



Unlocking the next phase of commercial solar

Across the UK and Europe, the commercial solar market has matured rapidly over the past decade. Thousands of businesses have already invested in rooftop solar PV, often achieving strong returns through reduced grid dependency and energy cost savings.

As energy markets evolve, geopolitical influences become more frequent and grid pressures intensify, an increasing number of systems are no longer operating at their full economic or technical potential.

The cause can be summed up simply: generation without control.

Battery energy storage systems (BESS) are now emerging as a viable, and, some might argue, critical, next step, transforming solar assets from passive generators into actively managed energy systems.

Exploring the value gap in existing commercial PV systems

Many commercial installations were designed around a straightforward principle: generate as much solar energy as possible and offset onsite demand. This, in itself, in many areas of the UK especially, is already becoming a challenge and few systems are installed without some sort of export power limitations.

In practice, this has led to structural inefficiencies, including excess midday generation being exported at low value, energy being re-imported during peak tariff periods and short-duration demand spikes continuing to drive high capacity charges.

In an energy market characterised by volatile pricing, half-hourly pricing and increasing network constraints, this model leaves significant value on the table, largely untapped. Battery storage directly addresses this gap.

A market at scale and still largely untapped

The potential scale of the opportunity is significant. As of 2025, the UK has reached over 20 GW of installed solar capacity, spread across more than 1.8 million installations. Of this, the commercial & industry (C&I) sector accounts for an estimated 45% of total capacity.

It means that thousands of commercial systems, many installed over the past 5 to 10

years, are now operating in an energy landscape that looks very different to the one they were designed for.

However, it is not just solar deployment that is accelerating.

Battery storage is fast emerging as the enabler of this next phase of the energy transition. Grid-scale and flexibility project approvals are surging, with battery storage accounting for a significant proportion of a 45 GW pipeline of approved renewable capacity.

As solar penetration increases, flexibility, not generation, becomes the limiting factor. For existing commercial solar asset owners, this creates a substantial and immediate opportunity. Rather than investing in new generation capacity, many can unlock additional value from assets already in place, simply by adding storage.

From generation to dispatchable energy

The integration of battery storage fundamentally changes how a site interacts with energy. For asset owners, the question is no longer whether battery storage has a role to play, but how much value is currently being left untapped without it.

Rather than being dictated by solar production profiles or grid pricing, businesses can dispatch energy when it delivers maximum value.

This transition, from generation to dispatchable energy, is where the strongest technical and financial benefits emerge. Battery storage sits at the centre of this shift.

Key technical drivers behind commercial BESS adoption

Peak demand management and load shifting

For many large energy users, peak demand charges represent a substantial proportion of electricity costs. Battery systems, integrated with intelligent energy management controls such as SolisAi, can respond dynamically to site loads, taking actions such as discharging during short-duration demand spikes,

flattening load profiles and reducing maximum import capacity (kVA).

This is no longer merely a theoretical value proposition. For businesses with highly variable loads, such as manufacturing or logistics sites, peak shaving alone can justify the investment.

Maximising onsite solar utilisation

An emerging challenge is the declining value of exported power, coupled with increasing restrictions on exports.

Battery storage provides the solution, allowing excess PV generation to be stored and used later, significantly boosting self-consumption. Typically, businesses can see a 20 to 40% increase in on-site solar utilisation, reduced reliance on grid imports, and an overall improvement in system ROI. This ensures that more of the energy generated is used where it is most valuable: onsite.

Time of use optimisation and energy arbitrage

With the ongoing rollout of half-hourly and dynamic tariffs, energy pricing is becoming increasingly time sensitive. By adopting storage and integrating it with a smart EMS, batteries can be charged during low-cost periods, discharged during peak pricing and reduce exposure to wholesale market volatility.

For energy intensive businesses, this adds a new level of cost control that was not previously achievable with solar alone.

System integration and control

Modern commercial battery systems are no longer standalone assets; they are increasingly integrated into site-wide energy architectures. With solutions from manufacturers such as Solis, this integration is particularly seamless where existing PV infrastructure is already in place.

Businesses benefit from native inverter-battery compatibility, a unified monitoring

platform, and SolisAi EMS to manage charge and discharge strategies. For installers and engineers, this reduces system complexity while improving overall controllability.

Grid compliance and future flexibility

Across Europe, grid requirements are becoming increasingly stringent. Battery storage can help address export limitation controls, provide frequency response capabilities and support preparation for participation in flexibility markets.

Sites equipped with battery systems become not just energy consumers, but active participants in the wider energy ecosystem.

Real-world application examples

Manufacturing facility with variable load

A mid-sized manufacturing site operating high-load equipment often experiences sharp demand spikes during production cycles. By integrating battery storage, peak demand is reduced through managed charge/

discharge strategies, grid import requirements are lowered and energy costs become more predictable

Logistics and warehousing with high solar export

Large rooftop PV systems on distribution centres frequently generate excess energy at midday, much of which is either exported or curtailed due to export limits. Introducing energy storage enables the capture of surplus solar, aligns usage with operational demand and reduces reliance on peak-rate electricity.

As the electrification of fleet vehicles accelerates, stored solar energy can also be redirected to EV charging infrastructure.

Commercial buildings with ESG targets

For organisations with defined sustainability goals, battery storage amplifies the impact of existing solar investments. Most organisations will see higher levels of

renewable energy consumed onsite, reduced Scope 2 emissions and better alignment with corporate ESG reporting frameworks and objectives.

As reporting on carbon emissions becomes increasingly important, demand will grow for effective solutions to reduce carbon footprints.

Engineering considerations for retrofit projects

While the opportunity is clear, successful deployment depends on careful technical assessment. Although BESS can theoretically be added to existing systems, proper integration requires expert evaluation to ensure inverter compatibility and confirm the system architecture, such as AC versus DC coupling.

A thorough analysis of energy consumption should be conducted, including load profile evaluation and identification of any peak demand characteristics. Other factors to



Commercial solar has already delivered significant benefits across the UK



About ZLC

ZLC Energy is a renewable energy installation company based in Cornwall, delivering commercial solar PV, battery storage and tailored energy solutions across the UK for over 12 years.

It combines engineering expertise, proven technology and an accredited, customer first approach to reduce energy costs and carbon emissions for businesses.

Every system installed helps businesses reduce carbon emissions and move closer to net zero.

By generating and storing renewable energy onsite, clients use less electricity from the grid and contribute to a cleaner, low-carbon UK.

About Solis Inverters

With over 20 years of technology experience, Solis has established itself as a Top 3 global supplier of energy components.

Solis and SolisStorage are part of the same family: the Ginlong Group.

SolisStorage is a renowned provider of energy storage solutions, engineered for simplicity and built to last, delivering safe, simple systems designed to meet diverse customer needs.

Committed to technological innovation and exceptional user experience, our products are built for long lifespan, outstanding safety and seamless adaptability across various applications.

Driven by a mission to accelerate the global transition to clean energy, the company pushes the boundaries of energy and energy storage technology.

Through sustained innovation and uncompromising quality, it aims to be a key force shaping a more sustainable, greener future.

consider include available space for the battery system, thermal management requirements, grid connection agreements, export constraints and integration with existing monitoring and control platforms.

Installers and EPCs who can combine this analysis with robust system design will be best positioned to deliver maximum value.

Experienced installers are open to new energy opportunities

ZLC, one of the UK's experienced commercial solar installation companies, is already embracing the BESS opportunity. Mark Smith, MD, said: 'Over the last decade, we've delivered a significant volume of large-scale commercial solar installations and what's become increasingly clear is that many of those systems are now under-optimised.

'At the time, the focus was rightly on generation; maximising yield and reducing grid import. But the energy landscape has shifted. We're now seeing customers exporting valuable energy at low rates, while still being exposed to peak charges and volatile pricing. Battery storage changes that dynamic completely.

'What's particularly compelling for us is the opportunity to overcome grid constraints using BESS. We are increasingly limited by grid connection capacity and cutting potential generation via Export Limitation Schemes. Affordable C&I scale storage

can be used to overcome these challenges with higher carbon savings and return on investment.

'From a technical standpoint, working with a familiar platform like Solis makes integration straightforward. We're not introducing unnecessary complexity; we're enhancing what's already been installed.

'For experienced installers like ourselves, this isn't just a new product line. It's a natural evolution of the systems we've been deploying for years and a significant opportunity to deliver more value to clients without starting from scratch.'

What's next for commercial solar?

Commercial solar has already delivered significant benefits across the UK and Europe. However, without storage, many systems could remain only partially optimised.

Battery energy storage can be used to transform these installations, technically, operationally and financially.

As energy and utility systems become more complex and more dynamic, the ability to control when and how energy is used will define the next generation of high-performing commercial sites. In that context, battery storage is no longer an optional enhancement; it will become a strategic necessity.

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zlcenergy.co.uk