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Bringing energy to your door

Distributed Generation Low Voltage Workshop

July 2021

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www.enwl.co.uk

Agenda

- 2021-22 ICE Workplan Updates
- G98 / G99 Guidance
- Major Connections Strategy for 2023-28
- Ofgem’s Significant Code Review
- Zero Carbon Update
- Questions & Close

Meet the Team

Ami Mathieson

Incentive on Connections Engagement Manager

Lynn Tracey

Decarbonisation Officer

Hannah Sharratt

Stakeholder engagement & Regulatory Manager

Martin Edmundson

Head of Business Connections

Garreth Freeman

Connections & Capital Manager

Brian Hoy

Head of Market Regulation

2020-21 ICE Workplan Update

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ICE 2020-21 Workplan Performance

➢ We will continue to target high **customer satisfaction** (85% overall satisfaction)	➢ On track
➢ Target **Time to Quote** timescales for DG LV quotations	➢ 21 working days against target of 22 working days.
➢ We will provide updates on activity to support the transition to **green energy** and the wider green economy by providing regular updates on our **Leading the North West to Zero Carbon Plan**. We will share learning from our case studies, eg our zero carbon buildings.	➢ Included in today's workshop ➢ Further updates to follow
➢ We will provide support to our customers to help with the **G98/G99 application process**. We will publish **example application forms** for common scenario G98/G99 applications as a reference guide	➢ Included in today's workshop
➢ We will keep stakeholders informed on the transition of Distribution Network Operators (DNO) to carrying out enhanced **Distribution System Operation (DSO)** functionality	➢ Updates to follow in October workshop ➢ *DSO strategy*, *Analysis of DSO functions*
➢ We will provide stakeholders with the opportunity to receive detailed briefings on **industry level changes**	➢ SCR update included in today's session ➢ Further updates to follow

ICE 2021-22 Workplan Performance

➢ We will engage with **community & local energy** stakeholders	➢ Zero carbon communities - how to finance decarbonisation
➢ We will continue to offer opportunities for stakeholders to **engage** with us. We will also provide **surgery sessions** to meet our stakeholders needs, targeting all are held within 10 working days.	➢ 3 workshops planned plus adhoc opportunities via webinars ➢ Surgery sessions average held within 2 working days of receipt.
➢ We will continue to communicate with our stakeholders	➢ Via planned workshops and quarterly newsletters

We would love to hear your feedback, please get in touch with either Ami or Hannah should you have anything to discuss after the session.

Any comments please contact ice@enwl.co.uk

G98 / G99 Guidance

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Introduction

- Last year we took away an ICE action to provide further support on the G98/G99 application process to our customers.
- This included a presentation outlining the process for G98/G99 (Type A) applications and explaining where to get the required info:

We will provide support to our customers to help with the G98/G99 application process.	We will publish example application forms for common scenario G98/G99 applications as a reference guide to help customers complete application forms.

- Following this, we would like feedback from this presentation on how best deliver this action for you:
  - Recurrent issues
  - How best to display / provide info to yourselves

Application – Less than 1MW

Summary of G98 and G99 Forms

	Single premises Up to and including 16 A per phase	Multiple premises Up to and including 16 A per phase	Less than 50kW	Integrated Micro-generation & storage (each up to & including 16 A per phase)	Greater than 50kW & less than 1MW Type A	1MW to less than 10MW Type B	10MW to less than 50MW Type C	Greater than or equal to 50MW or >110kV Type D
Applicable Standard	G98	G98	G99	G99	G99	G99	G99	
Application		Form A	Form A1-1	Form A1-2	SAF*	SAF*	SAF*	
Notification	Form B	Form B	Form A3-1	Form A3-2	Form A3-1			
Evidence	If fully type tested but not registered with the ENA- **Form C**	If fully type tested but not registered with the ENA- **Form C**	If not type tested – **Form A2-1** synchronous <50kW, **Form A2-2** synchronous >50kW or **Form A2-3** inverter connected gen	If not type tested – **Form A2-1** synchronous <50kW, **Form A2-2** synchronous >50kW or **Form A2-3** inverter connected gen	If not type tested- **Form A2-2** synchronous **Form A2-3** inverter connected gen	**PGMD**** **Form B2-1**	**PGMD**** **Form C2-1**	
Site Compliance and Commissioning Checks					**Form A2-4** if the Interface Protection is not Type Tested or for other site compliance tests	**Form B2-2** if the Interface Protection is not Type Tested or for other site compliance tests	**Form C2-2** if the Interface Protection is not Type Tested or for other site compliance tests	
Installation						**Form B3**	**Form C3**	

*Standard Application Form

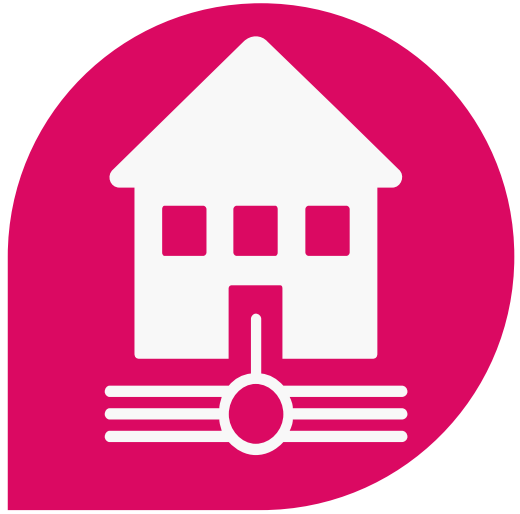
**Power Generating Module Document

Up to 1MW there are two potential applications:

1. A G98 = small gen up to 16A / phase
2. A G99 up to 1MW has 4 types of form depending on size and technology

Commonalities

- **Application & Design:** Generator will be studied and found to work within our operating boundaries i.e. voltage & thermal.
- **Acceptance & Delivery:** Generator assessment under key parameters:
  - How it operates within the following frequency ranges:
    - 47 ≥ **f** ≤ 52Hz
    - **f** < 47Hz
    - **f** > 52Hz
  - It's fault ride through, disconnection and reconnection capability
  - Power Quality – Harmonics, Voltage Fluctuation and Flicker
- This is similar for both G98 and G99



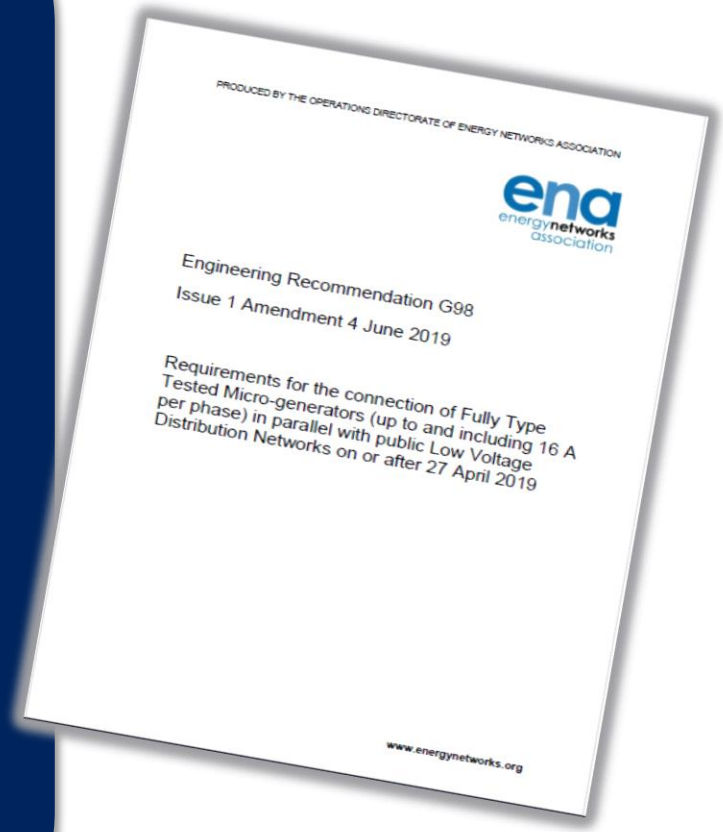
Types of generation at LV

- Photovoltaic (PV)
- Battery Storage
- Combined Heat and Power (CHP)
- V2G chargers (Using an EV Car as a Battery)

Application - G98 - Background

- ENA Engineering Recommendation G98 (formerly known as G83) is for the connection of generation systems up to an including 3.68kW (16A) per phase.
- A G98 system does not require a study as is it deemed that the impact on the network is negligible.
  - **However:** Need to inform the DNO if undertaking multiple installations via Form A
- A single phase G98 system will consist of one type of generation with a maximum capacity of 3.68kW.
- A three phase G98 system can either be 3 x single phase 3.68kW, each connected per phase or up to 11.04kW as a single, three phase system.

In the case of a G98 application for a single installation, the customer may connect and notify


PRODUCED BY THE OPERATIONS DIRECTORATE OF ENERGY NETWORKS ASSOCIATION

ena energynetworks association

Engineering Recommendation G98

Issue 1 Amendment 4 June 2019

Requirements for the connection of Fully Type Tested Micro-generators (up to and including 16 A per phase) in parallel with public Low Voltage Distribution Networks on or after 27 April 2019

www.energynetworks.org

Application – G98

Summary of G98 and G99 Forms

	Single premises Up to and including 16 A per phase	Multiple premises Up to and including 16 A per phase	Less than 50kW	Integrated Micro-generation & storage (each up to & including 16 A per phase)	Greater than 50kW & less than 1MW Type A	1MW to less than 10MW Type B	10MW to less than 50MW Type C	Greater than or equal to 50MW or >110kV Type D
Applicable Standard	G98	G98	G99	G99	G99	G99	G99	
Application		Form A	Form A1-1	Form A1-2	SAF*	SAF*	SAF*	
Notification	Form B	Form B	Form A3-1	Form A3-2	Form A3-1			
Evidence	If fully type tested but not registered with the ENA- Form C	If fully type tested but not registered with the ENA- Form C	If not type tested – Form A2-1 synchronous <50kW, Form A2-2 synchronous >50kW or Form A2-3 inverter connected gen	If not type tested – Form A2-1 synchronous <50kW, Form A2-2 synchronous >50kW or Form A2-3 inverter connected gen	If not type tested- Form A2-2 synchronous Form A2-3 inverter connected gen	PGMD** Form B2-1	PGMD** Form C2-1	
Site Compliance and Commissioning Checks					Form A2-4 if the Interface Protection is not Type Tested or for other site compliance tests	Form B2-2 if the Interface Protection is not Type Tested or for other site compliance tests	Form C2-2 if the Interface Protection is not Type Tested or for other site compliance tests	
Installation						Form B3	Form C3	

*Standard Application Form

**Power Generating Module Document

A G98 notification should be made by submitting the G98 ‘Form B’ to Electricity North West

Guide to completing G98 Form B

- Engineering Recommendation G98 Form B is submitted to the DNO when a compliant micro-generator is installed within 28 days of commissioning
- Completed by the installer
- Latest version available on the ENA website must be used
  http://www.energynetworks.org/electricity/engineering/distributed-generation/engineering-recommendation-g98.html
- Submitted to G98notifications@enwl.co.uk

Page 1

Form B: Installation Document for connection under G98

Please complete and provide this document for each premises, once **Micro-generator** 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	
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**	

Generator owner's contact details

Installers details including accreditation

Details about the site where the generator has been connected

Page 2

Location of Lockable Isolation Switch	

Details of Micro-generators. Use a separate line for new and existing installations and for different technology type. Use PH 1 column for single phase supply.

Manufacturer	Date of Installation	Technology Type / Primary Energy Source please enter code from table below	Manufacturer's Ref No (this number should be registered on the ENA **Type Test Verification Report** Register as Product ID)	**Micro-generator Registered Capacity in**				
				3-Phase Units	Single Phase Units			Power Factor
					PH1	PH2	PH3	

Declaration – to be completed by Installer for Micro-generators Tested to EREC G98

I declare that the relevant **Micro-generators** and the installation which together form a **Micro-generating Plant** within the scope of EREC G98 at the above address, conform to the requirements of EREC G98. This declaration of compliance is confined to **Micro-generating Plant** tested to EREC G98 or EREC G83 as applicable at the time of commissioning.

Signature:	Date:

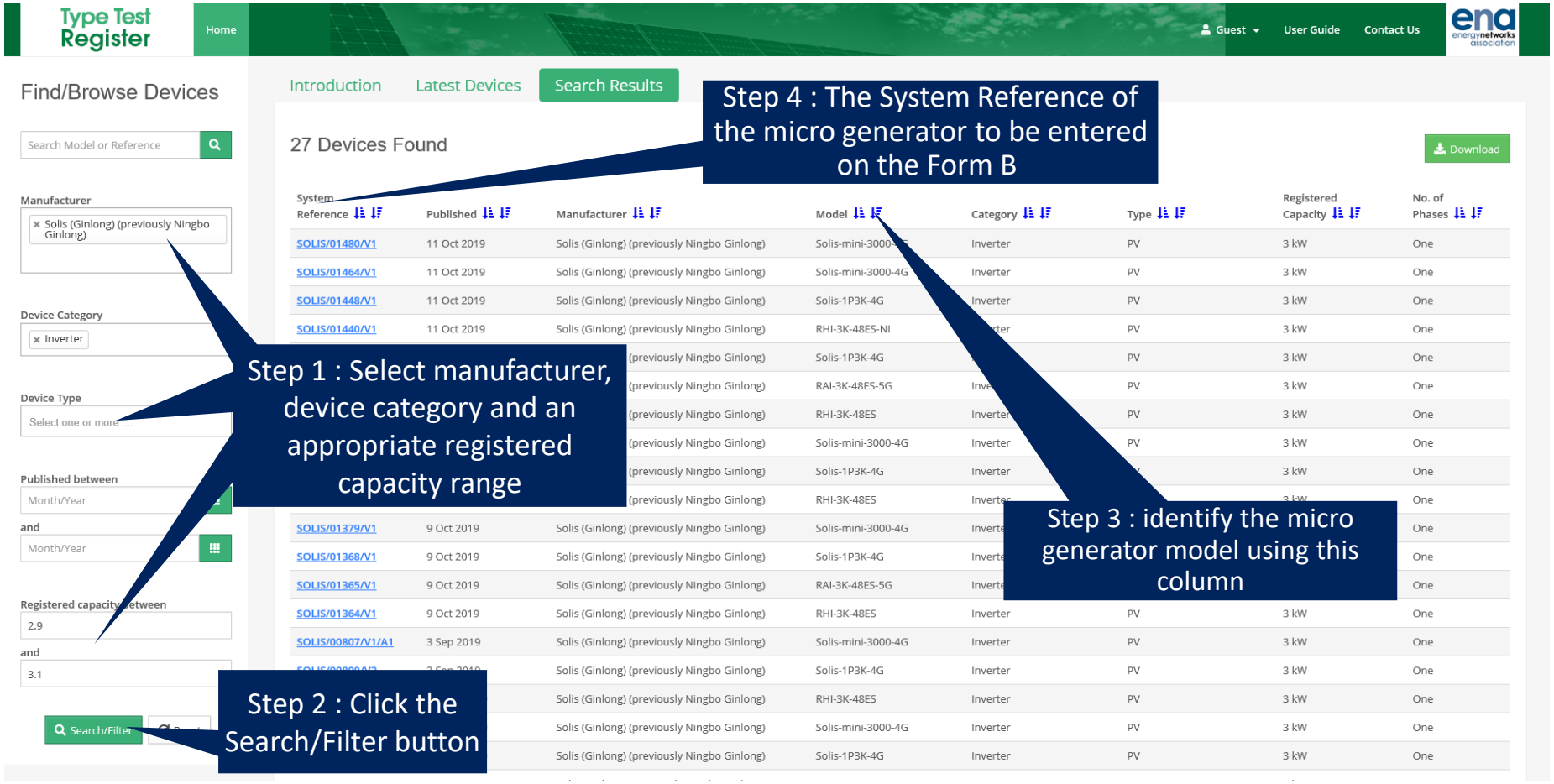
Primary Energy Source	Code	Primary Energy Source	Code
Solar PV	1	Wind	2
Hydro (run of river)	3	Hydro (reservoir)	4
Biomass	5	Other Renewable	6
Fossil gas	7	Waste	8
Fossil coal gas	9	Fossil oil	10
Fossil oil shale	11	Fossil peat	12
Geothermal	13	Fossil brown coal/lignite	14
Fossil hard coal	15	Hydro pumped storage	16

Technical details of the generator (see overleaf for guidance on the Manufacture's Reference No.)

Signed declaration of compliance with EREC G98

Guide to completing G98 Form B

- It is vitally important to get the Manufacturer's Reference Number entered on page 2 correct as Electricity North West cannot check compliance without it
- Manufacturer's Reference Number is obtained from the ENA Type Test Register website
- http://www.ena-eng.org/gen-ttr/



Application - G98

As a study is not required, the G98 notification can be sent to the below mailbox. This will be checked by the team and added onto our network records.

G98notifications@enwl.co.uk

Application – G99

For integrated micro-generation, we start to move into G99

Application – Integrated Micro-Generation - Background

- Integrated Micro-Generation, formerly known as ‘Fast track’ is a part of the ENA G99 Engineering Recommendation.
- It covers systems up to a maximum installation capacity of 7.36kW (32 Amps) limited via a G100 export limitation scheme (ELS) to 3.68kW (16 Amps) of export.
- The main way this is utilised is by installing a 3.68kW PV system, alongside a 3.68kW battery storage unit. The full system is then limited to a maximum export capacity of 3.68kW (16 Amps).

Application – Integrated Micro-Generation Required Information

Summary of G98 and G99 Forms

	Single premises Up to and including 16 A per phase	Multiple premises Up to and including 16 A per phase	Less than 50kW	Integrated Micro-generation & storage (each up to & including 16 A per phase)	Greater than 50kW & less than 1MW Type A	1MW to less than 10MW Type B	10MW to less than 50MW Type C	Greater than or equal to 50MW or >110kV Type D
Applicable Standard	G98	G98	G99	G99	G99	G99	G99	
Application		Form A	Form A1-1	Form A1-2	SAF*	SAF*	SAF*	
Notification	Form B	Form B	Form A3-1	Form A3-2	Form A3-1			
Evidence	If fully type tested but not registered with the ENA- **Form C**	If fully type tested but not registered with the ENA- **Form C**	If not type tested – **Form A2-1** synchronous <50kW, **Form A2-2** synchronous >50kW or **Form A2-3** inverter connected gen	If not type tested – **Form A2-1** synchronous <50kW, **Form A2-2** synchronous >50kW or **Form A2-3** inverter connected gen	If not type tested- **Form A2-2** synchronous **Form A2-3** inverter connected gen	**PGMD**** **Form B2-1**	**PGMD**** **Form C2-1**	
Site Compliance and Commissioning Checks					**Form A2-4** if the Interface Protection is not Type Tested or for other site compliance tests	**Form B2-2** if the Interface Protection is not Type Tested or for other site compliance tests	**Form C2-2** if the Interface Protection is not Type Tested or for other site compliance tests	
Installation						**Form B3**	**Form C3**	

*Standard Application Form

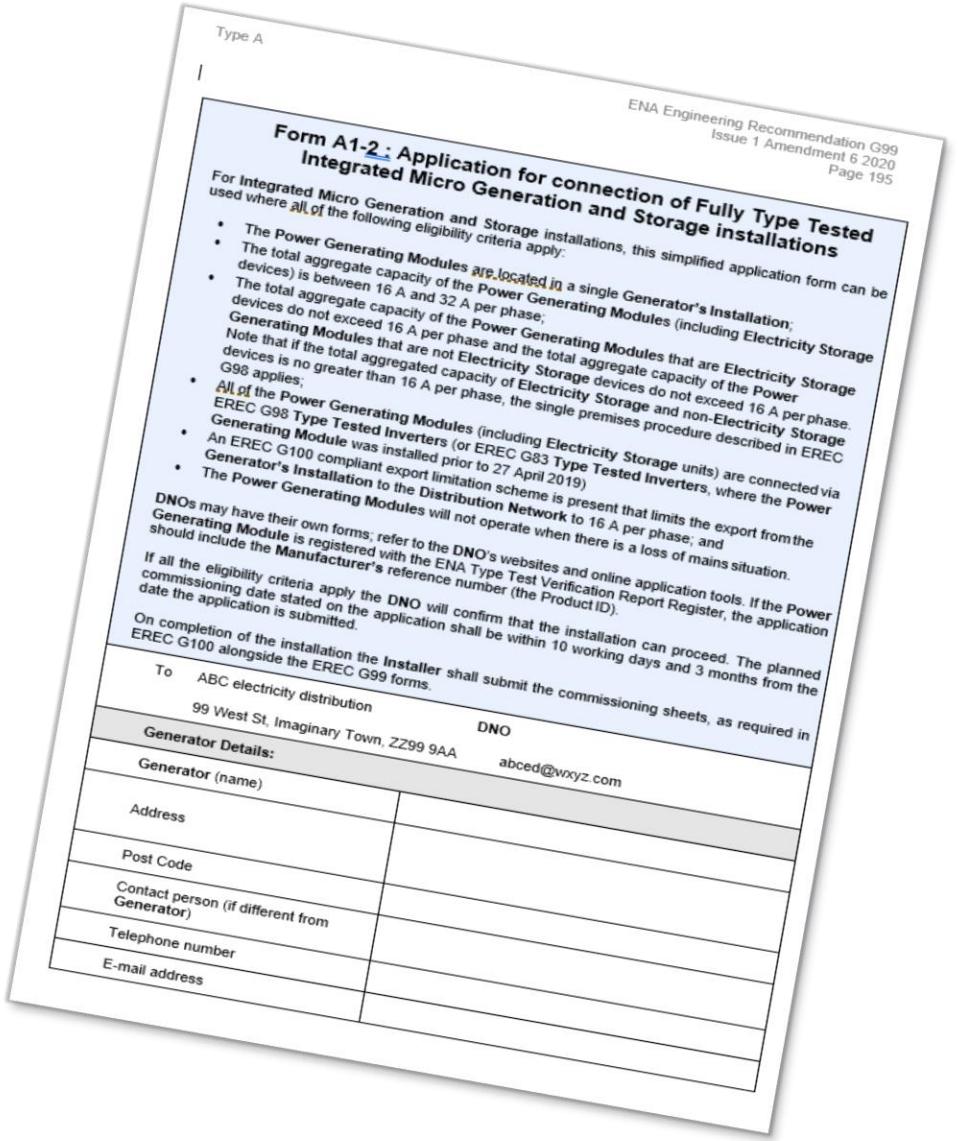
**Power Generating Module Document

A G99 Integrated Micro-Generation application should be made by submitting the G99 'Form A1-2' Electricity North West

Application – Integrated Micro-Generation Required Information

Required information for an Integrated Micro-Generation Application:

- G99 Form A1-2
- Site Plan
- MPAN number
- Inverter details (Data sheets)
- Inverter compliance certificates/type test reports
- Battery Storage details
- G100 Export Limitation Scheme (ELS) evidence/report – *APPENDEX A, B & C in G100 document fulfils this requirement*
- A single line diagram of the full system including the G100 ELS – *APPENDEX D in G100 document provides a good example*



Type A

ENA Engineering Recommendation G99
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Form A1-2 : Application for connection of Fully Type Tested Integrated Micro Generation and Storage installations

For **Integrated Micro Generation and Storage** installations, this simplified application form can be used where all of the following eligibility criteria apply:

- The **Power Generating Modules** are located in a single **Generator's Installation**;
- The total aggregate capacity of the **Power Generating Modules** (including **Electricity Storage** devices) is between 16 A and 32 A per phase;
- The total aggregate capacity of the **Power Generating Modules** 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. 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 procedure described in EREC G98 applies;
- All of the **Power Generating Modules** (including **Electricity Storage** units) are connected via EREC G98 **Type Tested Inverters** (or EREC G83 **Type Tested Inverters**, 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 Modules** 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 application should include the **Manufacturer's** reference number (the Product ID).

If all the eligibility criteria apply the **DNO** will confirm that the installation can proceed. The planned commissioning date stated on the application shall be within 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
99 West St, Imaginary Town, ZZ99 9AA

DNO
abced@wxyz.com

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

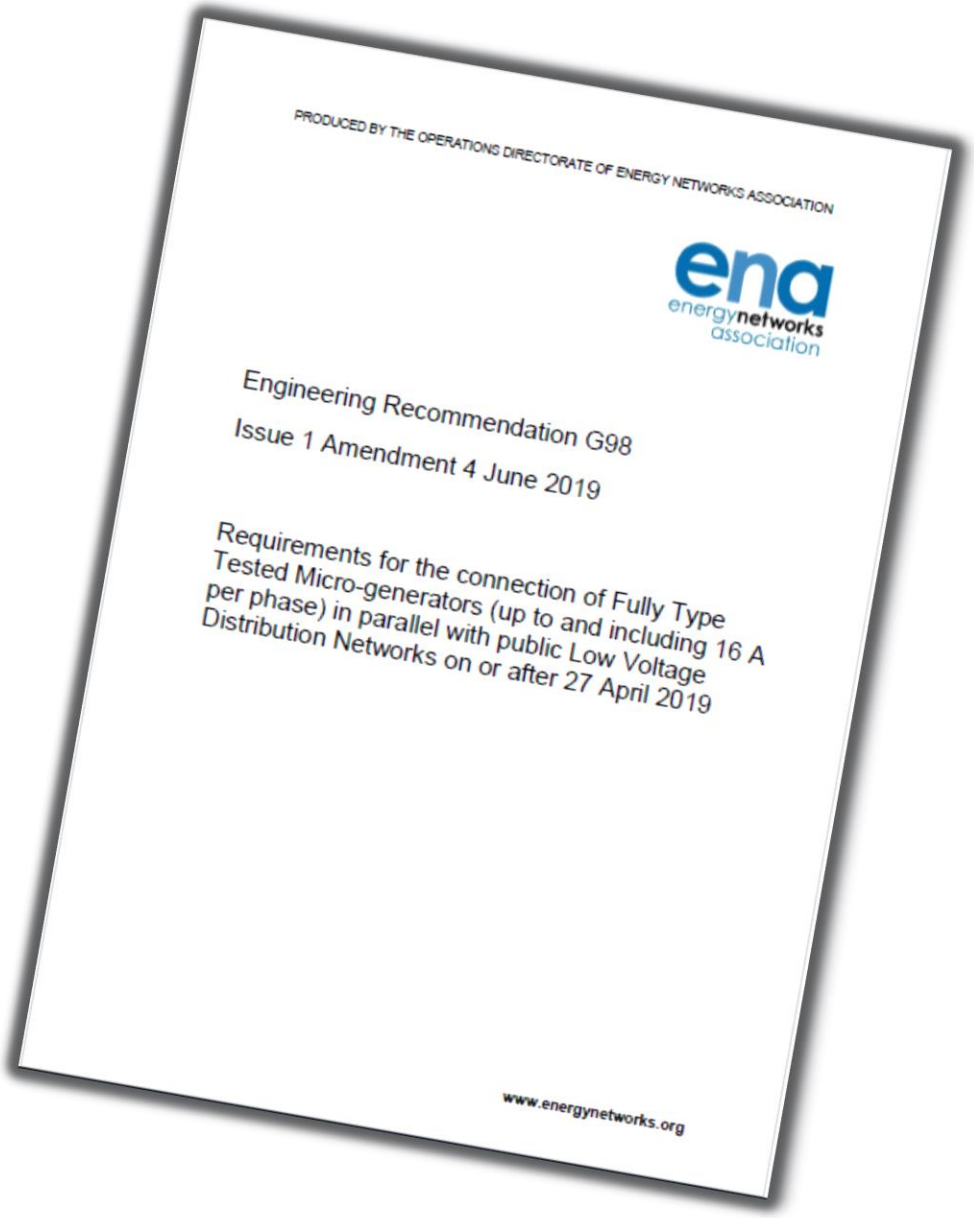
Application – Integrated Micro-Generation

The application is to be sent to the below mailbox. This will be raised by our registrations team and a quote letter will be provided to you by one of our engineers.

connectionapplications@enwl.co.uk

Application – G99

ENA Engineering Recommendation G99 (Formerly G59) is for the connection of generation to the network for any system above 3.68kW (16A) per phase.



Application - G99 - Background

ENA Engineering Recommendation G99 (formerly known as G59) is for the connection of generation systems above 3.68kW (16A) per phase.

Above G98 and Integrated Micro-Generation, G99 can be split into two types of applications. This is dependant on the capacity and size of the proposed system:

- A G99 Form A1-1 Application – This is for single phase systems up to and including 17kW, and for three phase systems up to and including 50kW.
- A G99 Standard Application Form (SAF) – This is for single phase systems above 17kW, and for three phase systems above 50kW.

Application – G99 up to 17kW 1ph or 50kW 3ph

Summary of G98 and G99 Forms

	Single premises Up to and including 16 A per phase	Multiple premises Up to and including 16 A per phase	Less than 50kW	Integrated Micro-generation & storage (each up to & including 16 A per phase)	Greater than 50kW & less than 1MW Type A	1MW to less than 10MW Type B	10MW to less than 50MW Type C	Greater than or equal to 50MW or >110kV Type D
Applicable Standard	G98	G98	G99	G99	G99	G99	G99	
Application		Form A	Form A1-1	Form A1-2	SAF*	SAF*	SAF*	
Notification	Form B	Form B	Form A3-1	Form A3-2	Form A3-1			
Evidence	If fully type tested but not registered with the ENA- **Form C**	If fully type tested but not registered with the ENA- **Form C**	If not type tested – **Form A2-1** synchronous <50kW, **Form A2-2** synchronous >50kW or **Form A2-3** inverter connected gen	If not type tested – **Form A2-1** synchronous <50kW, **Form A2-2** synchronous >50kW or **Form A2-3** inverter connected gen	If not type tested- **Form A2-2** synchronous **Form A2-3** inverter connected gen	**PGMD**** **Form B2-1**	**PGMD**** **Form C2-1**	
Site Compliance and Commissioning Checks					**Form A2-4** if the Interface Protection is not Type Tested or for other site compliance tests	**Form B2-2** if the Interface Protection is not Type Tested or for other site compliance tests	**Form C2-2** if the Interface Protection is not Type Tested or for other site compliance tests	
Installation						**Form B3**	**Form C3**	

*Standard Application Form

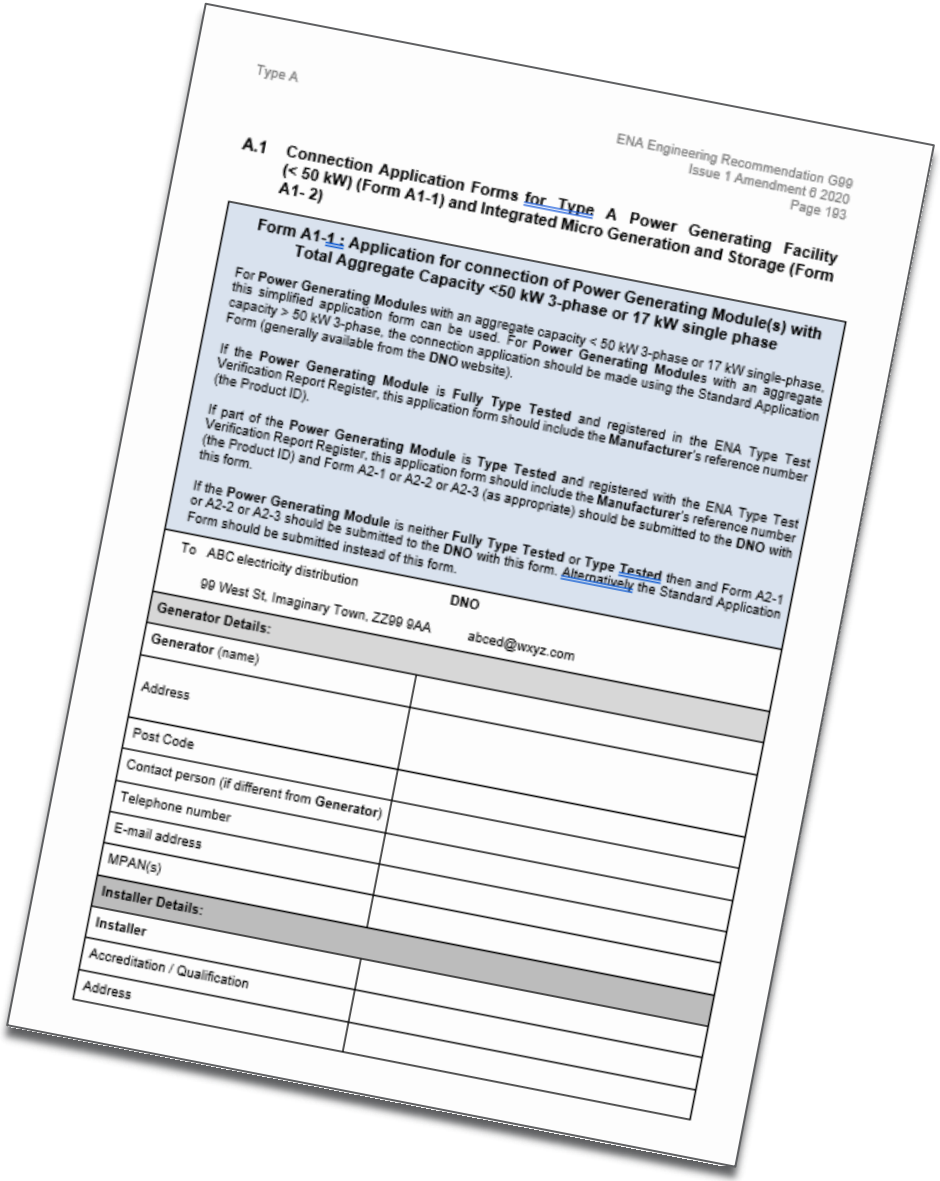
**Power Generating Module Document

A G99 application for systems up to 17kW on a single phase service, or up to 50kW on a three phase service should be made by submitting the G99 'Form A1-1' to Electricity North West

Application – G99 up to 17kW 1ph or 50kW 3ph

Required information for a G99 Form A1-1 Application:

- G99 Form A1-1
- Site Plan
- MPAN number
- Inverter/Relay details (Data sheets)
- Inverter/Relay compliance certificates/type test reports
- Battery Storage details (if required)
- G100 Export Limitation Scheme (ELS) evidence/report (if required) – *APPENDEX A, B & C in G100 document fulfils this requirement*
- A single line diagram of the full system including the G100 ELS – *APPENDEX D in G100 document provides a good example*



Type A

ENA Engineering Recommendation G99
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A.1 Connection Application Forms for Type A Power Generating Facility (< 50 kW) (Form A1-1) and Integrated Micro Generation and Storage (Form 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 Modules** with an aggregate capacity < 50 kW 3-phase or 17 kW single-phase, this simplified application form can be used. For **Power Generating Modules** 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:	
Generator (name)	
Address	
Post Code	
Contact person (if different from Generator)	
Telephone number	
E-mail address	
MPAN(s)	
Installer Details:	
Installer	
Accreditation / Qualification	
Address	

Application – G99 above 17kW 1ph or 50kW 3ph

Summary of G98 and G99 Forms

	Single premises Up to and including 16 A per phase	Multiple premises Up to and including 16 A per phase	Less than 50kW	Integrated Micro-generation & storage (each up to & including 16 A per phase)	Greater than 50kW & less than 1MW Type A	1MW to less than 10MW Type B	10MW to less than 50MW Type C	Greater than or equal to 50MW or >110kV Type D
Applicable Standard	G98	G98	G99	G99	G99	G99	G99	
Application		Form A	Form A1-1	Form A1-2	SAF*	SAF*	SAF*	
Notification	Form B	Form B	Form A3-1	Form A3-2	Form A3-1			
Evidence	If fully type tested but not registered with the ENA- Form C	If fully type tested but not registered with the ENA- Form C	If not type tested – Form A2-1 synchronous <50kW, Form A2-2 synchronous >50kW or Form A2-3 inverter connected gen	If not type tested – Form A2-1 synchronous <50kW, Form A2-2 synchronous >50kW or Form A2-3 inverter connected gen	If not type tested- Form A2-2 synchronous Form A2-3 inverter connected gen	PGMD** Form B2-1	PGMD** Form C2-1	
Site Compliance and Commissioning Checks					Form A2-4 if the Interface Protection is not Type Tested or for other site compliance tests	Form B2-2 if the Interface Protection is not Type Tested or for other site compliance tests	Form C2-2 if the Interface Protection is not Type Tested or for other site compliance tests	
Installation						Form B3	Form C3	

*Standard Application Form

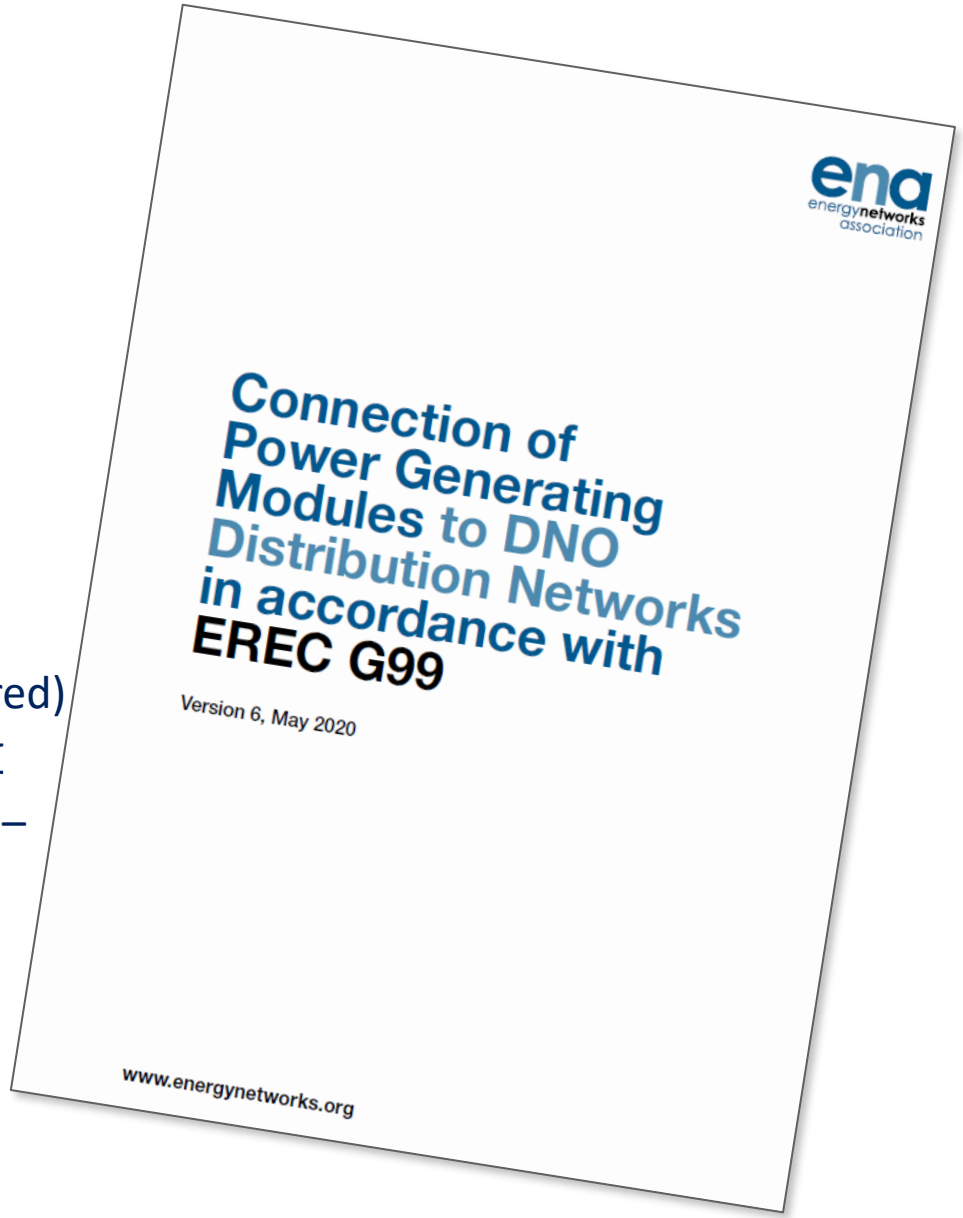
**Power Generating Module Document

A G99 application for systems above 17kW on a single phase service, or up to 50kW on a three phase service should be made by submitting the G99 'SAF (Standard Application Form)' to Electricity North West

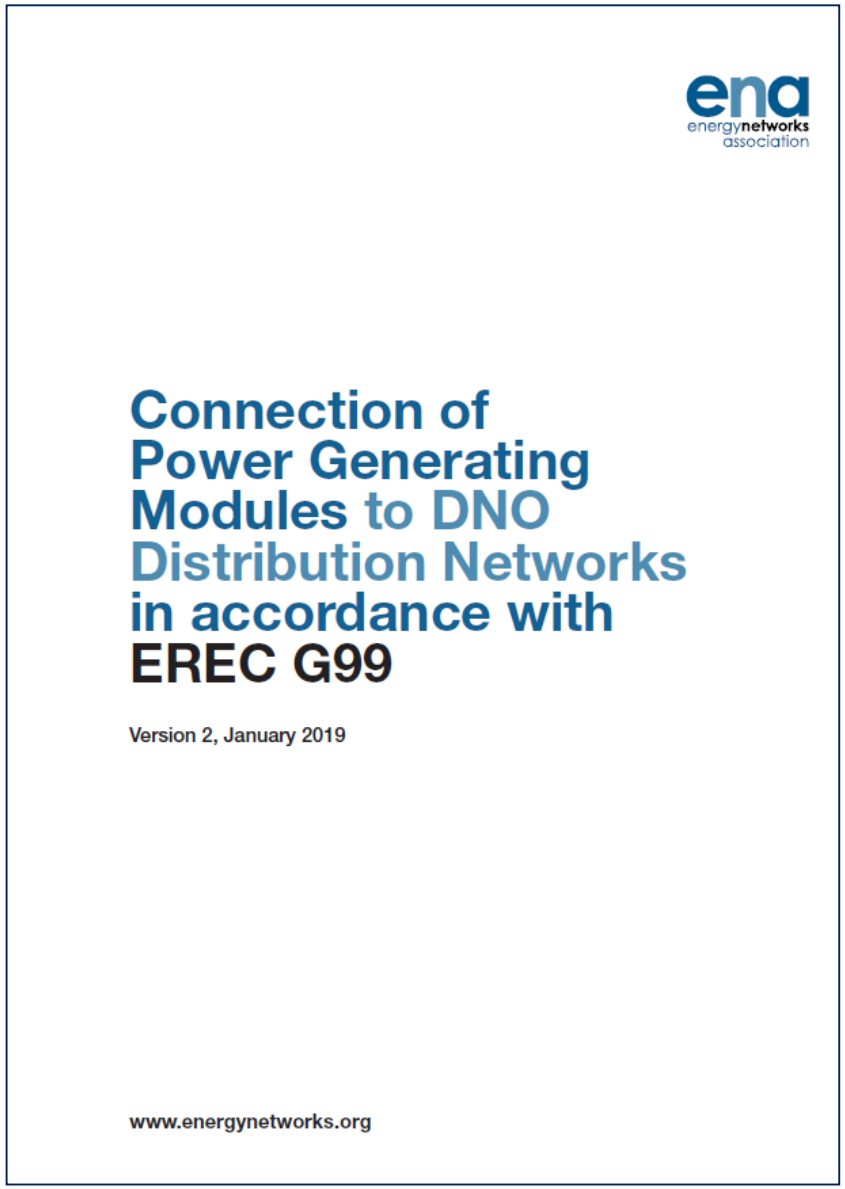
Application – G99 above 17kW 1ph or 50kW 3ph

Required information for a G99 SAF Application:

- G99 SAF (Standard Application Form)
- Site Plan
- MPAN number
- Inverter/Relay details (Data sheets)
- Inverter/Relay compliance certificates/type test reports
- Battery Storage details (if required)
- G100 Export Limitation Scheme (ELS) evidence/report (if required) – *APPENDEX A, B & C in G100 document fulfils this requirement*
- A single line diagram of the full system including the G100 ELS – *APPENDEX D in G100 document provides a good example*



EREC G99 – Standard Application Form, SAF



Used when wanting to connect a Power Generating Module greater than 16 Amps per phase.

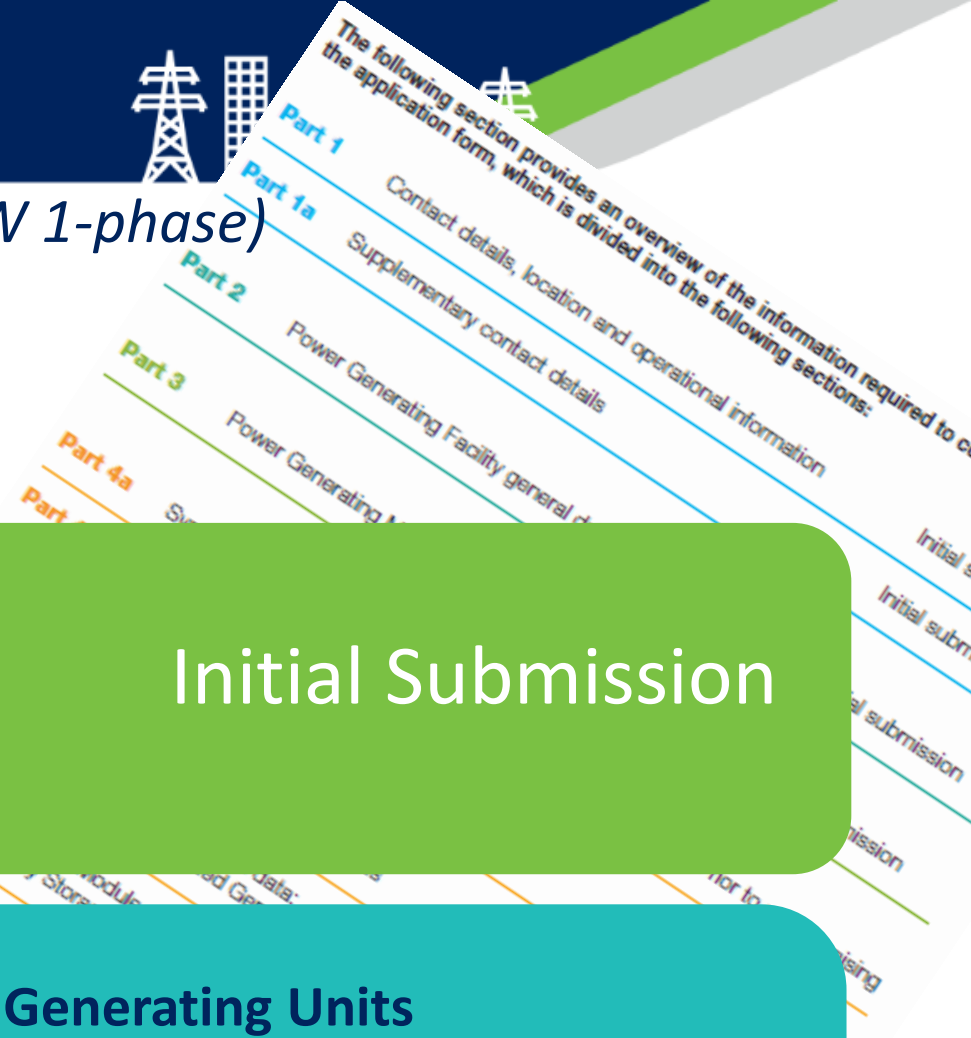
Changes include:-

- Alignment of terminology with G99 (PGM, GU etc)
- Inclusion of storage data
- New technical data
  - ❑ Voltage control data
  - ❑ Frequency response droop settings
  - ❑ Type C & D only:
    - Governor and prime mover model
    - AVR and excitation model
    - Short circuit ratio

Can be accessed from our website: *https://www.enwl.co.uk/globalassets/get-connected/apply-for-a-new-connection/generation/g99/saf-g99-form-new.pdf*

EREC G99 Connection Process
Design Phase – Submission of SAF

- *Form A1-1 for Type A fully type tested <50kW 3-phase (17kW 1-phase)*
- ***SAF >50kW 3-phase***
  - *Different parts submitted at different times*
  - *Different parts for different technologies*



Part 1 Contact details, location and operational information
Part 1a Supplementary contact details
Part 2 Power Generating Facility general data
Part 3 Power Generating Module model data

Initial Submission

Part 4a Synchronous Power Generating Modules
Part 4b Power Park Module model data: Fixed speed induction Generating Units
Part 4c Power Park Module model data: Doubly fed induction Generating Units
Part 4d Power Park Module model data: Series inverter connected Generating Units
Part 4e Power Park Module model data: Electricity Storage plant
Part 4f Transformer information
Part 5 Additional data which may be required by the DNO

Prior to Synchronising

Application – G99

The application is to be sent to the below mailbox. This will be raised by our registrations team and a quote letter will be provided to you by one of our engineers.

connectionapplications@enwl.co.uk

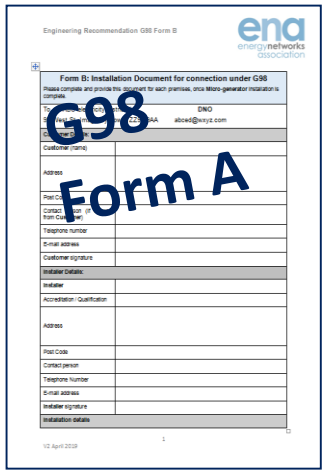
Helping you on your G98/G99 journey

There are:

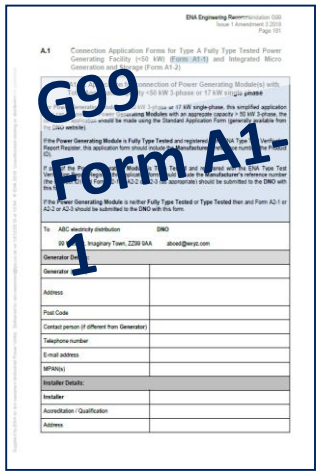
4 types of application form

3 Types of notification form

4 types of Evidance form



Multiple G98s



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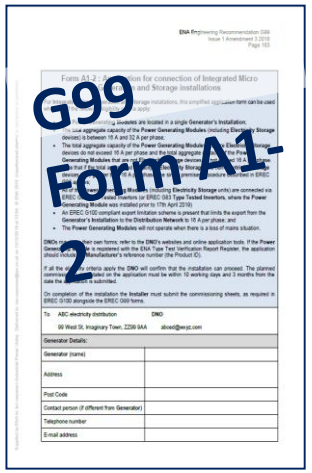
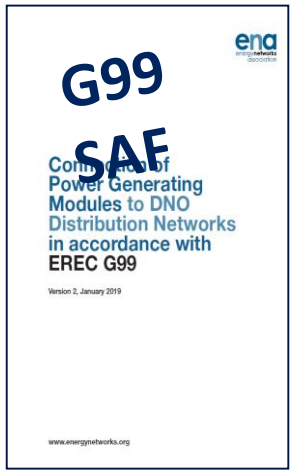


Integrated micro-gen & Storage



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Complete examples of each and provide as an on-line resource

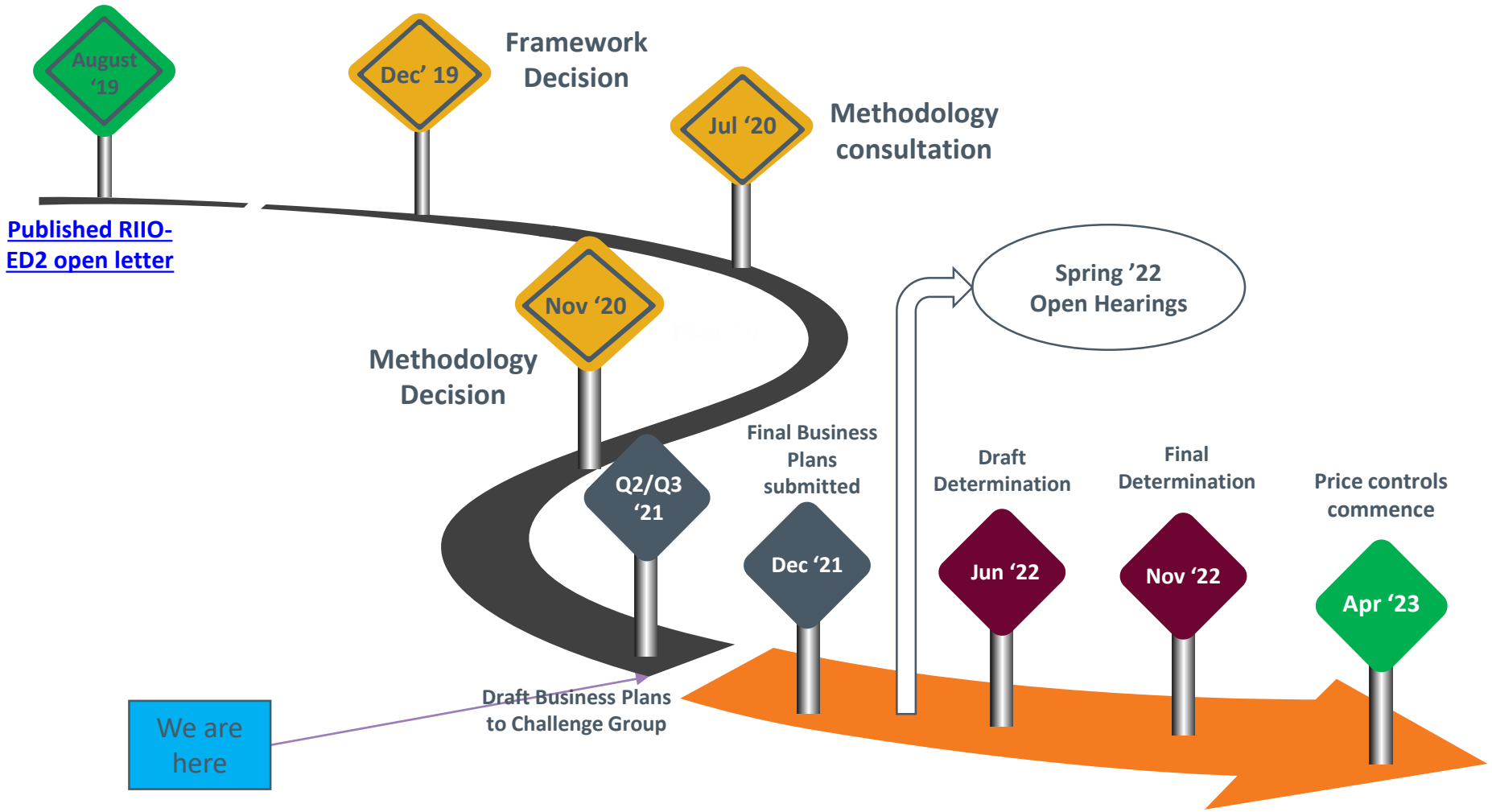
1. What would you like further clarity on?

2. How would you like us to communicate this with you?

Future Business Planning :
2023-28 Business Plans (RIIO-ED2)

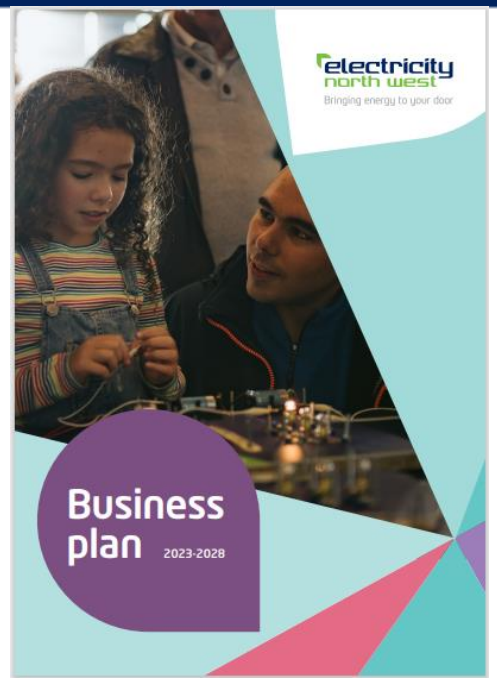
electricity north west
Bringing energy to your door

Road to RIIO-ED2



- 1 July marked major milestone
- DNOs required to submit draft Business Plans to Ofgem
- No requirement to publish
- Varying degrees of information made public

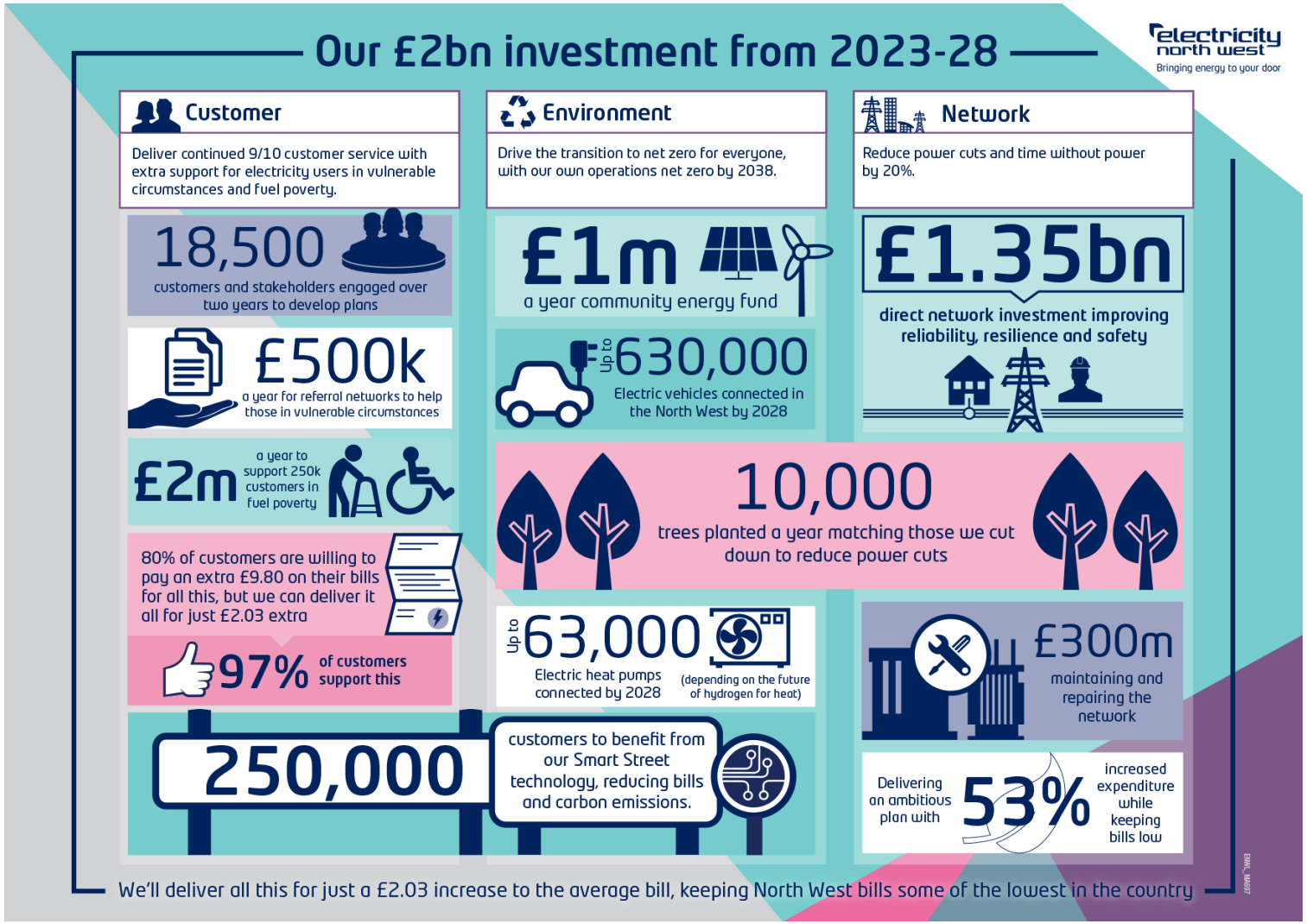
What did we publish?



[Draft business plan 2023-28 (enwl.co.uk)]

We published:

- Our draft plan
- 36 Annexes
- 174 data tables
- 44 Engineering justification papers
- 21 Cost benefit analysis



Connections specific requirements

- DNOs required to submit a ‘Major Connections Strategy’ to cover
  - Any market segments that did not pass the Competition tests in 2013
  - Provision of non-contestable activities for all market segments
- For us that means
  - Distributed Generation Low Voltage
  - Unmetered Other

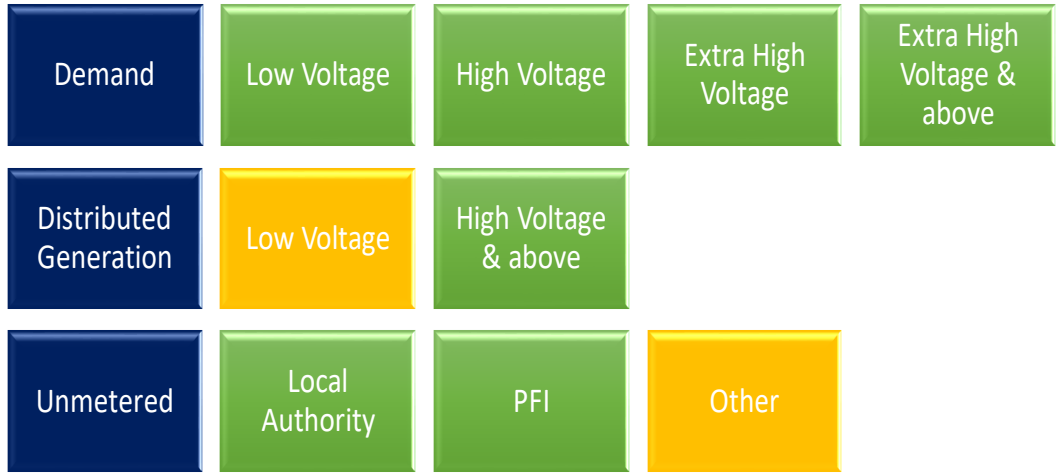
	ENWL	NPg		UKPN			WPD				SSE		SPEN	
RMS		NPgY	NPgN	EPN	SPN	LPN	EMID	WMID	SWEST	SWALES	SHEPD	SEPD	SPD	SPM
Metered demand LV														
Metered demand HV														
Metered demand HV & EV														
Metered demand EV and above														
Distributed generation LV														
Distributed generation HV and EV														
Unmetered local authority														
Unmetered PFI														
Unmetered other														

Key

Pass

Did not pass

Did not apply



Scope of a ‘Major Connections Strategy’

- As a minimum requirement, DNOs’ strategies must:
  - include an assessment of the connection issues prevalent in the company’s region and evidence of how this informs its proposed approach.
  - set out a clearly articulated vision for addressing connections issues identified, identifying links between the proposed deliverables and the outcomes and the benefits these will deliver.
  - demonstrate how the company will deliver the standard of service outlined in the principles and baseline expectations.
  - include deliverables which are specific, time bound and relevant.
  - propose relevant performance measures proposals which will enable stakeholders and Ofgem to evaluate the DNO’s progress in delivering its Major Connections Strategy and associated outcomes.
  - where a DNO indicates the relevant performance measure is a quantifiable metric, it should include a baseline performance benchmark with justification to support this.
  - be developed with stakeholder and CEG input and developed in line with the company’s wider business planning processes and decisions.

Baseline Expectations

- Ofgem has set out a number of ‘Baseline Expectations’ under three principles:

  - **Principle 1** -Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information

  - **Principle 2** -Deliver value for customers by ensuring simplicity and transparency through the applications process

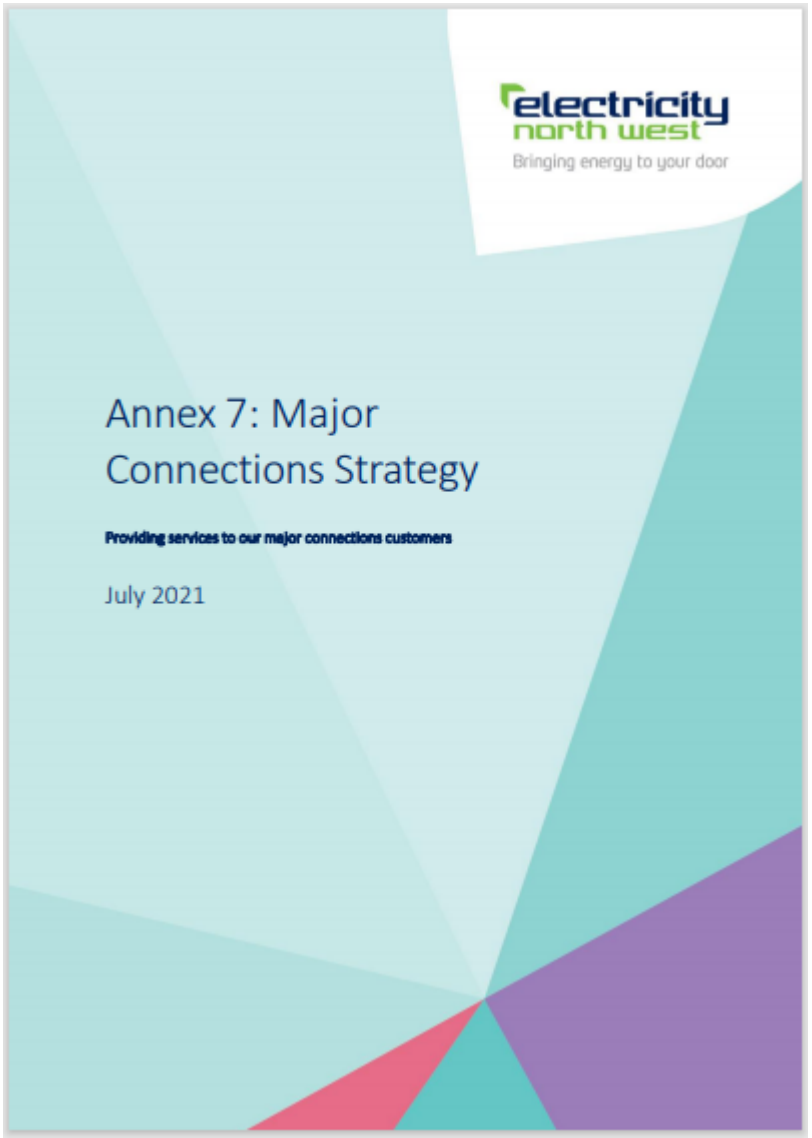
  - **Principle 3** - Facilitate the delivery of timely and economical connections that meet customers’ needs

Our ‘Major Connections Strategy’

- Published at the link below
  - annex-07-major-connections-strategy.pdf (enwl.co.uk)

- Sets out
  - What we do already for customers
  - What feedback we have had on how well we meet the Baseline Expectations
  - How we propose to measure our performance

- Please have a look and give us any extra feedback



What we already do for our customers

- Against each of the Baseline Expectations we have provided a summary of what we already do and links to further information

Principle 2: Deliver value for customers by ensuring simplicity and transparency through the applications process.

Baseline expectation (BE)	Summary of current activities
BE9) Have clear and simple customer application process.	Simple process guidance on our website here and here. Step by step guidance provided in slides here and recordings HERE Key contacts available for queries on the website. Project specific 'surgery sessions' available on request here.
BE10) Provide tailored communication plans to suit different customer needs.	Planner available once application has been received to provide tailored support to customer's needs. Project specific 'surgery sessions' available on request here.
BE11) Provide customers with clear connection quotation cost breakdowns.	Cost breakdown provided in quotes, further information available on our website here.
BE12) Help customers get connected more quickly or cheaply.	Planner made available at all stages pre-application, application and delivery to assist with getting stakeholder connected as quickly and cheaply as possible.
BE14) Provide guidance with relevant Engineering Recommendations (G98/G99).	General & detailed guidance provided on our website, including dedicated EREC G98/G99 guidance pages. Multiple webinar recordings also available on the EREC G98/G99 pages and here

Feedback on how well we do it

- We have sought feedback from relevant stakeholders on how we currently do against the Baseline Expectations
- We will use the ICE process to make further improvements
- If you would like to share your views, please let us know

Principle 1: Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information.

Information on where to connect	Clear connections process	Types of connection products	Support channels	Proactive engagement
100%	100%	100%	67%	86%

Principle 2: Deliver value for customers by ensuring simplicity and transparency through the applications process.

Clear application process	Tailored communications	Clear quote breakdown	Quicker, cheaper connections	Technical standards
67%	67%	86%	67%	86%

Principle 3: Facilitate the delivery of timely and economical connections that meet customers' needs.

Tailored communications	Timely cost changes
86%	75%

How we propose to measure our performance

- We already have a number of quantified KPIs in our existing ICE plans
- We have extended the scope these to cover each of the three Principles

Principle 1: Support connection stakeholders prior to making a connections application by providing accurate, comprehensive and user-friendly information.

Metric	Baseline Expectation[1]	What we will measure	What we will target
Volume of products issued	BE3	No. of budget estimates & quotes issued	Reported information for context, no target
Number of surgery sessions held	BE4	Number of surgery sessions held	Reported information for context, no target
Speed of offering surgery sessions	BE4	Time to offer a surgery session	We will offer 90% within 10 working days
Satisfaction with surgery Session	BE4	Customer satisfaction with surgery sessions	At least 85% satisfaction
Satisfaction with engagement activities	BE5	Stakeholder satisfaction with engagement events	At least 85% satisfaction

Principle 2: Deliver value for customers by ensuring simplicity and transparency through the applications process.

Metric	Baseline Expectation	What we will measure	What we will target
Number of quotes issued	P2	Number of quotes issued	Reported metric, no target
Speed of time to quote	P2	Average number of working days	22 working days (versus the guaranteed standard of 35 working days)
Customer satisfaction with application process	P2	Customer satisfaction with quotation process	At least 85% satisfaction

Principle 3: Facilitate the delivery of timely and economical connections that meet customers' needs.

Metric	Baseline Expectation	What we will measure	What we will target
Number of quotes accepted	P3	Number of quotes accepted	Reported metric, no target
Customer satisfaction with their connections	P3	Customer satisfaction with connections process	At least 85% satisfaction
Time to financially close projects and process any refunds	BE1	Average number of working days to financially close projects	55 working days

Ofgem review of competition

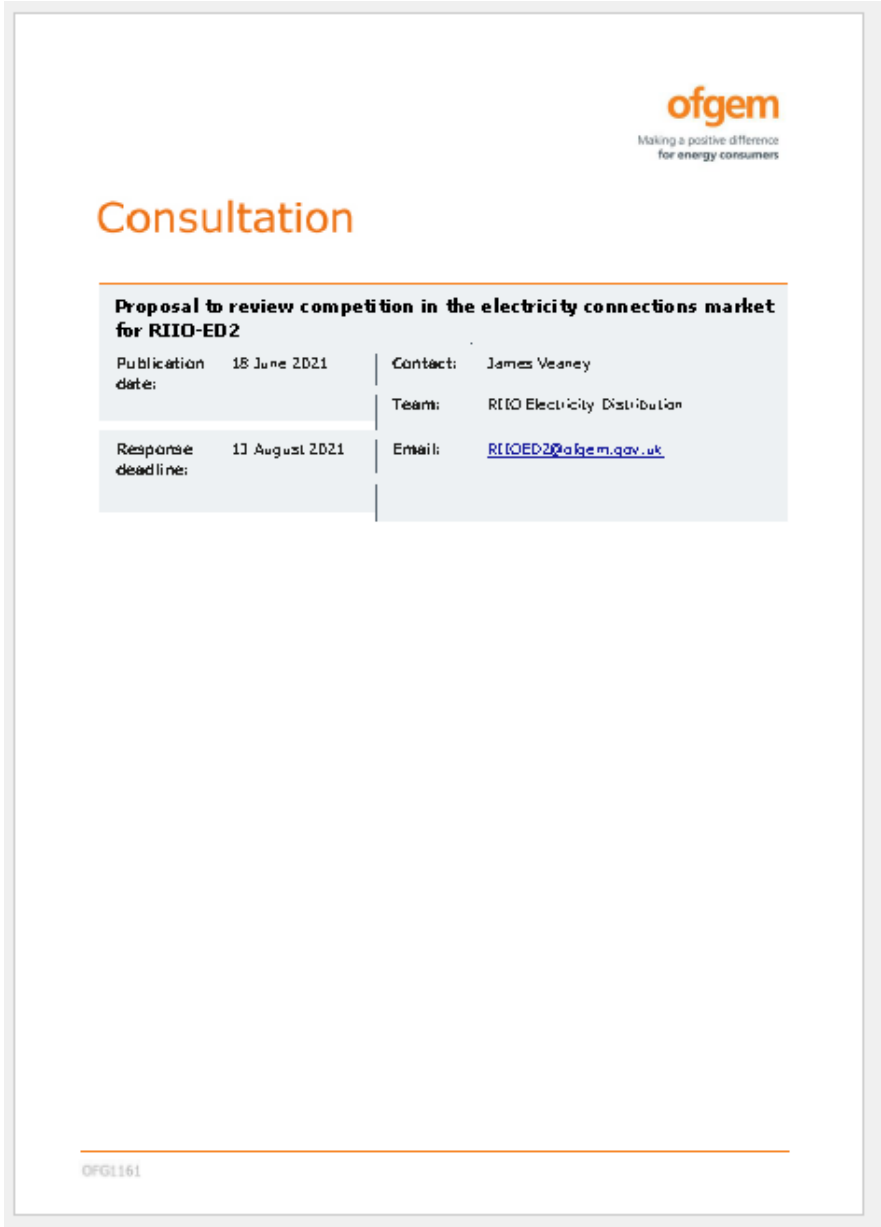
Ofgem consultation

- Ofgem has published a consultation on the levels of competition in the connections market
    - Issued 18 June 2021
    - Closing date 13 August 2021

- This is proposed to be a review based on data to provide an update on the 2013 position

- Consultation asks 13 questions that cover every part of the process

- [Consultation on the proposal to review competition in the electricity distribution connections market | Ofgem]


ofgem
Making a positive difference for energy consumers

Consultation

Proposal to review competition in the electricity connections market for RIIO-ED2

Publication date:	18 June 2021	Contact:	James Veaney
		Team:	RIIO Electricity Distribution
Response deadline:	13 August 2021	Email:	RIIOED2@ofgem.gov.uk

OFGL161

Competition Test re-run

- Ofgem propose to:
  - assess the levels of competition where it has previously not seen evidence of effective competition
  - base this review on what it considers are the key indicators of effective competition.
  - The outcome of this review will inform
    - financially incentivised outputs in RIIO-ED2.
    - changes to provisions that enable DNOs to charge connection customers a margin
  - Ofgem may at a future point undertake a broader review into the connections market.

- Key market indicators

Market share – number of offers	Total number of offers
Market share – accepted offers	Number of third parties
Market share – capacity (MW)	Value of acceptances

SCR Update

What is the Access SCR?

- **A Significant Code Review (SCR)** allows Ofgem to initiate wide ranging and holistic change and to implement reform of a code based issue.

- **Objective of Access Significant Code Review (SCR):** to ensure electricity networks are used efficiently and flexibly, reflecting users' needs and allowing consumers to benefit from new technologies and services while avoiding unnecessary costs on energy bills in general**.**
  - **Access arrangements** - the nature of users' access to the electricity networks (for example, when users can import/export electricity and how much) and how these rights are allocated:
  - **Forward-looking charges** –the type of ongoing electricity network charges which signal to users how their actions can ether increase or decrease network costs in the future

- **Scope:**
  - Review of the definition and choice of transmission and distribution access rights
  - Wide-ranging review of Distribution Use of System (DUoS) network charges
  - Review of distribution connection charging boundary
  - Focussed review of Transmission Network Use of System (TNUoS) charges

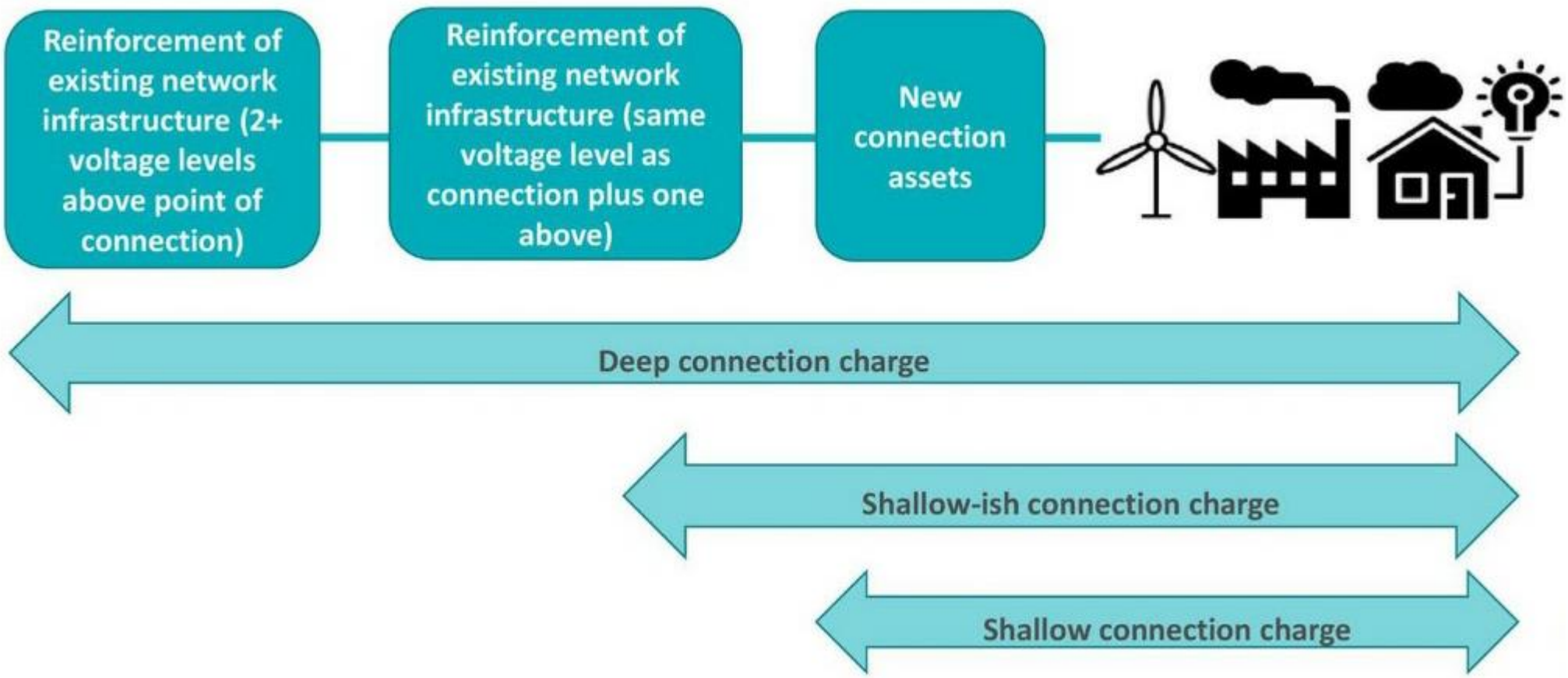
Timelines

Original

Revised

What is the ‘connections boundary’?

When connecting to the network there can be different kinds of assets required to make the connection. The ‘connections boundary’ describes the assets that the customer has to pay for.



How does it work now and what are the issues?

Transmission

- **Shallow connection boundary**
- Pay for new connecting assets up front or over time
- TOs must fund any necessary reinforcement via RIIO allowances or the ESO could actively manage the constraints through flex markets
- To protect against TOs undertaking reinforcement that is not then used, users provide securities against them cancelling their projects ('user commitment')

Distribution

- **Shallow-ish connection boundary**
- Pay upfront for new connecting assets and a share of any necessary reinforcement of the upstream network
- Can lead to high connection charges and might reduce incentives for DNOs to invest strategically, **but** provides a locational signal
- Protects wider consumers from the risk of stranded or under used infrastructure

Potential problems with these arrangements

- The difference between arrangements may be distorting investment decisions or competition between projects
- The connection arrangements could be creating barriers to entry for some users (eg upfront cost) and slow down connections of new technologies like distributed generation and EV charging infrastructure

Distribution connection charging boundary

- On balance, Ofgem think there are good arguments for making a change to the charging arrangements. Ofgem is **minded to**:
  - remove the contribution to reinforcement within the connection charge completely for demand connections
  - reduce the contribution to reinforcement within the connection charge for generation connections
  - Not make any changes to the treatment of transmission work triggered by a distribution connection

What does this mean?

- **Demand** - No connecting customer charges for reinforcement
- **Distributed Generation** - Connecting customer would pay for any reinforcement at same voltage as point of connection. High Cost Cap would be retained.
- **Storage** - Import and export treated individually and full rules above
- **Transmission work** - charged to the individual connection customer as part of the DNO's connection charge.

Consultation details

- Published 30 June
- Open to 25 August

- Covers proposals on
  - distribution connection charging
  - definition and choice of access rights
  - TNUoS charging for Small Distributed Generation

- Access and Forward-looking Charges Significant Code Review - Consultation on Minded to Positions | Ofgem

Any questions?

Leading the North West to Zero Carbon update

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Leading the way to the zero carbon future

Launched our Leading the North West to zero carbon plan in March 2019

- Presenting how we'll spend £63.5m decarbonising our own operations and helping businesses, colleagues and customers to do the same

Carbon literacy training to SLT & WLT

Two net-zero carbon depots

Four electric mini diggers

Two net-zero carbon subs

Lighting replaced with LEDs

Electric Vehicles (EVs)

Smart Street

Strategic investment for low carbon techs (LCTs)

Trialling Mobile Asset Assessment vehicle (MAAV)

Renewable energy tariff

Our strategy

DELIVERING REGIONAL NET ZERO CARBON

Stimulate LCT adoption

Facilitate LCT adoption

Efficient and timely capacity provision

Carbon Plan
Exemplars
trusted information
stakeholder engagement

DSO
Long term planning
strategic infrastructure
Markets
Visibility

Rolling ED2 engagement plan

Strategic infrastructure, ENW carbon footprint

DSO transition plan, Digital and Data strategy, ED2 Capacity Plan

Helping our customers to drive down their carbon emissions

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Bringing energy to your door

Impact Research

SME's

01 Telephone semi-structured interviews

75 interviews with SMEs across the ENWL region and across the 5 archetypes identified by the Tyndall Centre*.

The focus was on awareness of carbon reduction strategies and current / planned actions as well as support / advice needs.

02 Expert interviews

Qualitative interviews with 5 industry experts.

Interviews covered how they currently support businesses to decarbonise, barriers faced by businesses, review of key messages, and advice on how best to communicate the messages.

03 Deliberative Events

2 deliberative events (one in Manchester and one in Blackpool) with SMEs across the archetypes.

Events focused on identifying barriers to decarbonising, testing messages, and communication.

04 Tracking Research

Quantitative telephone interviews with SMEs in the region.

This stage focused on awareness and attitudes towards decarbonisation, and adoption of the behaviours described in the final messages. Future waves will track progress and change over time.

Due to the COVID-19 pandemic, fieldwork for the benchmark wave was paused, and the target number of interviews was not achieved. The shortfall will be made up in future waves.

I&C/ Employees

05 Depth interviews

19 in depth interviews with decision makers in large businesses (200+ employees).

We explored perceptions of and barriers to installing Solar PV and EV chargers

06 Employees

Online survey of 411 employees of businesses (100+ employees) in the North West of England

Explored the importance of their employer adopting Solar PV and EV chargers

Consumers

07 Conjoint/ WTP

4 online focus groups were carried out to provide an in depth exploration of consumers perceptions of sustainability and help shape the next stage of the research – a quantitative survey.

An online consumer survey (2000 domestic customers) to understand priorities and WTP

SME's

07 User Acceptability testing

Depth interviews with 12 decision makers in large businesses (100+ employees) in the North West of England to explore perception of the new 'Go Net Zero' section of the ENWL website.

All completed a pre-task independently, visiting the website, rating overall perceptions and completing user journeys. Then a follow up telephone interview.

Online information hub - GoNetZero

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POWER CUT? CALL 105
Enter a search term
Power cuts | Get connected | Go net zero | Advice and support | Private networks | About us

Home > Go net zero

Go net zero

In 2019, the UK became the first country in the world to declare a climate emergency, and passed laws to bring greenhouse gas emissions to net zero by 2050. Net zero means balancing carbon dioxide emissions with carbon removal, or simply eliminating carbon dioxide emissions altogether. It's also known as 'carbon neutral'.

You and your business

Top tips, tailor-made for your home or your business. Find out how you can reduce your energy bills and help the North West achieve net zero carbon.

Read more →

Ways to go net zero

Find out more about energy efficiency measures and low carbon technologies such as electric vehicles, heat pumps, solar and wind power.

Read more →

Our plans to go net zero

Our ambitious plans set out a range of initiatives and investments which will ensure we take a significant step on the road to rapid decarbonisation.

Read more →

Zero Carbon Business Partnership

- We have joined this partnership which is a collaboration of DNOs, other businesses and business support organisations.
- Miranda Barker from East Lancashire Chamber of Commerce co-chairs the partnership
- Advice tailored for SMEs, particularly small businesses
- Based on research in what advice, language and support SMEs need
- Complements our Net-Zero portal
- https://www.zerocarbonbusiness.uk/

Leadership in our Communities

- LED Street lighting in Cumbria
  - Carbon plan activity has discovered there are ~570 sodium street lamps in Cumbria controlled by 31 parish councils (194 in Eden and 84 in Arnside alone) and a further ~130 in Settle.
  - Replacement of sodium street lamps in these areas would save 88,000 kWh and ~45,000 tCO_2e per annum

- EV chargers in Cumbria
  - Working with Cumbria County Council to identify smaller car parks to support EV charging supporting residents, holiday makers and tourist attractions.
  - We have identified a list of 12 potential sites as a starter and are currently looking into the feasibility and capacity to connect in these areas

LCT Enablement – Strategic Investment – Gary Townsend

- Samlesbury Enterprise Zone
- Knott Mill Interconnector
- Piccadilly Interconnector ✓
- Golborne and M6 Corridor
- South Manchester Enterprise Zone
- Eastlands *(this includes the Etihad Campus*

but has wider benefits for the local area)

- St Cuthberts Garden Village *(Carlisle)*

End user energy efficiency – Smart Streets

ED1	ED2
Innovation Roll Out Mechanisms 180 sub stations; 64,000 customers; ~25% in fuel poverty	Proposal to expand Smart Street to 250,000 customers in areas of high fuel poverty through a £78 million investment programme

Driving down our carbon emissions

electricity north west
Bringing energy to your door

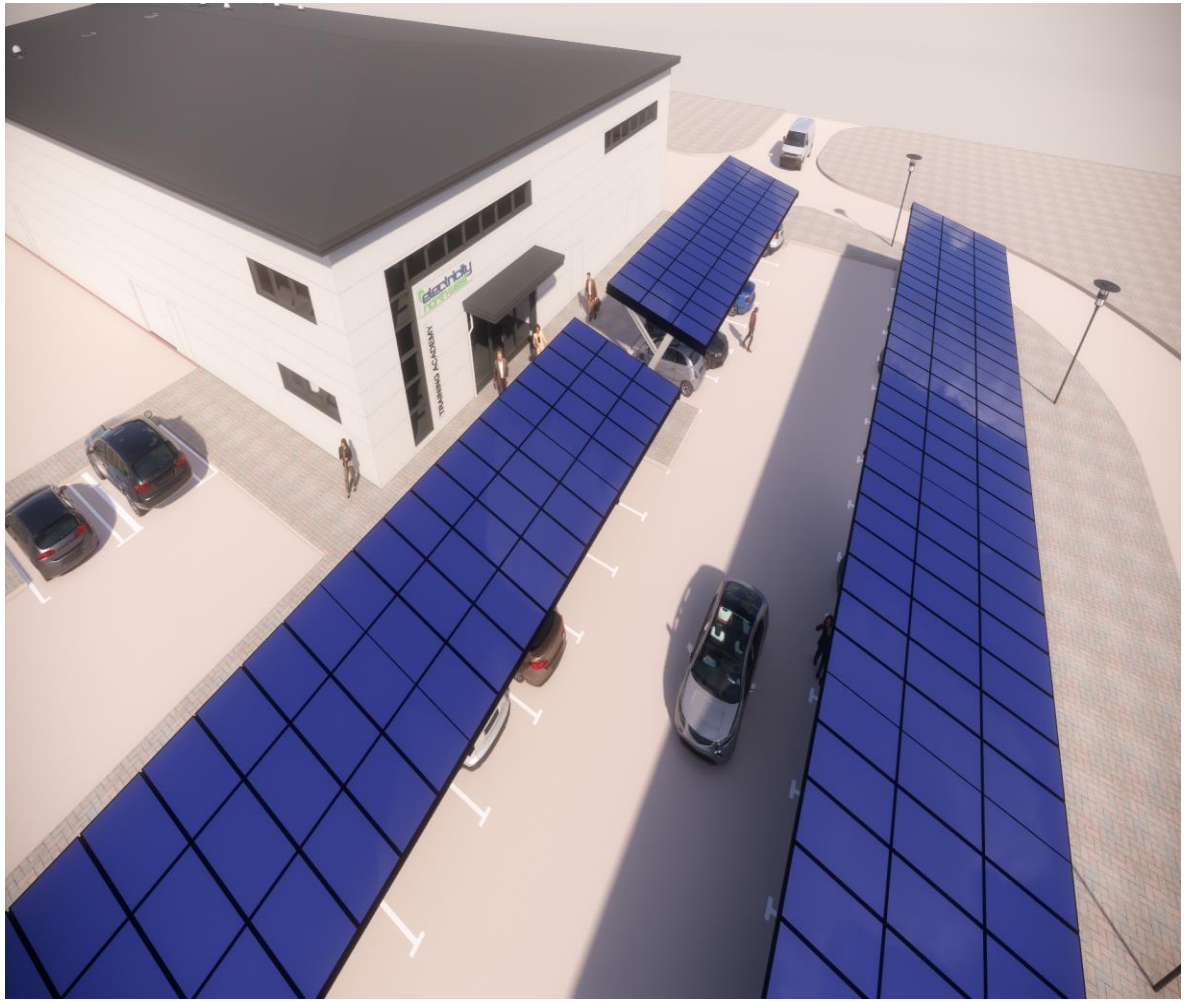
Operational

Activity	Budget	Saving
100% Renewable Energy Supply for non-operational buildings	£11,000 / year	5,492 tC02e (for the duration of the 2 year contract)
Electric Mini Diggers	£144,000	128 tonnes each per year *(4096 tC02e lifetime of asset)*
LED Lighting in Depots	£360,000	107.2 tC02e *(per year)*

Operational – Zero Carbon Depots

£1.1million investment
25 year payback

Training Academy	Oldham
Saving 53tCO2e (per annum)	Saving 29tCO2e (per annum)



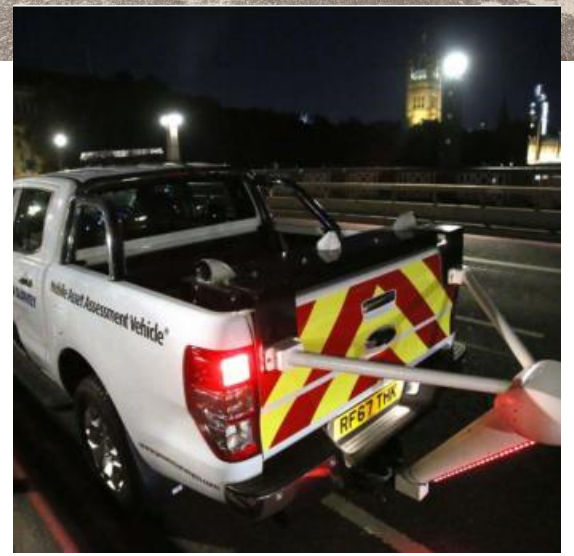
Losses

Losses Strategy

Updated; Opportunistic upgrades and programme of upgrades

MAAV Trial

Completed; Several contact voltages identified



Thank you.

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Bringing energy to your door

Any questions?

For further information on anything covered today, please visit our webpage

www.enwl.co.uk/go-net-zero

Wrap Up & Close

- Please give us your honest feedback either email ICE or leave your feedback in the chat 
- Presentation slides will be available via our website shortly.
- Future events, including webinars are available here
- Don't forget to get in touch with us at ICE@enwl.co.uk
- Thank you for your attendance.