Application for Large-Scale Generation (above 3.68kVA) and/or Energy Storage System (ESS) HV & EHV

NORTHERN POWERGRID

It's our job to get you connected as safely and as quickly as possible in five easy steps:

1. Applying for your new generation

2. Your pre-quote site visit (if needed)

3. Getting and paying for your quotation

4. Preparing your site for construction

5. Work begins on site

Connection Timescales

Your application is individually assessed based on your requirements - please see below for average timescales:

Generation Type	When will I receive my Quotation or Budget Estimate?	Average time to get connected (from payment)
Low voltage	Within 45 working days	5 weeks
High voltage	Within 65 working days	19 weeks
Extra high voltage	Within 65 working days	2 years

The guide to timescales are to assist you with your connections application. They give a general illustration of what your new connection might entail. Timings to connect are dependant on an assessment of the terms of connections for specific premises and current indicative prices are available on our website.

There are seven key pieces of information that we need from you. Without them we won't be able to progress your application. Please ensure you have everything to hand before you begin:

- ✔ Your name and correspondence address
- ✔ Site address (address where you want your connection)
- ✔ Scaled site location plan clearly showing your site boundary and preferred meter position(s)
- ✔ Date when the connection is required
- ✔ Maximum input and export electrical capacity at each property in kVA (KiloVolt Ampere)
- ✔ Details of any Power Generating Module to be connected to the Distribution Network in accordance with EREC G99
- ✔ Details of any other electrical equipment (if applicable)

Need some help? You may want to seek advice from an electrical contractor before you apply. Our experienced Connections team can also help you with your application:

0800 011 3433

Opening hours:
Monday – Friday 8:00am - 8:00pm
Saturday 9:00am - 5:00pm

Alternatively, you can visit our website and apply online at www.northernpowergrid.com/get-connected

Section 1 – Your Details

Are you the current owner/occupier of the site address?*	**Yes** ☐	**No** ☐
Are you applying as an agent on behalf of the current owner/occupier of the site address?*	**Yes** ☐	**No** ☐
Are you the future owner/occupier of the site address?*	**Yes** ☐	**No** ☐
Are you applying as an agent on behalf of the future owner/occupier of the site address?*	**Yes** ☐	**No** ☐

If you are acting as an agent applying on behalf of the owner/occupier (or future owner/occupier) of the site address we may request a copy of the letter of authority and a copy of the land registry confirming you have the right to represent the customer if required. If you have a copy of this letter and/or a copy of the land registry documentation available, please include it with this application.

If you have answered **No** to all of the above questions, a member of our Connections team will contact you following receipt of your application to discuss further

a. Owner/Occupier Details

This is the name and address of the owner/occupier of the site – fields marked with a * are mandatory

Title | First Name* | House/Flat No* | Building Name

Last Name* | Street*

Company (if applicable) | Town* | Postcode*

Daytime Telephone | Mobile | Email

b. Site Address

Where you want your new connection – please leave blank if the site address is the same as the address in Section 1a

House/Flat No* | Building Name | Street*

Town* | Postcode*

Daytime Telephone | Mobile | Email

Section 1 – Your Details (continued)

c. Representative Details

If you are acting as an agent on behalf of the owner/occupier, please complete the details below

Title | First Name | House/Flat No. | Building Name

Last Name | Street

Company (if applicable) | Town | Postcode

Daytime Telephone | Mobile | Email

Section 2 – Your Connection

The type of work you require may be subject to Connection Offer Expenses. Our website provides further information along with indicative charges www.northernpowergrid.com/connection-offer-expenses.

Who should be invoiced for the Connection Offer Expenses?

☐ **Owner/occupier** (details provided in section 1) ☐ **Representative** (details provided in section 1)

☐ **Other** (please give details)

Who should your Single Point of Contact correspond with?

☐ **Owner/occupier** (details provided in section 1) ☐ **Representative** (details provided in section 1)

Please select the option which is right for you:

☐ **Firm Quotation**
This is a quotation that once accepted will set out detailed terms and conditions and will be binding on both parties. The quote will be valid for 90 days.

☐ **Budget Estimate**
This will provide indicative costs and will not require a technical assessment or site visit. This is non-binding and cannot be accepted.

If you're at the early stages of a project and do not have a connection date in mind, or are not the owner/occupier of the site address, you should apply for a Budget Estimate.

When would you like us to provide your connection?* (MM/YY)

This is the date you would ideally like your connection to be made. If you're unsure, we can accept an estimated date. We'll agree a definite date with you after you've accepted the quotation.

Section 3 – Existing Generation

If you have wind turbines, solar panels (also known as PV panels) or combined heat and power plants (CHP) installed on your premises than you have existing generation

Does this site already have generation connected?

Yes ☐ Please detail below **No** ☐ Proceed to Section 3

For this generation please supply the following details:

Max Export (KW)	Rated Current (amps)	Rated Voltage (volts)	Type of Generation

Existing Import MPAN	Existing Export MPAN

Section 4 – New Generation

Is this generation for standby purposes? **Yes** ☐ **No** ☐

Will any Generating Unit supply electricity to on-site load? **Yes** ☐ **No** ☐

Will your generation run for more than 5 minutes per month? **Yes** ☐ **No** ☐

Would you like to apply in Kilowatts (kW) or Megawatts (MW)?

kW ☐ **MW** ☐

What is your preferred Connection Point Voltage (V)?

How many generator sets are you installing?

Are all generator sets the same size? **Yes** ☐ **No** ☐

If your generation sets are not all the same size, please provide details of each generation set at each premises in our Additional Information (Section 10).

What type of generation are you installing? e.g. solar panels, wind, battery

Generation set no.

Section 4 – New Generation (continued)

What type of generation set will this be?

	Number of Generating Units	Type of Prime Movers	Energy Source Availability	Technology Production Type
Synchronous Power Generating Module			☐ Intermittent ☐ Non-intermittent	
Fixed Speed Induction Generating Unit			☐ Intermittent ☐ Non-intermittent	
Double Fed Induction Generating Unit			☐ Intermittent ☐ Non-intermittent	
Series Inverter Connected Generating Unit			☐ Intermittent ☐ Non-intermittent	
Electricity Storage Generating Unit			☐ Intermittent ☐ Non-intermittent	
Other (Please Specify)			☐ Intermittent ☐ Non-intermittent	

For more information please see the generation connection guide on our website, or see our Help and Guidance section for more information on Energy Source Availability and Production Type

Please complete one of the following:

What is the sub-transient (X"d) - unsaturated / saturated? (Per unit)

What is the maximum fault level contribution? (MVA)

Generation set Active Power capability:

Rated terminal voltage (generator) (volts)

Rated terminal current (generator) (amps)

Generation set registered capacity (net) (MW/kW)

What will be the maximum active power export (MW/kW)

Generation set apparent power rating (to be used as a base for generator parameters) (MVA)

Generation set rated active power (gross at generator terminals) (MWkW)

Section 4 – New Generation (continued)

Generation set Reactive Power capability at rated Active Power (gross at generator terminals):

Max reactive power export (lagging) (MVAr)

Max reactive power import (leading) (MVAr)

Generating Unit maximum fault current contribution

Peak asymmetrical short circuit current at 10ms (ip) for a 3φ short circuit fault at the Generating Unit terminals (HV connected generators only)

RMS value of the initial symmetrical short circuit current (IK") for a 3φ short circuit fault at the Generating Unit terminals (HV connected only)

RMS Value of the symmetrical short circuit current at 100ms (IK(100)) for a 3φ short circuit fault at the Generating Unit Terminals

i *For more information regarding Active and Reactive Power, please see our Help and Guidance section (page 14 of this form)*

What security is required for your connection?

- ☐ **Single circuit connection**
- ☐ **Manually switched alternative connection**
- ☐ **Automatically switched alternative connection**
- ☐ **Firm connection** (secure for first circuit outage)
- ☐ **A flexible or Active Network Management connection** (discussion with DNO required)

What will be the maximum active power import? (kW)

What will be the maximum reactive power import? (kW)

! *Please include a single line diagram of your proposed generation installation with this application*

Section 4 – New Generation (continued)

Are you installing an interface transformer?

Yes ☐ Please detail below **No** ☐

Rated (apparent) power (MVA)		Maximum ratio tap (%)	
Rated voltage ratio (on principal tap) (kV/kVA)		Minimum ratio tap (%)	
Positive sequence resistance (per unit)		Method of voltage control	
Positive sequence reactants at principal tap (per unit)			

Do you require an export Meter Point Administration Number (MPAN)?

Yes ☐ **No** ☐

If your generation supply will distribute power back to our network, you will need an export MPAN

Power Generating Module interface arrangements

Means of connection, disconnection and synchronizing between the DNO and the Generator, please insert file name of attachment if this information is being provided as a diagram.

Electricity Storage Plant operation

Maximum power swing of the storage device (mW)

Impedance data for fault current contribution calculations

Are there any transformers between the Generating Unit and the Connection Point?

Yes ☐ **No** ☐

Number of Generating Units connected to the transformer		Rated apparent power of the transformer	
Positive sequence reactance of the transformer			

For sites with significant other impedance (multiple transformers, cables or overhead lines) between the Generating Unit and the Connection Point, please provide a sketch of the site detailing generator connection and impedances. This information can be detailed on your single line diagram

Section 5 – Energy Storage System

Please provide an electrical configuration of the overall system including any generation and storage, showing any individual inverter or generator units (based on current model). This should be included as an attachment.

Is this request for storage only or storage combined with another technology?

☐ **Storage only** ☐ **Combined with another technology**

What is the storage technology? (e.g. Lithium Ion (LI-ION), Nickel-Cadmium (NI-CD), Sodium Sulphur (NAS) batteries, fly wheel, micro pump hydro, CAES etc.)

If combined with another technology please confirm what this is (e.g. Solar, Wind, Biomass, Diesel/CHP)

Nameplate power rating of storage(MW)

Registered energy storage capacity (MWh)

For the storage element of your installation please confirm the following:

Security of Supply Required		Restate the Authorised Supply Capacity (ASC) required		
Export	Firm	MW	+MVAr	-MVAr
	Non-firm	MW	+MVAr	-MVAr
	Total	MW	+MVAr	-MVAr
Import	Firm	MW	+MVAr	-MVAr
	Non-firm*	MW	+MVAr	-MVAr
	Total	MW	+MVAr	-MVAr

*The customer will be contacted at a later date for written confirmation of derogation from P2/6.

Section 5 – Energy Storage System (continued)

Details of operating modes/commercial service:

Electricity Storage Plant operation

Maximum power swing of the storage device (mW)

Number of operating modes/services described

i *Please complete for each commercial service or mode of operation required – detail any copies in our Additional Information (Section 9)*

Is the ESS to operate in conjunction with another generation source/load on the customer's private network?

Yes ☐ Please detail on a separate sheet **No** ☐

Please provide any other supporting information in the space below. If attaching any datasheets or commercial service details please also state relevant section page numbers here:

Section 5 – Energy Storage System (continued)

Description of required operation

Commercial Service

Name of Commercial Service and company name:

Contact details for service operator:

Is this a service which involves co-ordinated response with other storage devices either on the Distribution System, Transmission System, Private Network or aggregator?

Yes ☐ Please detail on a separate sheet **No** ☐

If not a commercial service please describe the operational mode (e.g. float charge)

Description of Dynamic Requirements (Active Power)

Export	Power ramp rate (Positive)	MW/sec
	Power ramp rate (Negative)	MW/sec
Import	Power ramp rate (Positive)	MW/sec
	Power ramp rate (Negative)	MW/sec
If the power swing will transition from import to export or vice-versa please state the total magnitude of the power swing (delete as appropriate)		MW/sec Up/Down/Both

For this control mode or commercial service, are there any known requirements (other than those which may be imposed by the Transmission System Operator) for the scheme to operate at non-unity Power Factor as measured at the POC?

Yes ☐ Please detail on a separate sheet **No** ☐

Section 6 – Equipment Causing Harmonic Distortion

Please provide details of any equipment that will affect the harmonics of the supply

Please note your equipment must be G5/4 compliant and include any plans or documentation with your completed application

Section 7 – Site Plans

Site Location Plan*

In order to provide a quotation we require a suitably scaled site location plan (preferably 1:500) indicating your **site boundary** and the **position of your property** within this boundary. This should be on an ordnance survey or land registry background.

Builders Plan*

We also require a builders plan indicating your preferred **meter position(s)** marked with an **X**.

Plans can be found at www.ordnancesurvey.co.uk or give us a call and we can provide you with a site location plan

Section 8 – Site Information

Is the site classified as a site of specific interest e.g. historical site, conservation area, listed building?

Yes ☐ **No** ☐

Are there any existing water courses, culverts or drainage ditches on or adjacent to the site?

Yes ☐ **No** ☐

Does the site contain hazardous substances e.g. Asbestos, Hydrocarbons?

Yes ☐ **No** ☐ If **Yes** for any of the above please detail in Additional Information

What is the likelihood of flooding from rivers and the sea on your development?

Low ☐ **Medium** ☐ **High** ☐ You can check your level of flood risk at www.flood-warning-information.service.gov.uk

Section 9 – Additional Information

Please provide any additional information you feel may be relevant to your application

Application Checklist

Have you included the seven key pieces of information that we need to progress your application?

Please use this checklist to ensure you have enclosed all the required information:

- ☐ Your name and correspondence address
- ☐ Site address (address where you want your connection)
- ☐ Scaled site location plan clearly showing your site boundary and preferred meter position(s)
- ☐ Date when the connection is required
- ☐ Maximum input and export electrical capacity at each property in kVA (KiloVolt Ampere)
- ☐ Details of any Power Generating Module to be connected to the Distribution Network in accordance with EREC G99
- ☐ Details of any other electrical equipment (if applicable)

Signature

Signature of Applicant	Print Name	Date

What's Next?

Each application is individually assessed to ensure you receive the best service.

Please send your completed application form and supporting documentation to:

Northern Powergrid
Network Connections
Alix House
Falcon Court
Stockton-on-Tees
TS18 3TU

Alternatively, you can email your application to us at
getconnected@northernpowergrid.com

Did You Know?

We're not the only company that can provide a quotation for your new connection. You can compare our prices and service levels with other companies that provide connections services, called Independent Connections Providers (ICPs), then choose what's best for you. For more information visit

www.northernpowergrid.com/alternative-providers

Data Protection

We take data protection seriously and, when we obtain your personal information for the purpose of providing our connection service to you, we will keep that information secure and process it in accordance with our privacy policy, which is available for you to read at www.northernpowergrid.com/privacy-policy.

If we speak to you on the telephone about your connection, those telephone calls may be recorded for quality assurance purposes and we may collect personal information about you during those calls.

We will use the personal information you give us in order to process your connection request (including to process your payment), enter into a contract with you to provide the new or altered connection, deliver the work required and to monitor the standard of the service we provide to you when we undertake the Works. We will not use any of your personal information for marketing purposes.

However, to ensure that we provide our customers with a high standard of service, we use an independent research company, Explain Market Research Limited, to carry out customer satisfaction surveys on our behalf. Consequently, if the service we provide to you falls within one of the categories in respect of which we are required by our electricity distribution licence to carry out a customer satisfaction survey, we will share your personal information with Explain Market Research Limited who may contact you to carry out that brief survey.

Help and Guidance

Active Power Capability

This section relates to operating conditions when the Power Generating Facility is exporting Active Power. The Active Power export and associated maximum Reactive Power export and/or import should be stated for operation at registered capacity. The firm import / export requirements relate to the capacity available in a first circuit outage event on the DNOs system. The non-firm import / export requirements relate to the capacity available when the DNOs system is intact. This information will be used by the DNO when assessing your application. Actual requirements for operating conditions such as the Power Generating Module operating mode and power factor will be agreed as part of the Connection Offer.

Fault Current Contribution

We will need to assess your application with respect to the fault contribution your equipment will make to our network. Your Power Generating Modules and any induction motors will contribute fault current if there is a fault on the network. The amount of fault current at the connection point depends on the characteristics of your Power Generating Modules, induction motors and the impedance of your network (transformers, cables and overhead lines). Engineering Recommendation G74, ETR 120 and IEC 60909 provide guidance on fault current data.

Additionally, fault current contribution data may be provided in the form of detailed graphs, waveforms and/or tables. Induction motors can contribute to the peak asymmetrical short circuit current at 10ms. If the fault current contribution is solely from Generating Units then this information need not be provided where detailed fault level contribution / impedance data is provided for each Generating Unit in Part 4 of this application form.

Interface Agreements

The interface arrangements need to be agreed and implemented between the User and DNO before energisation. This is detailed in Paragraph 6.4.2 of Engineering Recommendation G99. This information should include a diagram.

Power Generating Module

Synchronous Power Generating Modules are generally synonymous with Generating Unit in EREC G99 except certain cases, such as a Combined Cycle Gas Turbine (CCGT) Module for example. A CCGT Module can be comprised of a number of Generating Units.

A Power Generating Facility may be made up of a number of Synchronous Power Generating Modules.

Asynchronous or Inverter connected Power Generating Modules are defined as Power Park Modules in EREC G99 and are typically comprised of several Generating Units connected together.

A Power Generating Facility could comprise several Synchronous Power Generating Modules and one Power Park Module. The exception to this is when new plant is being connected to a Power Generating Facility where there are Power Generating Modules which were connected under EREC G83 or EREC G59 and EREC G99 should be referred to for more detailed consideration of this.

Help and Guidance

Energy Source Availability

Intermittent and Non-intermittent Generation is defined in EREP 130 as follows:

- Intermittent Generation: Generation plant where the energy source for the prime mover cannot be made available on demand.
- Non-intermittent Generation: Generation plant where the energy source for the prime mover can be made available on demand.

Production Type

The Production Type should be selected from the list below derived from the Manual of Procedures for the ENTSO-E Central Information Transparency Platform:

- Biomass;
- Fossil brown coal/lignite;
- Fossil coal-derived gas;
- Fossil gas;
- Fossil hard coal;
- Fossil oil;
- Fossil oil shale;
- Fossil peat;
- Geothermal;
- Hydro pumped storage;
- Hydro run-of-river and poundage;
- Hydro water reservoir;
- Marine;
- Nuclear;
- Other renewable;
- Solar;
- Waste;
- Wind offshore;
- Wind onshore;
- Other – battery storage;
- Other – storage not battery; or
- Other

Fault Current Data

See Engineering Recommendation G74, ETR 120 and IEC 60909 for guidance on fault current data. Additionally, fault current contribution data may be provided in the form of detailed graphs, waveforms and/or tables.

If you have a site with several Power Generating Modules or induction motors you can complete the site maximum fault level contribution information in Part 2 and you do not need to complete these fault current contribution entries. In this case it is likely that the DNO will require completion of Part 4 application at a later stage.

If you are providing the Generating Unit maximum fault current contribution it is necessary to provide any other significant site impedance data to enable the DNO to calculate the fault current contribution from the Generating Unit(s) at the Connection Point. A sketch marked with the transformer and circuit resistance and reactance should be provided. This can be in ohms or per unit. If provided in per unit the base should be stated. This can be provided per meter together with the total circuit length, or for the total circuit length.