNO receives an

application for connection for Distributed Generation, they need to get approval from the DNO before they can offer to connect you. If your generation project would cause certain network parameters to exceed defined limits, such as voltage or export to the DNO network, the IDNO and DNO will explore options for accommodating your project. This discussion will take place between the IDNO and the DNO, and will not involve you directly. However, the IDNO may then discuss different options with you for the most appropriate generation project to be connected.

- **Formal Agreements:** IDNOs will not necessarily insist on the same set of formal agreements that the DNOs will. Agreements such as the connection and adoption agreements may not be required.

To determine whether you are connected to a DNO or IDNO network, refer to the guidance on page 16 in G99 Types B-D full guide.

Where to Find More Information

If you want to find out more, these documents are particularly relevant:

- [Engineering Recommendation G99](#), Requirements for the connection of generation equipment in parallel with public distribution networks on or after 27 April 2019. **This can be downloaded via the [DCode](#) as well as ENA website.**
 - [Engineering Recommendation G59](#), relating to the connection of generating units to the distribution systems of licensed Distribution Network Operators—**available to download via the [DCode](#) as well as ENA website.. From 27th April 2019 EREC G59 will no longer apply to new connections.**
 - [Electricity Safety, Quality and Continuity Regulations \(ESQCR\) 2002](#), Section 22: Statutory Instrument Number 2665, available free of charge.
 - Ofgem's information about [how to get an electricity connection](#) for a new building or site.
- Some DNOs have produced their own guidance notes for generation connections - check your DNO's website.

Other useful documents and links

- Independent Connections Providers (ICPs): see the [Lloyds Register](#) website information on the National Electricity Registration Scheme (NERS)
- [Metering Codes of Practice](#)
- The [IET Wiring Regulations](#) (British Standard 7671) are available to buy on the IET website
- Ofgem's information about [how to get an electricity connection](#) for a new building or site

Health and Safety considerations

Safety is very important in the design of generation connections. Some of the safety requirements for Distributed Generation connections are set out in EREC G99. This document references the Regulation that informs these requirements, the Electricity Safety, Quality and Continuity Regulations (ESQCR) 2002, and also lists the relevant British Standards.

You can find out more about Health and Safety aspects of Distributed Generation connections on the following websites:

- The Electrical Safety Council (ESC): www.esc.org.uk
- The Energy Networks Association—Safety, health and environment:
www.energynetworks.org/electricity/she/overview.html

Supply Issues

Your DNO is obligated to maintain the power quality on their network within a set of defined limits. These include maintaining voltage at the required levels. This is so that customer equipment is not damaged. If you have a voltage complaint you should contact your DNO. Your DNO should respond to your complaint within 5 working days, or visit within 7 working days. If work is required to correct the issue, the DNO should complete this within 6 months.

Dealing with disputes

If you are not satisfied with a particular aspect of service during the process of connecting your generation, your first port of call should be the party with whom the issue lies, eg. the DNO, supplier, etc. DNOs have their complaints process set out on their website. If you still cannot resolve the issue you can contact the Energy Ombudsman:

www.ombudsman-services.org/energy.html

If you are still unable to resolve the matter, as a last resort it can be referred to Ofgem.

D. The Connection Application: Connection Application Process

In this section :

- How to apply to your DNO to install Power Generating Modules
- Details of the connection offer that the DNO will produce for your connection
- How to notify the DNO that your Power Generating Modules have been installed and commissioned in accordance with EREC G99

Introduction

This section of the Guide describes the application process for the connection of your Power Generating Modules to the distribution network. This includes the application for connection form, and the connection offer from the DNO.

This section also explains the forms that your installer will need to provide to the DNO, including:

- compliance forms, and
- notifications once the units are commissioned.

This section is written for installations where the Power Generation Module to be installed is categorised as being Type A in EREC G99, and where the output is greater than 16A per phase. If this does not apply to your

installation, please refer to the section at the beginning of this guide entitled “Distributed Generation Connection Guide: Is this the right Guide for my project?”.

There is more information on the connection application process in the Guide for EREC G99 Type B – D Power Generating Modules, including:

- Wayleaves for new connections;
- Interactive connection applications; and
- The Statement of Works process and recent developments in this area.

These are unlikely to be relevant for connecting Type A Power Generating Modules, but if these do impact your project, refer to the EREC G99 Types B to D Guide for more detailed information on these topics.

The Standard Application Form

For Power Generating Modules with capacity less than 50 kW 3-phase or 17 kW single phase there is a simplified connection application form in Annex A.1 of EREC G99, which is available from the ENA website. This form is simpler than the form required for larger Power Generating Modules. It requires information about the site, any existing

generation on the site, and some simple details of the equipment you are intending to install.

For larger Power Generating Modules there is a Standard Application Form, which is available on the ENA website and generally on DNO websites.

The Standard Application Form

The Standard Application Form contains a comprehensive list of data requirements to assist the DNO with carrying out system studies to assess your connection. You should do your best to provide as much of this information as possible to ensure your quote is as accurate as it can be. If you have difficulty with filling out this form, you can discuss this with your DNO or an adviser such as an engineering consultant to assist you.

You or your installer should submit the application form to the DNO before any generation equipment is installed, as the DNO needs to assess the possible impact of your generating equipment on the distribution

network.

The Standard Application Form is used as an iterative document, developed as the connection and commission process develops. It is used to record information about your generating units that needs to be provided to the DNO before commissioning, to comply with the requirements set out in the Distribution Code DDRC.

When the application has been submitted to the DNO, they will assess the impact of the generation on their network. Where necessary, they will carry out design work, eg. for network reinforcement. This will be detailed in your Connection Offer.

The Connection Offer

The Connection Offer that you will receive from your DNO should contain a number of key pieces of information. These include:

- details of the equipment and works needed to connect your generating units to the distribution network;
- information about any works needed to extend or reinforce the DNO's network as a result of connecting your generating unit to the system;
- any technical and commercial terms which will apply for the DNO to construct the connection and provide Use of System services to the developer;
- Any other useful information such as whether the DNO will need to witness commissioning of your units.

The offer will also contain details of the costs for the DNO to undertake any work. Further information about these costs is given in Section E: Costs and Charges.

You will have a defined period specified in your Connection Offer within which to accept the offer. This will typically be in the range 30-90 days. Make sure you are aware how long your acceptance period is, as this can vary across DNOs. There is no guarantee that once a connection offer is lapsed that a similar offer can be made again.

Connection Offers may also be withdrawn if the DNO feels that your plant is not progressing at a reasonable rate. This may be measured by progress against milestones set out in your Connection Offer. This is to prevent spare capacity being 'reserved' for projects that in practice are not actually being built. Your DNO may specify reasonable milestones to be met to prove the progress of your project.

It is possible that there will be other Distributed Generation in development in the same area of the network. If this is the case, your application may affect, or be affected by, another connection application. In this case

The Connection Offer

all the relevant applications are referred to as “interactive”. The DNO will tell you in writing if your connection application is interactive with one or more others. The Connection Offer will also specify that it is interactive with other applications.

Interactive connection applications are considered on the basis of ‘first come first served’. The DNO uses the date and time that your Connection Application was made to put your Connection Offer in priority order compared to other applicants. For more information on interactive applications, [see the EREC G99 Types B to D Guide](#).

Connection Conditions

The DNO may include certain conditions or restrictions in order for the connection to be put in place. Your Connection Offer will include details of these, and if you need to know more information then you can discuss this with your DNO. You will have to agree to these conditions in order to accept the Connection Offer.

Flexible Connection Offers

The DNO will decide if a connection is viable by considering the worst case scenario for the network. If the connection of your generation would cause equipment ratings or statutory limits to be exceeded, then the DNO would not allow the connection without addressing the issues identified. The DNO may decide that the best thing to do is to reinforce the existing network so that it can cope with new power flows. However, this could be prohibitively expensive for your project.

In these cases, or where the customer has requested, the DNO may offer a connection with certain restrictions, such as setting a maximum level for export, or restricting generation export under certain network conditions. This could involve entering into a specific commercial arrangement.

Even with a standard Connection Agreement, in rare operational scenarios it may be necessary for the DNO to curtail the operation of a generator in order to, for example, maintain safety or power quality.

If NGET is involved in your project (eg. if your DNO has requested a Statement of Works for any transmission system works required), then they can impose conditions on your connection. Your DNO must ensure that NGET conditions are met before they allow connection.

Reactive Power Import / Export

The apparent power at any point on the network is the product of the voltage and current at that point. The apparent power is made up of two components, the real power and the reactive power. It is likely that real power is the electrical power you are more familiar with. It is measured in Watts (W), and is the useful power that we import into our houses to run our electrical goods. However, there also needs to be a balance of reactive power on the network. It is the DNO’s responsibility ensure that the distribution network can cater for both real and reactive power.

Your generating unit will be capable of controlling the amount of reactive power that it absorbs or produces, and it is possible that the DNO may request that you operate in a certain way. It may be possible to mitigate negative effects that your generator might have on the network (eg. rise in system voltage) by controlling the amount of reactive power you produce or absorb. This may allow you to connect a higher capacity generator. You can discuss this option with your DNO.

Compliance Forms

If your Power Generating Module is Fully Type Tested and registered with the Energy Networks Association (ENA) online Type Test Verification Report Register, it will have a manufacturer's reference number (or Product ID on the ENA website). This means that the Power Generating Module meets the requirements of EREC G99, and the manufacturer has submitted information to the ENA that demonstrates this. You should include the reference number on your application form, and do not need to submit anything further to demonstrate compliance.

Otherwise, your Power Generating Module may comprise a mixture of type tested components, components where the compliance is demonstrated using manufacturers' information, and components that will need to be tested on site. In this case you (or your installer) need to submit information to indicate how you are intending to demonstrate compliance with EREC G99.

This is done by submitting a Compliance Verification Report for each Power Generating Module. The format of this report is given in Appendix A.2 of EREC G99. There are several options (Forms A.2-1, A.2-2, A.2-3), depending on the size of your Power Generating Module, and the type (synchronous, asynchronous, inverter connected). These forms should be submitted prior to arranging commissioning.

In some cases (eg. where interface protection is not Type Tested) you will need to demonstrate elements of compliance on site. You can do this at the time of commissioning (see below). In this case, there is a Form A.2-4 in EREC G99 called "Site Compliance and Commissioning test requirements for Type A Power Generating Modules", which sets out the format of recording the relevant test results. Where the DNO witnesses commissioning, this can be submitted to the DNO on the day. Otherwise, this should be submitted to the DNO within 28 days.

The Installation Document

Commissioning should take place once the installation and connection is complete (or in the case of a phased installation, when the phase is complete). The tests and checks required for commissioning are described in section 15 of EREC G99.

The results of the commissioning should be recorded on the **Installation Document**, which is included in Appendix A.3 in EREC G99, available on the ENA website.

You or your installer should fill out this form, and sign the declaration at the bottom. The information required includes:

- details about the site where you are connecting **your Power Generating Module**, including metering

information;

- contact details for the installer/owner of the generating unit;
- technical information about the **Power Generating Module** itself, including the generating capacity, type test reference and **technology type**;
- details of the installer of **the Power Generating Module**, including the party's accreditation and qualifications;
- supporting information, eg. circuit diagrams;
- a signed declaration as to the compliance of the **Power Generating Module** with the requirements of EREC G99; and

The Installation Document

- a signed declaration as to the compliance with the site compliance and commissioning tests, if applicable (Form A2.-4).

There are two parts to the Installation Document:

- Part 1 is required for the Power Generating Facility; and
- Part 2 is required for each Power Generating Module.

The **Installation Document** must be submitted within 28 days of the date of commissioning (including the commissioning day itself). If the DNO witnesses the installation, then the form can be filled in on the day and handed to the DNO representative.

Other Requirements

The declaration that your installer (**or you**) signs on the **Installation Document** requires them to confirm that they've installed your **Power Generating Modules** in accordance with EREC **G99**. It's important that you use an installer who is familiar with the requirements

of these standards. If you appoint a competent installer (see Section C: An Overview of Getting Connected), they should know about these standards and make sure that your installation meets with all the relevant standards.