G59 Application for connection of generation plant to distribution networks

electricity north west
Bringing energy to your door

Preferred methods of communication: ☑ Phone ☐ SMS ☐ Email ☐ Post

Have you applied for a connection in our area before? ☐ Yes ☐ No

Please tick an appropriate box below to indicate the type of quote required:

Please select only one of these options

- ☐ Budget Estimate
- ☐ Feasibility Study
- ☑ Connection Offer
- ☐ Gen +

Example relates to firm connection (PV generation)

Also indicate the type of supply required:

Please select only one of these options

- ☑ New connection
- ☐ Generation at existing premises
- ☐ Point of Connection for an ICP
- ☐ Point of Connection for an IDNO

If the generation is to be operated at existing premises please confirm the MPAN number below:

1	6	0	0	0	0	0	1	2	3	4	5	6

Required for existing supplies and can be found on your supplier bill

Signed: **Print Name:**

Designation: Consultant **Date:** 8 August 2016

Notes on the type of quote:

Budget estimate
This is an indication of the charge for providing the connection / parallel generation capability. The assessment is carried out as a desk top exercise without site specific considerations being taken into account. You should note that the estimate may vary from any further budget estimates or the price in any formal Connection Offer. A budget estimate is not a formal offer for connection and cannot be accepted by you. For a budget estimate it is only necessary to complete part 1 of the application form. There is no charge for a budget estimate.

Feasibility study
This is an indication of the charge for providing the connection / parallel generation capability. We do not carry out any detailed site specific design work and the assessment is carried out as a desk top exercise. A technical study is carried out but there may be additional costs associated with on-site practicalities that will only become apparent when we carry out a site survey. A feasibility study therefore is not a formal offer for connection and cannot be accepted by you. We require payment in advance for the technical study.

Connection Offer
This is a formal written offer to provide connection to Electricity North West Ltd's distribution system. The offer will set out the terms and connection charge for making the connection. The offer may be accepted in accordance with our terms at any time within the validity period of the offer providing it is not or does not become an interactive connection offer. To provide a Connection Offer you will need to provide full generator and associated technical specifications as outlined in the attached application form.

Gen +
This is an indication of the cost for the connection / parallel capability of the generator including the point of connection and will be provided within 30 working days. If you decide the project is commercially viable you will have an opportunity to proceed to a formal connection offer. If you confirm your intention to progress to a full connection offer within 7 working days on receipt of the Gen+ offer, we will honour your original application received date for time to quote and to determine your place in the 'interactivity queue' if appropriate. This option is only available (at present) for generation connections 200kW and above.

Details of our charges associated with the provision of quotations and estimates can be found in our "Statement of Methodology and Charges for Connection to Electricity North West Limited's Electricity Distribution System".

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Part 1a

Occasionally we carry out research to find out how we can improve our customer service.
☑ **Please tick here if you consent for us to disclose your personal data to third party organisations so that they can undertake research on our behalf.**

Applicant Details

Company name A. N Other generation

Company registration number 12345678

Postal address Main Road

Manchester Post Code M1 1RD

Contact name R Dean Email address r.dean@agen.co.uk

Telephone number 0161 123 4567 Fax number

Consultant's details

Consultant's name Generation Consultant

Postal address 5 Broad street

Manchester Post Code M2 3BS

Contact name P. Smith Email address p.smith@gencons.co.uk

Telephone number 0161 987 6543 Fax number

Power station location and operation

Power station name should be a reference that you should recognise as the site where your generator will be located

Power station name New generation site

Postal address or site boundary plan 1:500 New generation site, Manchester

Post Code M5 3HG

Details of any existing generation / supplies none

Target date for provision of connection / commissioning of power station January 2017

Connection Point (OS grid ref or description) x: 381712 Y399348

Preferred connection point voltage (in volts) 11,000 V

Single line diagram of any on-site existing or proposed electrical plant or, where available, operation diagrams: Please attach

What security is required for the connection? (see note A1) single circuit

No. of generation sets in power station 4

Are all generation sets of same design/rating?	☑ Yes	☐ No
Will power station operate in island mode?	☐ Yes	☑ No
Will generation plant supply electricity to on-site premises?	☑ Yes	☐ No

Answer depending on your chosen generator type - our example is modelled on PV which cannot operate in island mode

If NO, please complete Part 1b for each genset.

Part 1a cont.

This depends on the site; if there is existing buildings or businesses the import will reflect what they use. If the site has no existing buildings then there will be no import

Power station standby import requirements (see note A2)

Maximum active power import	1000	KW
Maximum reactive power import (lagging)	329	KVAr
Maximum reactive power export (leading)	0	KVAr

Power station top-up import requirements (see note A3)

Maximum active power import	0	KW
Maximum reactive power import (lagging)	0	KVAr
Maximum reactive power export (leading)	0	KVAr

Power station export requirements (see note A4): Total power station output at registered capacity (net of auxiliary loads)

Registered capacity (maximum export capacity (mec))	1380	KW
Maximum reactive power export (lagging)	0	KVAr
Maximum reactive power export (leading)	0	KVAr

Power station maximum fault current contribution (see note A5)

Peak asymmetrical short circuit current at 10ms (ip) for a 3cp short circuit fault at the connection point	0.086	kA
ction point	0.061	kA
the connection point	0.033	kA

This means the fault level of your generation at the point where you connect to our HV system (the metered exit point). This can be provided after acceptance.

These are in LV to match Part 1b

Power station interface arrangements (see note A6)

Means of connection, disconnection and synchronising between the DNO and the Customer

site has a single main incoming circuit breaker

pair of generation sets will connect to two dedicated generation transformers (1600kVA, 11/0.415kv Dyn11, Z=6% proposed)

Existing site loads connect to two existing transformers

the means of connection will be at the LV ACBs on the side of the new generation transformers. Each generation set will be a complete package with integral ACB as means of protection and disconnection

Any further comments / information

Refer to attached single line diagram for proposed arrangement

G59 protection will monitor the voltage at LV and trip ACB 1

Notes

Note A1	The DNO will assume a single circuit connection to the power station is required unless otherwise stated. Options include: (a) single circuit connection (b) manually switched alternative connection (c) automatic switched alternative connection (d) firm connection (secure for first circuit outage)
Note A2	This section relates to operating conditions when the power station is importing active power, typically when it is not generating. The maximum active power import requirement and the associated maximum reactive power import and/or export requirements should be stated.
Note A3	This section relates to operating conditions when the power station is importing active power, typically when it is generating, but is not generating sufficient power to cater for all the on-site demand.
Note A4	This section relates to operating conditions when the power station 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.
Note A5	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. This information need not be provided where detailed fault level contribution / impedance data is provided for each Generation Set in Part 1b or Part 2 of this application form
Note A6	The interface arrangements need to be agreed and implemented between the User and DNO before energisation. DPC7.3.1 of the Distribution Code refers.

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Part 1b

Generation set general data

Number of generation sets to which this data applies (if only one, please state) 4

Type of generation set (please tick box) ☐ Synchronous generator ☐ Fixed speed induction generator ☐ Double fed induction generator

☑ Series converter / inverter connected generator ☐ Other (provide details)

Type of prime mover (e.g. gas, solar, hydro, wind) solar

Operating regime (see note B1) (please tick box) ☑ Intermittent ☐ Non-Intermittent

This will depend on your generation. Our example is PV which is intermittent

Generation set Active Power capability

Rated terminal voltage (generator) 400 V

Rated terminal current (generator) 2213 A

Generation set registered capacity (net) 1380 KW

Generation set apparent power rating (to be used as base for generator parameters) 1534 KVA

Generation set rated active power (gross at generator terminals) 1380 KW

Generation set Reactive Power capability at rated Active Power (gro

Reactive power is dependent on the operating Power factor. We reserve the right to specify the Power factor

Maximum reactive power export (lagging). 668 at 0.9 Power Factor KVAr

Maximum reactive power import (leading). 668 at 0.9 Power Factor KVAr

Generation set Fault Current Contribution (see note B2)

LV as per Fault current section part 1a

Peak asymmetrical short circuit current at 10ms (ip) for a 3 short circuit fault at the generation set terminals LV 2.3 kA

RMS value of the initial symmetrical short circuit current (Ik") for a 3 short circuit fault at the generation set terminals LV 1.65 kA

RMS value of the symmetrical short circuit current at 100ms (Ik(100)) for a 3φ short circuit fault at the generation set terminals LV 0.88 kA

Notes

Note B1 Intermittent and Non-intermittent Generation is defined in Engineering Recommendation P2/6 as follows: Intermittent Generation: Generation plant where the energy source for the prime mover can not be made available on demand. Non-intermittent Generation: Generation plant where the energy source for the prime mover can be made available on demand.

Note B2 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.

On completion, the application form and plans should be sent to:
Energy Solutions, Electricity North West, Frederick Road, Salford, M6 6QH
or email to connectionapplications@enwl.co.uk
www.enwl.co.uk