



Transforming deployment and performance in solar

Words: Jim Simpson, Founder of the AI Summit UK and CEO of Ziptech Services

As expectations rise across the solar sector, developers and operators are under increasing pressure to deliver projects faster, improve asset performance and operate with greater consistency. How can artificial intelligence be applied in practical ways to remove inefficiencies, strengthen decision making and drive measurable improvements across the lifecycle of solar projects?

As the UK accelerates towards its net zero targets, the pressure on solar developers and operators is intensifying. The sector is no longer judged solely on installed capacity, but on how efficiently projects are delivered, how effectively assets perform and how much energy is ultimately generated.

In this environment, artificial intelligence is emerging as a powerful enabler. Yet for many organisations, the real challenge is not access to technology but understanding how to apply it in ways that deliver meaningful operational and commercial value.

The opportunity is significant, but only if approached with clarity and discipline.

Solar under pressure to deliver more, faster

Solar has moved from a growth market to a critical pillar of national energy strategy. Deployment timelines are under scrutiny, planning processes remain complex and grid constraints continue to shape project viability. At the same time, investors, clients and regulators are demanding higher levels of performance, transparency and reliability.

For developers, this creates a clear imperative: accelerate the path from concept to commissioning. For operators, the focus is on maximising yield, minimising downtime and extending asset life.

These pressures are not abstract. They are experienced daily across project teams, engineering functions and operational environments. Information is often fragmented across systems. Project coordination relies heavily on individual experience. Reporting and analysis can be time consuming. Performance issues are sometimes identified only after they have impacted output.

In a sector where time directly affects both revenue and carbon reduction, these inefficiencies carry real cost.

Moving beyond the AI narrative

Much of the current conversation around AI is driven by capability: what the technology can do in theory. For solar businesses, the more relevant question is where it can make a measurable difference in practice. The answer lies in removing friction from core processes.

AI is not a substitute for engineering expertise or operational discipline. It is a tool that can enhance both, provided it is integrated into the realities of project delivery and asset management. This means shifting the focus from innovation for its own sake to application with intent.

Accelerating deployment through better information flow

One of the most immediate opportunities for AI lies in accelerating deployment timelines.

Solar projects involve multiple stages: site identification, feasibility assessment, design, planning, procurement and construction. Each

requires coordination across teams and stakeholders. Delays often arise not from a lack of technical capability, but from inefficiencies in how information is shared, processed and acted upon.

AI can support faster decision making by processing large datasets, automating elements of modelling and improving the accessibility of project information. Site assessments can be conducted more efficiently, design iterations can be streamlined and documentation can be generated and updated with greater consistency.

However, the impact of these capabilities depends on how they are applied. Without clear processes and defined ownership, automation risks introducing speed without control. The objective is not simply to move faster, but to move more effectively, reducing delays while maintaining quality and compliance.

Optimising performance across the asset lifecycle

Once projects are operational, the focus shifts to performance. For solar operators, maximising generation is both a commercial and strategic priority.

AI can enhance this by providing deeper insight into asset behaviour. By analysing performance data in real time, it can identify patterns, detect anomalies and support predictive maintenance strategies. This enables operators to address issues earlier, reducing downtime and improving overall yield.

The value of this approach is particularly evident at scale. As portfolios grow, maintaining visibility across multiple sites becomes more complex. AI can help consolidate and interpret this data, enabling more informed decision making at both site and portfolio level.

Yet it is important to recognise that AI does not replace expertise. It augments it. The interpretation of data, the assessment of risk and the implementation of solutions remain dependent on experienced professionals. AI accelerates insight, but judgment remains human.

Enhancing operational efficiency

Beyond deployment and performance, there is a broader opportunity to improve operational efficiency across solar businesses.

A significant proportion of activity within the sector is centred on coordination, ensuring that technical, commercial and operational functions work together effectively. Where this breaks down, the result is often delay, inconsistency and rework.

AI can help address these challenges through a range of practical applications. It can automate routine reporting and documentation, reducing administrative burden, while also standardising responses to



Jim Simpson

common technical and commercial queries. In addition, it improves access to internal knowledge and historical project data and enhances visibility across workflows, enabling earlier intervention.

Although these applications may not attract attention in the same way as advanced modelling or predictive analytics, they deliver tangible improvements in how organisations operate day to day.

For developers and operators alike, this translates into faster response times, greater consistency and improved reliability, all factors that directly impact both project delivery and client experience.

The opportunity for SMEs

While large organisations may have greater resources to invest in AI, small and medium-sized developers and operators are well positioned to benefit.

SMEs typically have a closer understanding of their own operations. They know where delays occur, where processes break down and where teams experience friction. This proximity enables a more targeted and effective application of AI solutions.

By focusing on specific, high-impact areas, SMEs can achieve meaningful gains in efficiency and performance without the need for large-scale transformation programmes. In doing so, they can enhance competitiveness and respond more effectively to market demands.

In a sector where agility is increasingly important, this represents a significant advantage.

Governance and risk management

As AI adoption grows, strong governance is essential.

Solar projects already handle sensitive technical, commercial and operational data, and AI introduces added risks around security,



privacy and compliance, especially when used informally on public platforms. Effective adoption requires a structured approach, including approved tools, clear data use guidelines, defined responsibilities and robust cybersecurity. Rather than limiting innovation, governance enables safe, secure and sustainable use of AI.

A leadership-driven transformation

One of the most common barriers to effective AI adoption is the perception that it is primarily a technical issue. In reality, it is a leadership challenge.

The starting point is not the technology, but the business itself. Organisations must first identify where improvement is needed by examining where delays are affecting deployment timelines, where performance is being constrained, where inconsistency is leading to inefficiency, and where visibility is limited across projects or assets. Answering these questions provides the foundation for a focused and effective AI strategy.

Without this clarity, adoption risks becoming fragmented. Different teams may implement different tools, data may be used inconsistently and outputs may become faster without becoming more reliable. The result is activity without meaningful improvement.

Leadership is therefore critical in setting direction, defining priorities and ensuring that AI is applied in a way that aligns with business objectives.

Meeting the demands of the energy transition

Solar’s role in achieving net zero is well established, but meeting targets requires more than expanding capacity. It demands improvements in project delivery, asset management and organisational performance.

AI can support this by enabling faster deployment, improving operations and enhancing decision-making, unlocking greater value across the sector.

For developers, this means delivering projects more quickly and efficiently; for operators, it means maximising generation and long-term performance; and for the industry, it means accelerating the transition to a low-carbon energy system.

From potential to performance

AI is not a standalone solution, nor is it a guarantee of success. Its value depends entirely on how it is applied.

For solar developers and operators, the opportunity is clear. By focusing on practical applications, such as accelerating deployment, optimising performance and improving operational efficiency, AI can become a powerful driver of both commercial and environmental outcomes.

The organisations that benefit most will not necessarily be those that invest the most heavily or adopt the latest tools, but those who apply AI with discipline, integrating it into

the core of their operations and aligning it with clear business objectives.

In a sector defined by urgency and scale, that approach will be critical.

AI will not, on its own, deliver net zero. But used effectively, it can play a vital role in enabling the solar sector to meet the challenge faster, more efficiently and with greater impact.

AI Summit UK 2026 | Practical AI Guidance for SME Directors

About AI Summit UK

AI Summit UK is founded and organised by Ziptech Services, a UK-based IT, cybersecurity and AI services provider working with growing businesses across the country.

Taking place on 15th May 2026 at the Institution of Engineering and Technology in London, the AI Summit UK is a one-day leadership event designed for decision makers in small and medium-sized businesses seeking practical clarity on artificial intelligence.

Focused on structured implementation, the summit brings together policy insight, commercial strategy and real-world use to help organisations understand what strategic AI adoption looks like in practice.