Grid connection reform: unlocking a new era of solar opportunity in the UK

Words: William Delabre, Head of Solar and Chris Smith, Head of Grid, Natural Power

After years of gridlock, sweeping connection reforms are reshaping the UK energy landscape, giving solar developers a clearer path, stronger confidence and new ways to deliver projects.

For many years, one of the greatest barriers to solar development in the UK has not been technology, land availability, or financing, but grid connections.

An overcrowded and inefficient queue, coupled with the uncertainty of connection timelines, created a significant bottleneck for developers and investors. Projects with little chance of progressing often remained in the queue for years, while viable schemes were left waiting for clarity.

The reforms introduced by the UK's National Energy System Operator (NESO) represent one of the most significant structural changes to the electricity system in decades. While the reforms have understandably been framed as a response to the problem of 'zombie projects', the reality is far more positive: they create a substantial opportunity for solar developers who are ready to move forward.

For the solar sector, the new regime offers a clearer path to connection, stronger investment confidence and, importantly, new opportunities beyond traditional grid-export models.

From queue congestion to strategic prioritisation

Historically, the UK grid connection process operated largely on a first-come, first-served basis. Over time, this resulted in a queue that ballooned to more than 700 GW of generation and storage capacity, far exceeding what the system actually required.

Under NESO's reforms, the queue is being reshaped through a readiness-based approach. Projects must now demonstrate clear evidence of progress, such as land rights, planning status and procurement readiness, in order to secure firm connection offers.

Despite delays and some significant teething issues, which are still being resolved, this latest approach fundamentally changes the development landscape and is a positive step for the industry.

Rather than speculative projects occupying grid capacity for years, the reformed process prioritises projects that are deliverable and aligned with system needs. In practice, this means developers who have progressed their projects through planning and development milestones now have a far greater chance of securing a firm grid connection.

Around 65 GW of solar capacity is expected to secure 'Gate 2' status under the reformed regime, providing those projects a clear path toward grid connection and ultimately construction.

For developers, the implications are significant. A firm grid connection date is one of the key milestones required to unlock financing, secure power purchase agreements (PPAs) or bid confidently into mechanisms such as the Contracts for Difference (CfD) scheme.

A clearer development pathway

Equally important is the increased certainty the reforms bring to the development process. In the past, projects could remain in connection queues for many years with little clarity about when, or even if, they would eventually connect. This uncertainty made financial modelling extremely difficult and discouraged investment.

Under the reformed framework, NESO has restructured the pipeline to offer a far more realistic connection pathway. Approximately 283 GW of generation and storage capacity is expected to progress through to 2035, a pipeline that is far better aligned with the UK's energy system needs.

The reform process is also structured around two phases:

- Phase 1: projects connecting up to the end of 2030
- Phase 2: projects connecting between 2030 and 2035

This structure provides a clearer framework for project timelines and development strategies. It also aligns closely with the UK government's Clean Power 2030 ambition, which targets a significant increase in renewable generation, including solar deployment approaching 45-47 GW by 2030.

For developers with mature projects, this alignment creates a strong opportunity to accelerate schemes into the earlier connection window.

Accelerating solar where the system needs it most

Another important element of the reform process is the focus on system need and geographic balance.

While the UK has seen rapid growth in renewable deployment, some regions remain undersupplied with generation. Areas including Yorkshire and Lancashire, North Wales, the Midlands, and parts of southern England have been identified as locations where additional renewable capacity could provide strong system value.

This creates an opportunity for solar developers to align projects with system priorities, potentially strengthening their position in the connection process.

NESO has also indicated a preference for more solar capacity to connect before 2030, reflecting the important role solar can play in rapidly expanding clean electricity generation.

Solar's relatively short construction timelines make it uniquely positioned to help meet near-term decarbonisation targets. Projects that can move quickly from development to delivery therefore have a clear strategic advantage.

Distributed and small-scale solar gains momentum

The connection reforms are not limited to large utility-scale projects. Changes to transmission impact assessment thresholds are also improving the outlook for smaller-scale solar schemes.

In England and Wales, regulatory adjustments mean projects up to around 5 MW may avoid certain costly transmission impact assessments. This reduces both time and expense for distributed generation developers.

For commercial and industrial rooftop solar, as well as community-scale projects, these changes could unlock a new wave of development.

Distributed solar also plays an important role in improving system resilience and reducing network congestion by generating power closer to demand.

The growing role of solar plus storage

The reforms also strengthen the case for hybrid solar and battery storage projects.

Flexibility is becoming an increasingly valuable commodity within the electricity system. As renewable penetration increases, the ability to

William Delabre

Chris Smith

store and dispatch electricity at the right time becomes essential.

Solar combined with battery energy storage systems (BESS) can participate in a growing range of markets beyond simple electricity generation. These include ancillary services, capacity markets and flexibility mechanisms designed to support system balancing.

From a project economics perspective, hybrid assets enable developers to diversify revenue streams and improve overall project resilience.

Looking beyond traditional grid export

Perhaps one of the most interesting opportunities emerging from connection reform is the growth of alternative connection models. Not every project will secure a Gate 2 connection, but that does not necessarily mean those projects cannot proceed.

Increasingly, developers are exploring private wire and behind-the-meter solutions, connecting generation directly to electricity demand rather than exporting power to the grid.

This model can be particularly attractive for large energy users such as data centres, manufacturing facilities or logistics hubs seeking to decarbonise their electricity supply.


© AdobeStock191364278

Solar and battery storage, in behind the meter configuration, can also participate in demand-side services such as NESO's Demand Flexibility Service, which encourages consumers to shift or reduce electricity consumption during peak periods.

For battery projects that do not export electricity, participation in these services can provide an alternative revenue stream. Where batteries do export, mechanisms such as the Capacity Market and dynamic curtailment frameworks may also offer additional value.

Taken together, these developments highlight an important shift: the future of solar development is no longer limited to a single grid export model. Instead, developers are increasingly working within a more diverse ecosystem of energy markets and services.

Deliverability will define success

While the opportunities created by connection reform are substantial, they also place greater emphasis on project deliverability.

Developers will need to demonstrate readiness through robust planning strategies, clear land agreements, and well-developed technical designs. Projects that progress these elements early will be far better positioned to secure firm connections and move forward.

At the same time, grid expertise is becoming increasingly important. Understanding connection options, network constraints and potential flexibility opportunities are now central to successful project development.

A pivotal moment for solar

The UK's connection reforms represent a pivotal moment for the renewable energy sector.

By replacing an inefficient queue with a readiness-based system, NESO has created a pathway for viable projects to move forward more quickly and with greater certainty.

For solar developers, the reforms unlock several key opportunities:

- A clearer path to firm grid connections for mature projects
- Increased investor confidence through greater certainty
- Reduced queue congestion and more realistic development timelines
- New opportunities for distributed solar projects
- Expanding revenue streams through hybrid solar plus storage projects
- Alternative connection models through private wire and demand-side services

These changes mark a significant step forward for the UK energy transition.

Solar is already one of the fastest and most cost-effective forms of new generation available. With the right regulatory framework in place, it can play a critical role in delivering the clean electricity system the UK needs.

Connection reform does not remove every challenge facing developers, but it does create the conditions for progress. The projects that succeed will be those that combine strong technical foundations with strategic thinking around grid integration and system value.

For developers prepared to adapt, the next decade presents a remarkable opportunity for solar in the UK.

naturalpower.com/uk/expertise/sector/solar

naturalpower.com/uk/expertise/sector/grid-and-infrastructure

About Natural Power

Natural Power is an independent consultancy and service provider that supports a global client base in the effective delivery of a wide range of renewable projects, including onshore wind, solar, renewable heat, energy storage and offshore technologies. It has a global reach, employing more than 550 staff across 12 international offices. Its experience extends across all phases of the project lifecycle, from initial feasibility through construction to operations and throughout all stages of the transaction cycle.