GRIDCAP

ALM & Network Feasibility Report

FEASIBILITY ASSESSMENT FOR A DNO APPLICATION

DOCUMENT CONTROL

REFERENCE ID	SAMPLE
TARGET SITE (POSTCODE)	WC2N 5DU
MPAN REFERENCE	SAMPLE
ISSUE DATE	27/09/2026
PREPARED BY	Gridcap automated feasibility calculation
STANDARD	ENA EREC G100 Issue 2 Amendment 2 (April 2023)

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ALM & Network Feasibility Report

FEASIBILITY ASSESSMENT

1. Executive Summary

REFERENCE ID **SAMPLE**	POSTCODE **WC2N 5DU**	MPAN **SAMPLE**
PROPERTY TYPE **Commercial Office**	GRID SUPPLY **Single-phase, 100 A cut-out**	HEADROOM **47.0 A**

2. Proposed New Equipment

EQUIPMENT **2 x 7.4 kW EV chargers – Workplace Daytime, 8am-5pm**	RATED LOAD **14.8 kW**	PROPOSED CONTROLLER **Charger-integrated dynamic load management (CT clamp)**

** The controller must be set to keep import at or below 95.0 A (or the nearest lower available setting) and must meet the EREC G100 requirements set out in section 5.*

FEASIBILITY RESULT

ALM REQUIRED

Cut-out fuse rating	**100.0 A**
Assumed limit: cut-out fuse rating (assumed, to be confirmed with the DNO)	**100.0 A**
ALM operating limit (95% of assumed fuse-based limit)	**95.0 A**
Existing maximum demand (measured)	**48.0 A**
New equipment at full rating	**64.3 A**
Unmanaged (uncontrolled) peak	**112.3 A**
Unmanaged peak checked against 145% of the fuse rating on each phase Fuse-protection test only (EREC G100 4.4.3); the DNO also assesses thermal and voltage limits	**145.0 A – within**

Reduction needed from load management **17.3 A**

The unmanaged peak of 112.3 A is above the ALM operating limit of 95.0 A, and there is enough headroom for the managed load (EV chargers) at its minimum settings. A load-management scheme that keeps import at or below 95.0 A is potentially acceptable, subject to DNO assessment. The unmanaged peak is checked against 145% of the fuse rating on each phase (145.0 A, EREC G100 4.4.3) and is within it: this is the fuse-protection test only; the DNO also assesses thermal (overheating) limits (4.4.1) and voltage limits (4.4.2).

Likely route: apply to the DNO before installing, with details of the load-management (EREC G100) scheme – check ENA criteria

GREEN within the assessed limit on the inputs given, without load management. **AMBER** above the limit, with the unmanaged peak within 145% of the fuse rating on each phase (the fuse-protection test only; the DNO also assesses thermal and voltage limits): potentially acceptable with load management, subject to DNO assessment. **RED** likely needs a capacity increase. The DNO confirms in every case.

3. Site & Supply Baseline

This section sets out the existing demand at WC2N 5DU before the new equipment is added. The supply is single-phase with a 100 A cut-out fuse.

Assumed limit: cut-out fuse rating: 100.0 A (assumed, to be confirmed with the DNO).

ALM operating limit: 100.0 A × 95% = 95.0 A. The 5% is a control margin below the limit (G100 4.4.1 recommends a working limit below the agreed limit).

Existing maximum demand (measured): 48.0 A. Taken from the measured peak import entered by the submitter. It is used as entered and has not been verified by Gridcap.

Headroom: 95.0 A – 48.0 A = 47.0 A.

CALCULATION

Phase	New equipment on this phase	Existing	New	Unmanaged	Result
L1	2 x EV charger (7.4 kW)	48.0 A	64.3 A	**112.3 A**	**AMBER**

ALM operating limit / 145% of fuse rating on each phase **95.0 A / 145.0 A**

145% is the fuse-protection test only; the DNO also assesses thermal and voltage limits

** Conversion note: device current = rated kW ÷ 230 V per phase (a balanced load at unity power factor for three-phase devices; nominal voltage, as used for the G100 current rating). Heat pumps use the datasheet maximum current where it was entered and is higher than kW ÷ 230 V, as input kW can understate running current. No diversity is applied to EV charging circuits, consistent with BS 7671 Regulation 722.311.201 where load control is not fitted.*

4. Impact of the New Equipment

The proposed equipment (2 x 7.4 kW EV chargers – Workplace Daytime, 8am-5pm) is assessed at its full rated current, as it may run at full power for long periods. The unmanaged peak of 112.3 A is above the ALM operating limit, so the managed load (EV chargers) must be reduced by up to 17.3 A by a load-management scheme meeting EREC G100, subject to DNO assessment.

5. Load Management Strategy

To potentially avoid a supply capacity increase, subject to DNO assessment, the installation would use Active Load Management (ALM). Proposed controller: **Charger-integrated dynamic load management (CT clamp)**.

G100 REQUIREMENTS THE SELECTED SCHEME MUST MEET

ENA EREC G100 Issue 2 Amendment 2 (April 2023). Evidenced by the manufacturer's Form B / ENA Type Test Register reference and the site Form C after commissioning.

Import limit setting	**95.0 A or nearest lower setting**
Excursion correction	**Within 1 minute (G100 default)**
Fail-safe on failure	**Within 5 seconds**
Settings protection	**Installer PIN / password**
Measurement location	**Connection point (total import)**

** Response times to be confirmed against manufacturer documentation and commissioning tests. A 3-minute correction time applies only to certain slow-acting technology notified to the DNO. The connection point is on the customer side of the meter, where total site import is measured.*

Curtailment Method & Fail-Safe Logic

A current transformer (CT) at the connection point (customer side of the meter) measures total site import and sends it to the Charger-integrated dynamic load management (CT clamp).

> **1. Normal Operation:** Site import is below 95.0 A. The managed load (EV chargers) operates normally. Heat pumps and batteries are counted at full rating and are not assumed to be managed.
>
> **2. Dynamic Curtailment:** As import approaches the limit, the controller reduces the power available to the managed load. Any excursion above 95.0 A must be brought back within the limit within 1 minute (G100 default).
>
> **3. Network Fail-Safe:** If the controller detects a failure, whether a communication or measurement fault (for example, CT measurement is lost because the CT cable is cut or damaged) or an internal fault in the controller, the scheme moves to its fail-safe state within 5 seconds of detecting the failure, reducing the managed load (EV chargers) to its preset fail-safe level so total import stays within the agreed limit.

Fail-safe lockout (EREC G100 clauses 4.5.2.1 and 4.5.2.2)

After a fail-safe trip caused by an internal fault or by repeated or long excursions above the limit (4.5.1.3):

- Non-domestic sites cannot be reset for 4 hours.

Trips caused only by a communication or CT fault can be reset once it is restored (4.5.2.2).

Until the scheme is reset, the managed load stays at its fail-safe level, so plan for reduced EV charging after a trip and find the cause before resetting.

Illustrative ALM Arrangement

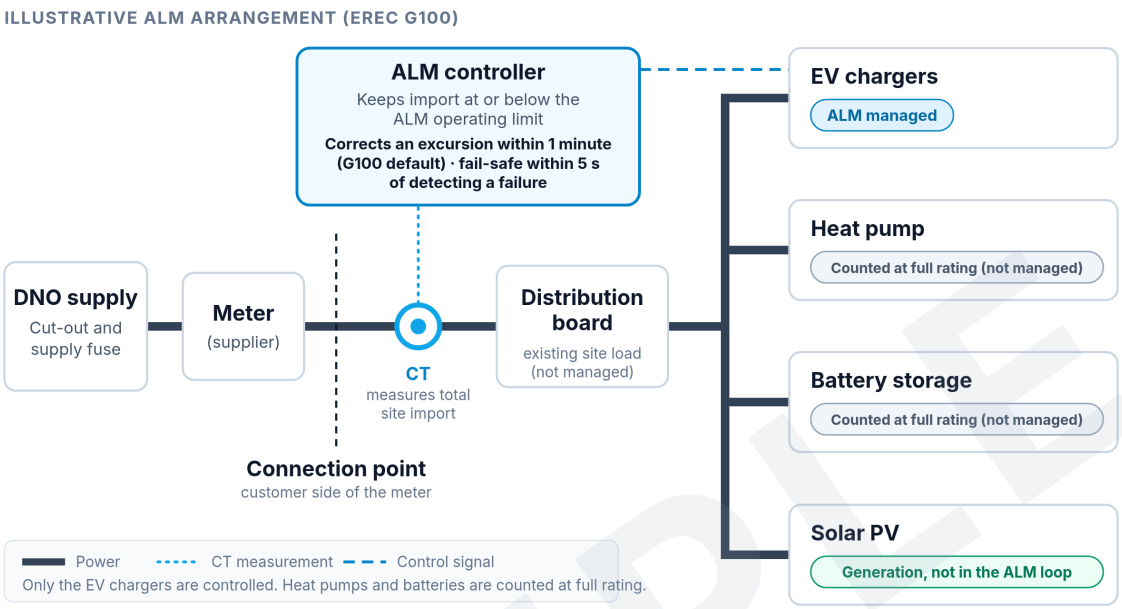

Figure 1: Illustrative ALM arrangement. A CT measures total import at the connection point; only the EV chargers are controlled. Solar PV is generation and is not part of the control loop.

6. DNO Application Guidance

This report is supporting information for a connection application to the relevant Distribution Network Operator (DNO). The DNO may ask for more information depending on the connection and local requirements.

Likely route: apply to the DNO before installing, with details of the load-management (EREC G100) scheme – check ENA criteria

- The unmanaged peak is above the ALM operating limit, so the installation relies on a load-management scheme.
- Load-management schemes are submitted to the DNO (G100 Form A, with the Form B / ENA Type Test Register reference) for assessment before installation.

Installer to check: The supply is not a looped service and the cut-out is in good condition with a known rating. The maximum demand figures used here have been checked on site.

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FEASIBILITY ASSESSMENT

Suggested DNO Application Checklist

- [ ] This feasibility assessment
- [ ] ENA EV charge point / heat pump application form
- [ ] G100 Form A: requested import limit (95.0 A), total loads and managed loads, in amps
- [ ] Scheme schematic / single-line diagram
- [ ] Form B or ENA Type Test Register reference for the controller
- [ ] Form C (site commissioning test) after installation

7. Disclaimer & Installer Sign-off

Gridcap provides this calculation to assess theoretical headroom on the figures entered. This report is a feasibility assessment and supporting information for a DNO application. It is not a physical site survey, it does not assess the condition of the existing installation, and it is not a DNO approval.

The installing registered competent person (e.g. NICEIC, NAPIT) remains responsible for verifying all assumed loads on site, inspecting the condition of the cut-out assembly, and checking the installation against BS 7671 before connection. See our Terms of Service (gridcap.co.uk/terms), clauses 2 to 7.

INSTALLING ENGINEER DECLARATION

I confirm that I have physically verified the site parameters documented within this report. I further confirm that the ALM CT will be installed at the connection point (customer side of the meter, measuring total import), fail-safe operation will be tested, and settings will be password/PIN protected against unauthorised changes.

Print Name & Company

Signature & Date