

How Onsite Battery Storage Can Solve Grid Constraints and Improve Project Viability

Storage as a viability tool.

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As grid capacity tightens and planning policies demand lower-carbon homes, many housebuilders are hitting a wall: grid constraints on new housing developments.

These constraints can delay projects and even derail them entirely. But on-site solar and battery storage systems, especially when delivered through CAPEX-free models like Gryd's, offers a powerful route to making previously unviable sites stack up again – without waiting years for infrastructure upgrades.

Very few solar-powered new-build homes are currently being delivered with onsite battery storage, which is creating a growing problem. Without a way to manage when solar energy is used, we risk compounding the very challenges that come with renewable generation – predictable but variable supply, leading to more extreme peaks and troughs in supply and demand. In turn, this places further pressure on already stretched grid infrastructure, requiring costly upgrades to accommodate short but intense spikes in load.

What Are Grid Constraints and Peak Load Shaving?

To understand how battery storage solves grid constraints, it helps to understand two key concepts: network capacity limits and peak load shaving.

Grid Constraints

Grid constraints refer to the limited capacity of the local electricity network to support the energy load of proposed new developments. In practical terms, this means that a new housing site may be told it can't connect to the grid without costly reinforcements or delays.

Without targeted upgrades, a development could hit a hard limit on power availability. That means fewer homes could be connected, sharply increasing costs for developers or reducing the value of a site, making projects non-starters.

Peak Load Shaving

Peak load shaving is a strategy that uses on-site renewable energy sources – such as solar and battery storage – to reduce the demand on the grid during times of highest electricity usage, known as “peak load” periods. By generating and using solar energy locally, developments can avoid putting extra strain on the network.

It's not just high demand that creates problems – it's also excess generation. When solar output is high and local usage is low, that surplus energy gets exported back into the grid. If too much is sent at once, it can overwhelm local infrastructure. The substation becomes the bottleneck in both directions: struggling to supply enough power during peak demand, and unable to absorb surplus energy during peak generation.

Battery storage is key to managing both sides of the equation. It captures excess solar energy when generation is high – rather than flooding the grid – and stores it for use later, when demand rises. This helps smooth out supply and demand, avoids overloading the substation, and supports a more stable, flexible local energy system. And, crucially, it enables more homes to be built without waiting for costly grid upgrades.

How Battery Storage Improves Project Viability

The financial impact of grid constraints on housing developments can be significant.

If the cost of connecting to the grid is too high – say, due to the need for a substation upgrade or cable reinforcements – a project may be deemed financially unviable. That can mean pausing or even abandoning developments that are otherwise shovel-ready. This is particularly true for edge-of-grid or rural sites, which are more likely to experience limited capacity.

Example: Reducing Grid Demand on a 500-Home Development

Consider a 500-home housing development facing a £1 million grid connection upgrade. That's an additional £20,000 of build cost per home that may not have been factored in.

By integrating solar and battery storage on every home, the developer can significantly reduce peak electricity demand across the site.

With Gryd's system, developers could see up to 1kWp demand reduction at the local substation per home with a 10 kWh battery – cutting aggregate peak demand by up to 500kWp. This demand reduction can allow the development to fall within a lower network capacity threshold, meaning fewer infrastructure upgrades may be required.

This can dramatically reduce grid upgrade costs savings and make the difference between a stalled and a viable site.

Planning Pressure for Low-Carbon Homes

Planning authorities across the UK are increasingly prioritising low-carbon housing developments. Many local planning frameworks now require new homes to exceed Part L building regulations, include on-site renewables, or demonstrate net-zero readiness.

Additionally, the forthcoming Future Homes Standard will require all new homes to feature on-site renewable energy generation (in practice, rooftop solar PV).

For developers, integrating solar and battery storage into new-build developments helps meet these requirements while also addressing grid capacity constraints.

Tips for Navigating Grid Constraints

- Engage DNOs early: Understand your site's capacity limits before design is finalised.
- Use demand-reducing tech: Solar and battery systems can reduce required capacity.
- Explore CAPEX-free models: Gryd offers solar and storage with no upfront cost to developer or buyer.
- Factor planning gains: On-site renewables can ease planning approval, especially in sustainability-focused LPAs.

Solar and Battery Storage Without Upfront CAPEX

Grid constraints for new builds don't need to be a dealbreaker. With smart tech, a clear strategy, and the right partners, developers can unlock sites once considered out of reach.

With Gryd's subscription-based solar and battery systems, developers can reduce peak demand on the local network by up to 1kWp per home. Across a multi-home development, those reductions add up quickly and can help a site fall within a lower grid capacity threshold.

Integrating solar through models like Gryd's not only helps address planning pressures but does so without upfront capital expenditure. That makes it easier for developers to meet low-carbon requirements while keeping projects financially viable.

Solar doesn't just tick a planning box – it can play a meaningful role in improving the overall viability of a development.

If you're facing grid limitations or exploring ways to future-proof your projects, get in touch with Gryd. Our CAPEX-free solar and battery solutions help housebuilders reduce grid demand and deliver low-carbon homes at scale. Let's talk about how we can help unlock your next site.

Read this online

<https://gryd.energy/hub-directions/g/articles/battery-storage-and-grid-constraints.html>

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