

How Energy Efficiency Prevents Costly Grid Upgrades at Industrial Sites

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According to the AZZO webinar discussed in the article, the three key strategies are: 1) Implementing Energy Management Systems (EMS) that enable real-time load control and integrate onsite generation like solar PV and batteries; 2) Using Smart Controls and Monitoring to collect and analyse granular energy data for optimising usage and reducing peak demand; and 3) Integrating Onsite Renewables such as solar and battery storage to cut grid dependence and reduce strain on legacy infrastructure. These approaches work together to keep industrial operations within existing transformer and feeder capacity, avoiding expensive upgrades that can cost hundreds of thousands or millions of dollars.

Publication context: This article reflects its publication date. Market prices, program rules, reporting duties and deadlines may have changed. Confirm current official guidance before making a decision.

A recent webinar hosted by AZZO, "Three Ways to Avoid a Costly Electrical Upgrade," brought together industry experts to share practical solutions that help avoid these expenses while boosting operational performance.

If you'd like to listen to the full discussion, the video is linked here .

Smart Strategies to Stay Within Network Limits

James DiLiberto , CEO of AZZO , introduced three key strategies to manage energy demand effectively:

Implement Energy Management Systems (EMS): These systems enable real-time load control and the integration of onsite generation-such as solar PV and batteries-helping sites operate within existing electrical limits.

Use Smart Controls and Monitoring: By collecting and analysing granular energy data, facilities can optimise usage, reduce peak demand, and enhance overall energy efficiency.

Integrate Onsite Renewables: Harnessing solar and battery storage not only cuts grid dependence but also eases the strain on legacy infrastructure, potentially deferring the need for upgrades.

Craig Morgan on the Value of Energy Efficiency

Craig Morgan, Group Sales Director at Northmore Gordon, offered further insight into how energy efficiency plays a vital role in this equation.

"When you reduce demand through energy efficiency, you're not just lowering your bills," said Morgan . "You're freeing up capacity on your existing infrastructure, which can delay or eliminate the need for upgrades that often run into the hundreds of thousands-or even millions-of dollars."

He shared examples of how Northmore Gordon has worked with industrial clients to conduct detailed energy assessments, helping them remain within the capacity of their existing transformers and feeders-thereby avoiding expensive and time-consuming grid upgrades.

A Strategic Imperative for Industry

With electrical network constraints increasingly common-particularly in older industrial estates and rapidly developing areas-these approaches are becoming critical for cost-effective growth. As Morgan noted, "In today's energy environment, smarter use of energy is just as important as clean energy."

Procurement context

Check the current market date, contract term, meter and load data, instrument ownership and retirement evidence before making a purchasing or public claim.

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What are the three main strategies for avoiding costly electrical grid upgrades at industrial sites?

According to the AZZO webinar discussed in the article, the three key strategies are: 1) Implementing Energy Management Systems (EMS) that enable real-time load control and integrate onsite generation like solar PV and batteries; 2) Using Smart Controls and Monitoring to collect and analyse granular energy data for optimising usage and reducing peak demand; and 3) Integrating Onsite Renewables such as solar and battery storage to cut grid dependence and reduce strain on legacy infrastructure. These approaches work together to keep industrial operations within existing transformer and feeder capacity, avoiding expensive upgrades that can cost hundreds of thousands or millions of dollars.

How does energy efficiency directly prevent the need for grid upgrades?

Energy efficiency reduces overall demand on existing electrical infrastructure. By lowering consumption through improved equipment performance and operational practices, industrial sites free up capacity on their existing transformers and feeders. This delays or eliminates costly grid upgrade requirements. Craig Morgan from we explain that when demand is reduced through efficiency, organisations avoid expensive and time-consuming infrastructure upgrades that are particularly burdensome in older industrial estates and rapidly developing areas where network constraints are increasingly common.

What role do Energy Management Systems play in avoiding grid constraints?

Energy Management Systems enable real-time visibility and control of energy consumption across industrial facilities. They allow organisations to monitor loads continuously, identify peak-demand periods and opportunities for reduction, and coordinate the operation of onsite generation and storage systems. By collecting and analysing granular energy data, EMS helps sites optimise their usage patterns and avoid or reduce demand peaks that would otherwise require grid infrastructure to be upgraded. This operational control transforms energy data into actionable decisions that protect grid compatibility.

How can onsite renewable energy and battery storage reduce grid upgrade requirements?

Solar generation and battery storage systems operate behind-the-meter, meeting local energy demand without drawing from the grid. This reduces the peak electrical load that the grid infrastructure must supply, easing strain on transformers and distribution feeders. During high-demand periods, batteries

can discharge to meet site loads, further reducing grid draw. By lowering the peak demand that the grid must accommodate, these systems help industrial sites remain within existing infrastructure capacity, avoiding expensive upgrades. We assist clients in designing integrated energy strategies that coordinate solar, storage, controls and commercial decisions for optimal grid relief.

Why is demand management increasingly important for industrial growth and competitiveness?

Electrical network constraints are becoming more common, particularly in older industrial estates and rapidly developing areas where grid infrastructure may not have capacity for additional load. Industrial sites seeking to expand production or add new equipment often face either waiting periods for grid upgrades or bearing the substantial cost of infrastructure work. Implementing smart energy management, efficiency improvements and onsite generation allows sites to grow within existing grid capacity. Craig Morgan notes that 'in today's energy environment, smarter use of energy is just as important as clean energy,' making demand management a strategic imperative for cost-effective industrial operations.

What practical steps should industrial facilities take to assess their grid upgrade risk?

Industrial facilities should start with a detailed energy assessment to understand current consumption patterns, peak demand periods and how loads vary by equipment or process. This assessment identifies whether the site operates near its grid connection capacity and which systems consume the most energy or create the highest peaks. We conduct energy audits, utility benchmarking and load analysis for industrial clients to reveal these constraints and opportunities. Armed with this information, facilities can prioritise efficiency improvements, metering and monitoring, and renewable energy integration to reduce demand and remain within existing infrastructure limits, avoiding costly grid upgrades.

How does Northmore Gordon assist industrial clients in avoiding grid upgrade costs?

We provide comprehensive energy optimisation services that combine engineering assessment, implementation support and ongoing performance verification. We conduct energy audits and feasibility studies to identify efficiency opportunities and demand-reduction potential. It develops metering and monitoring plans to establish reliable baseline data and track improvements. We also support clients in designing integrated energy strategies incorporating renewable generation, storage, controls and load optimisation. By delivering these services together, we help industrial clients reduce demand within existing grid capacity, avoid expensive infrastructure upgrades and achieve operational and financial benefits simultaneously.

What is the financial significance of avoiding electrical grid upgrades for industrial operations?

Electrical grid upgrades can cost hundreds of thousands or even millions of dollars, depending on the scope of work required. These costs include transformer replacements, feeder upgrades, extended cable runs and associated installation labour. Beyond capital expenditure, upgrades often involve project delays that disrupt operations and slow business growth. By implementing energy efficiency, demand management and onsite generation—investments typically in the tens or hundreds of thousands—industrial sites can avoid or defer these much larger grid infrastructure costs. The article emphasises that remaining within existing capacity through smart energy management represents a cost-effective alternative to grid expansion.

How do Energy Management Systems and onsite renewables work together to relieve grid constraints?

Energy Management Systems provide the intelligence to coordinate and optimise onsite generation, storage and loads. The EMS monitors real-time consumption and solar output, then directs battery charging and discharging to minimise peak grid demand. During periods of high solar generation and low site consumption, the EMS can charge batteries for later use or export excess generation if

permitted. During peak-demand periods, batteries discharge to reduce grid draw. This coordinated operation—made possible by the EMS's real-time control and data analysis—maximises the effectiveness of renewable assets in reducing grid demand, allowing industrial sites to operate comfortably within existing infrastructure capacity while lowering operating costs.