FINULENT SOLUTIONS

Connected or Queued

G99/G100 COMPLIANCE IN UK SOLAR, 2026

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A grid under pressure

It is safe to assume grid constraints as the primary obstacle to the UK's net-zero targets today. The grid has been pushed to a point where Distributed Network Operators (DNOs) and National Grid Electricity System Operators (ESOs)enforce increasingly complex compliance standards.

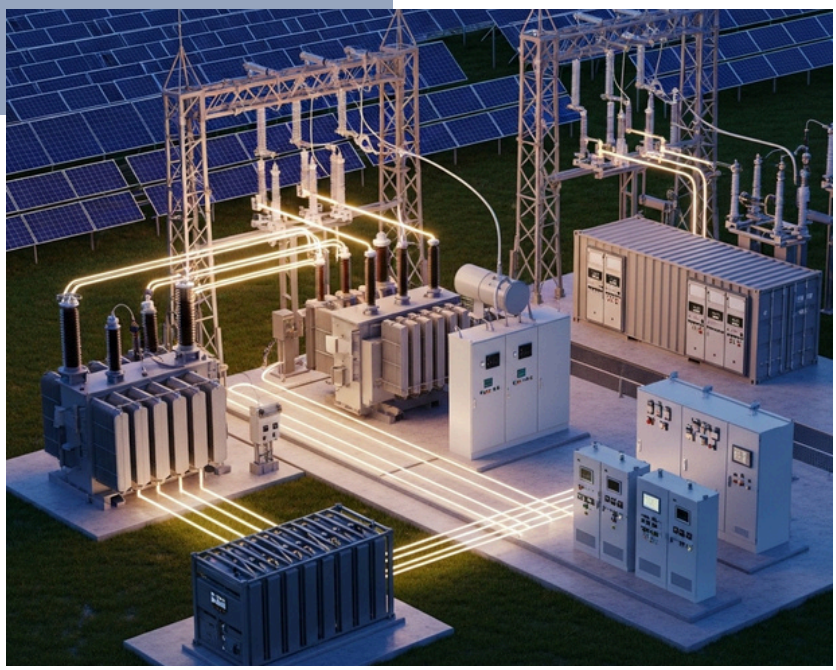
For developers, understanding G99 and G100 requirements has become essential for renewable energy project delivery. It’s no longer a box-ticking exercise (if it ever was) and is a core project risk.

Three points define the current landscape

- Record solar capacity, a 500 GW+ connection queue, and a surge in distributed generation are setting the UK grid up under stress
- An increased risk of delays and penalties when G99/G100 is not handled outright
- Projects integrating compliance at design stage consistently outperform the ones that don’t

G99 & G100 The essentials

G99 and G100 are the UK Engineering Recommendations (ERECs) issued by the Energy Networks Association (ENA). They define how distributed generation and storage systems interact with the local DNO.



G99: Large installations
When you're planning a larger system (generation between 16A per phase and 50 MW). This is common in utility-scale projects, farms, commercial sites, or homes with high energy usage.

G100: Export limitations
When your system could export more than what the local grid can safely handle. This is a cap that the DNO will apply using a G100 Export Limitation Scheme (ELS) to an agreed level.

Important to note, these are not one-time submissions. The Power Generating Module Document (PGMD) is a living document updated throughout the project lifecycle, incorporating simulation studies, manufacturer data, and witness testing results.

Mainly, they lay out the technical requirements across 8 key areas:

- Power quality
- Fault Ride-Through
- Protection settings
- Reactive power control
- Frequency response
- DC injection
- Loss-of-mains protection
- EMS controls (G100)

How 2026 raises the stakes

It's the first full year under TMO4+ ("First Ready, First Needed"). The "new" rules are the reality that projects are assessed against today.

TNUoS charges are to double from April 2026. It's a direct cost pressure, making it all the more important to get compliance right the first time.

The queue reset has real consequences, landing now. 300 GW cleared, and projects without firm Gate 2 offers are already seeing connection dates slip to 2032.

The National Dispatch Optimiser (NDO) becomes fully operational in June 2026. This opens a more efficient Balancing mechanism that rewards G99-compliant assets (particularly BESS) for accurate frequency response.

Gate 2 connection offers are being issued right now. The March-May 2026 window for protected distribution projects is open, and documentation quality determines who moves forward.

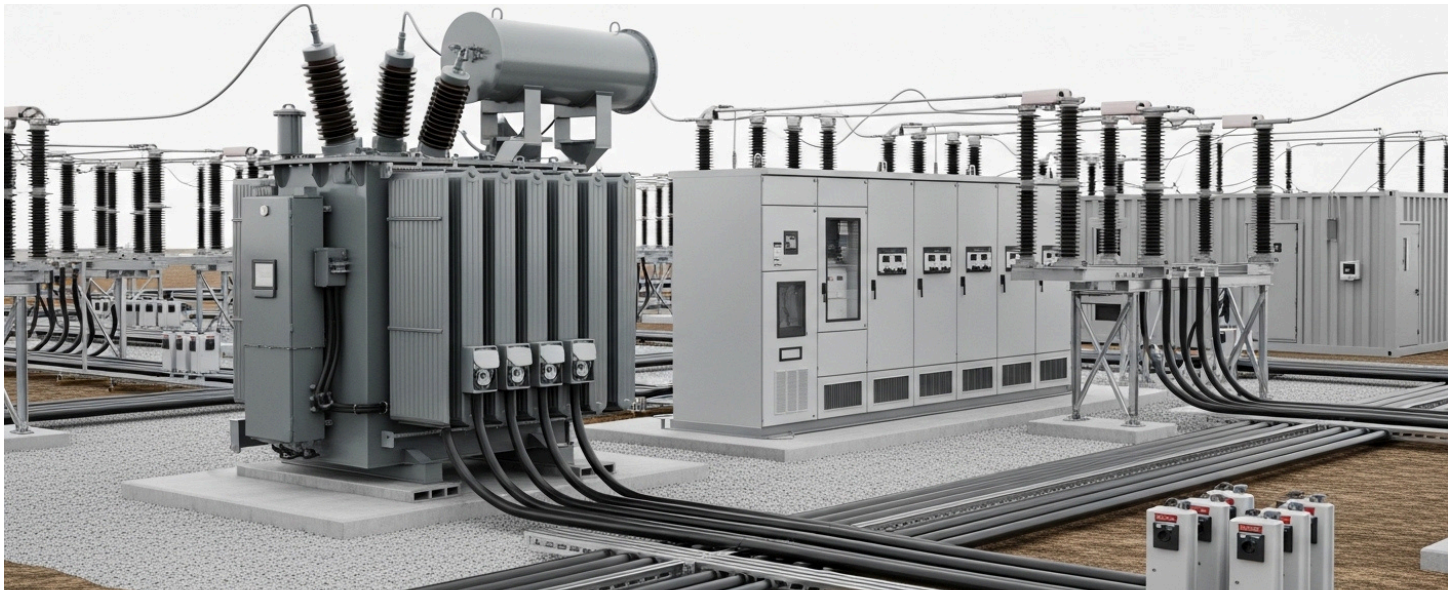
Key design engineering considerations

Inverter selection & reactive power headroom: With DNOs now requesting Q capability curves earlier (with more scrutiny on Type C/D projects), inverter specification must account for reactive power headroom against the full P-Q envelope at the design stage. Equipment that's procured purely for yield fails this check.

RoCoF & Protection coordination: As synchronous generation gives way to inverter-based resources, grid inertia is falling and DNOs scrutinise relay settings accordingly. RoCoF (1.0 Hz/s / 500ms), UV/OV, and loss-of-mains settings are explicitly documented against DNO requirements from the outset. In today's grid, getting these wrong will most certainly lead to resubmission.

Dynamic models sourcing & FRT studies: As mentioned before, validated manufacturer inverter models are required before dynamic studies can be accepted. Getting hold of them is a genuine hurdle. Securing these early keeps FRT and power systems studies on track.

MV/HV design against fault level limits: Cable sizing, switchgear, and transformer impedance are designed as a system against G99/G100 fault level limits. This is increasingly important as distributed generation raises fault current contributions at points of connection.



Harmonic assessment against tighter background levels: G5/5 limits haven't changed but background harmonic distortion on the network is higher than it was. Compliance margins are narrower in practice. Harmonic performance is best assessed early so designs aren't reworked after a DNO flags exceedances at submission.

DNO-ready documentation: Incomplete submissions get deprioritised in a blink. Protection settings schedules, commissioning plans, and SLDs must be compiled and formatted for portal submission – covering what DNOs interrogate first.

G100 CLS design & fail-safe behaviour: Hybrid solar and BESS sites face an additional layer under G100 Issue 2: A Customer Limitation Scheme (CLS) that dynamically manages export and import at the connection point.

The CLS must handle four defined operational states, from normal running through to automatic fail-safe lockout. Hard-wired communication links are preferred over wireless to meet G100 reliability requirements. This once again must be designed from the start and won’t be something to bolt on later.

Planning ahead

The direction is clear. UK's 2030 solar target **teases** 60 GW, against about 21 GW today. That's nearly triple the capacity under 5 five years with more projects, more inverters, and more distributed generation competing for the same grid.

The compliance environment in 2026 is busy. Even more so in 2027 and beyond. Projects designed with G99/G100 compliance from the outset will move better through the queue, while others would wait.

For projects in **your** 2026 pipeline, ask the right questions now:

- Is your generator type confirmed?
- Are validated inverter models secured?
- Is your protection settings schedule submission-ready?
- Is your documentation formatted for DNO portal submission?

The cost of answering these at Gate 2 is significantly higher than answering them now.

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