



Power to Deliver

A guide to reducing energy costs, improving efficiency, and supporting sustainability goals with solar.



Geo Green **Power**



Who this guide is for

This Power to Deliver guide is designed for those with operational responsibility and estate management for warehouse and logistics facilities, including operations managers, directors and facilities managers, as well as estate directors. It also examines the environmental and business cases for solar PV, making it a must-read for those with sustainability and financial oversight responsibilities.

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“The warehousing and logistics sector is at the heart of the UK economy, but it’s also facing mounting energy pressures.

Alongside automation and round-the-clock operations, the rapid electrification of fleet is particularly striking. The number of electric vans and trucks in the UK increased by 31% in just one year, reaching nearly 90,000 vehicles by 2024.¹ Amazon has already placed the UK’s largest ever order of electric HGVs, adding more than 140 trucks to its fleet.² Yet EV adoption is still in its early stages, with electric vans accounting for just 1.5% of the UK’s 5.8 million van fleet, and electric HGVs representing only 0.02% of the heavy trucks on the road.³

For warehousing and logistics, this creates both a challenge and an opportunity. Electrified vehicles can reduce carbon emissions and fuel costs, but on-site EV charging is poised to become a significant new source of demand. That demand lands in a sector where energy is already one of the most volatile overheads. Industrial electricity prices in the UK remain among the highest in Europe, leaving operators exposed to rising costs with no clear end in sight.

This is where solar comes in. When combined with EV adoption, on-site generation has the power to transform energy from a risk into a strategic asset. It doesn’t just cut overheads and emissions, it offers a way to offset a logistics company’s carbon footprint at scale, reduce reliance on volatile markets and build long-term resilience.

At Geo Green Power, we’ve supported warehousing and logistics businesses for over a decade. Whether you’re a landlord managing a portfolio of sites or a logistics operator focused on service and margin, we can help you use solar to respond to rising energy bills, reduce overheads and strengthen your sustainability strategy.

This guide brings together sector insights, practical advice and real-world examples to help warehouse operators, developers, and tenants explore the potential of solar energy for their sites.”

“With grid constraints increasing and electricity prices remaining high, solar and other on-site generation options are becoming the logical next step for controlling costs”

James Cunningham,
Managing Director,
Geo Green Power



¹ SupplyChainBrain, July 2025
² <https://www.aboutamazon.co.uk/news/sustainability/amazon-zero-exhaust-emissions-uk-electric-trucks-rail-deliveries>
³ SupplyChainBrain, July 2025

The warehousing energy challenge

Warehousing and logistics businesses are facing a growing energy challenge. While not as power-hungry as heavy manufacturing, the sector's electricity⁴ use is rising fast, driven by automation, refrigeration and a shift to electrified fleets. In 2022, the sector consumed approximately 8.3 terawatt hours (TWh) of electricity, and demand is expected to grow significantly as operations scale and adapt to net-zero goals.

Standard warehouses consumed 4.2TWh of electricity in 2001, with lighting the largest source of demand at around 50% of total use. Lighting is also one of the two largest draws on electricity in large distribution centres, the other being cooled storage. Between them, these account for three-quarters of the total annual electricity use.

Warehouses account for a disproportionately high share of the UK's solar capacity, around one-third of non-domestic rooftop solar, despite making up only 5% of non-domestic electricity consumption.⁵ This reflects the sector's strong suitability for solar but also points to further untapped potential.

Sources of energy pressure



Energy intensive operations

Automation, warehouse robotics, and electric material handling equipment are becoming standard. EV rollouts - for fleets, last-mile delivery, and on-site logistics- are also increasing electrical load, particularly at larger regional hubs.



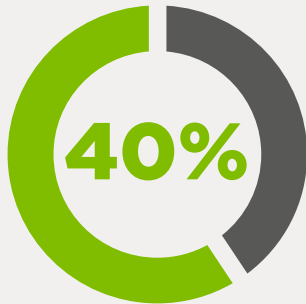
Pressure to reduce emissions

Mega warehouses exceeding 500,000 square feet are becoming increasingly common, and many of these sites are often occupied or owned by companies that meet the threshold for Environmental, Social, and Governance (ESG) disclosures under UK and international frameworks. This makes energy use, emissions and sustainability performance a growing area of focus.



Cold storage and HVAC requirements

Temperature-controlled storage is energy-intensive and requires continuous operation. Typically, HVAC requirements account for 20-40% of a site's total electricity.⁶ As online grocery and pharmaceutical fulfilment grow, so too does demand for low-carbon, always-on power.



Rising and volatile energy prices

UK commercial and industrial electricity prices remain among the highest in Europe. At the same time, businesses also face unpredictability in global energy markets and local grid constraints.



Always-on operations and uptime expectations

Many warehouses now operate extended or continuous shifts to meet next-day delivery expectations. With machinery, lighting and digital infrastructure operating around the clock, energy resilience is a critical, and increasingly expensive, requirement.



“The sector’s shift to automation and electrification means energy costs aren’t just an operational concern, they’re a strategic risk.”

**James Cunningham, Managing Director,
Geo Green Power**

⁴ AMA Research (2024), Non-Domestic Rooftop Solar PV Market Report, based on BEIS ECUK 2021 data.
⁵ Ibid
⁶ Ibid

Why solar, why now?

Solar is moving up the agenda, not because it's new, but because it now aligns more closely with what warehouse owners, tenants and developers need: greater cost certainty and resilience, stronger reporting credentials, and better use of available space.

Why solar makes business sense



1. An enabler for investment in automation

Rising National Insurance and wage costs are pushing more warehouse-led businesses to explore automation. However, automated systems increase electricity use, which in turn amplifies the need for cost control. Solar, especially when paired with certain funding models, helps achieve greater cost control and offset any increase in electricity usage from automation.



2. Smarter use of space

Warehouse rooftops offer significant, often underused, real estate. Retrofitting solar PV is common at older sites and increasingly, newer locations are built 'solar-ready' with consideration for cable runs, plant rooms and access.

Installing solar doesn't interfere with operations and typically doesn't require planning permission below 1MWp (around 2500 panels), making it one of the most straightforward energy upgrades available.



3. Landlord-tenant split incentives

As most warehouse sites are leased⁷, energy investments can be hard to justify without the right structure. However, greater availability and understanding of financing models, such as Power Purchase Agreements (PPAs), that benefit both parties mean more sites are using solar to reduce costs for tenants and add long-term value for landlords.

⁷ UK Warehousing Association (UKWA) and Savills, 2021

⁸ Financial Times, 2024

⁹ Digest of UK Energy Statistics (DUKES) 2023

¹⁰ <https://www.nationalgrid.com/the-great-grid-upgrade/how-uk-electricity-grid-being-transformed>



4. Stronger carbon reporting - and public accountability

Large warehouse operators now face mandatory ESG and carbon reporting, and many are expected to demonstrate credible carbon reduction strategies in bids, tenders and investor communications. Major logistics providers, including DHL, FedEx, UPS, Amazon, Tesco and DPD, have set net-zero targets between 2035 and 2050, with commitments ranging from large-scale fleet electrification and renewable fuels, to solar-powered depots, rail freight expansion and carbon-neutral deliveries. At the same time, more and more consumers and clients are scrutinising the carbon emissions footprint of their supply chain and logistics. Solar is one of the most direct and measurable ways to reduce emissions, meet reporting obligations, and mitigate reputational risk.



5. Solar systems are more advanced and more productive

The average solar panel efficiency has increased over the last 15 years. In 2010, average solar panel efficiency was around 15.9% while today it's between 20% and 21%.⁸ That means around a quarter fewer panels are needed for the same output than a decade ago. Combined with faster installation times and improved inverters, this means operators now achieve quicker returns and longer-term benefits, all with minimal site disruption. Priorities such as fleet or business improvements.



6. Greater control over energy costs

With average industrial electricity prices in the UK rising over 70% between 2021 and 2023,⁹ many operators are seeing energy become one of their largest yet least predictable overheads. By generating a portion of their electricity through solar, businesses can gain greater control, or, with specific financing schemes, lock in lower, stable energy costs for 25 years or more. This protects margins, improves resilience to further rises and makes long-term planning more predictable.



7. Smarter, data-led energy strategies

Modern solar systems don't just generate energy; they help manage it more effectively, too. With real-time reporting and intelligent monitoring platforms, operators can take a more strategic approach to generating, using, and storing energy.

These systems can track generation and consumption, as well as import/export, in real-time and across one or multiple sites, providing a comprehensive view of system performance. This capability enables businesses to make data-led decisions that improve efficiency, reduce waste and support long-term energy planning.

Integrated systems also support:

- Battery storage management, allowing operators to store surplus energy and discharge it when grid prices are high. Predict maintenance
- Optimised EV fleet charging, help prioritise internal energy needs, eg for fleet charging, before exporting to the grid
- Proactive maintenance, with early issue detection to avoid downtime and performance loss
- Scalable planning, by highlighting future opportunities for expansion and investment



8. Free up budget for other upgrades

By reducing reliance on grid-supplied energy, solar PV systems can deliver immediate operational savings, especially when installed under a PPA, which requires no upfront investment. For many operators, this creates headroom to invest in other priorities such as fleet or business improvements.



9. Reduce exposure to grid constraints

The National Grid's own projections indicate that the electrification of transport and heat will increase demand and strain on local infrastructure.¹⁰ In areas nearing capacity, operators risk being left behind if they delay investment. Securing and using local generation capacity now helps mitigate that risk and positions businesses ahead of future constraints.

Why now?

- ✓ Protect against rising energy prices
- ✓ Support investment in automation and EVs
- ✓ Secure 40-50% of electricity at a fixed rate
- ✓ Meet ESG and carbon reporting obligations
- ✓ Respond to consumer and client sustainability expectations
- ✓ Generate value from unused roof space
- ✓ Unlock benefits for both landlords and tenants
- ✓ Improve the case for automation

Why solar delivers across warehousing and logistics

Warehousing and logistics encompass a range of facility types, each with distinct demands. Solar provides value across the board by reducing energy costs, improving efficiency and supporting sustainability goals.



Last-mile delivery hubs

Urban locations focused on rapid fulfilment and EVC operations

- High daytime energy use from sorting, IT and vehicle charging
- Limited rooftop area and high grid costs in urban areas
- EV fleet charging adds a significant daytime load
- Often leased, so collaboration between landlord and tenant is key

How solar helps:

Offset peak daytime energy use with rooftop solar. When paired with batteries, solar energy can also support overnight fleet charging. PPAs or shared energy agreements make solar viable even in leased or space-limited settings.

Mega fulfillment warehouses

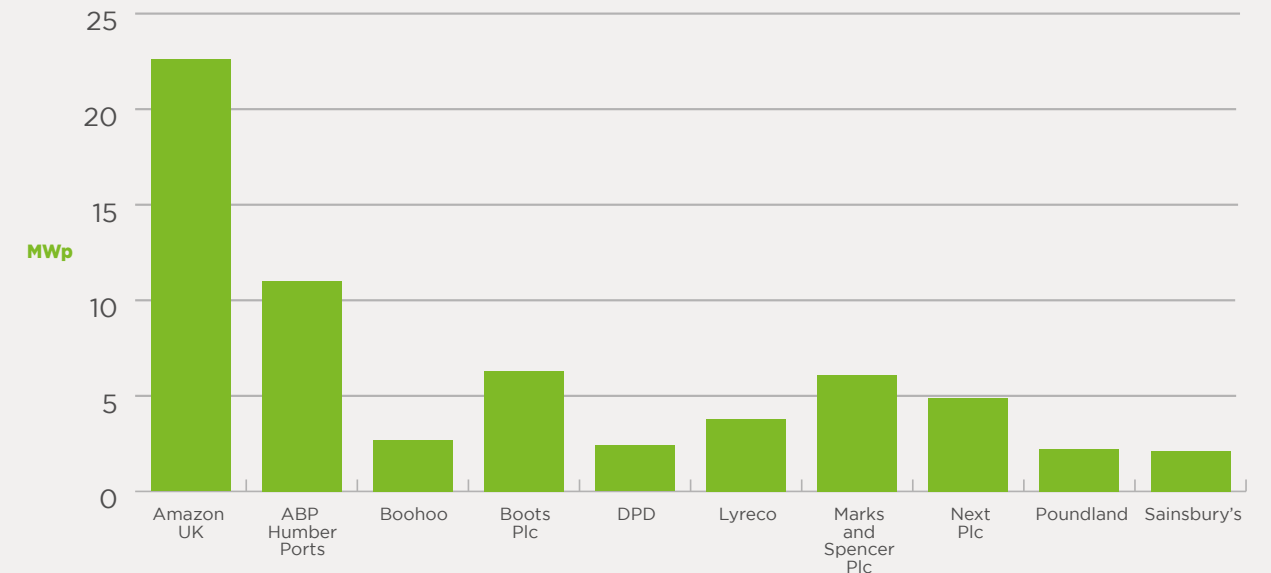
Large automated and high-volume sites

- 24/7 operations with robotics, conveyors, cold storage and data systems
- Strong internal ESG and energy risk management requirements
- Roof space and energy demand make them ideal for large-scale PV

How solar helps:

Supports rooftop systems of 6MWp+, offsetting a substantial portion of the site's energy use. Enhances ROI for automation and EV investments. Delivers measurable Scope 2 reductions for internal and external carbon reporting.

Installed capacity of mega-site installations (2MW+) by final user/offtaker (as of 2023)



Source: AMA Research (2024), Non-Domestic Rooftop Solar PV Market Report



User



Regional distribution centres

Mid-sized sites or multi-channel networks

- Long operating hours and moderate automation
- HVAC, lighting and conveyors drive a significant energy load
- Often leased from landlords with growing ESG expectations

How solar helps:

Solar improves energy cost control and provides carbon savings to support both tenant reporting and landlord targets. PPA models enable zero-CapEx installations. These sites are a strong fit for phased rollout strategies.

Multi-site logistics

Estate strategies for landlords or national operators

- Wide variation in building types, ages and tenancies
- Need practical, tailored solutions across sites
- Strategic opportunity to demonstrate ESG and secure resilience

How solar helps:

Solar enables a scalable, phased approach. Landlords can improve their EPCs, attract sustainable tenants and generate new revenue through PPA models. Operators benefit from reduced energy bills, greater resilience against cost fluctuations, and improved carbon savings across their sites.

Funding options

One of the most significant changes in commercial solar adoption is the flexibility of today’s funding models. Solar is no longer reserved for businesses with large capital reserves or long payback horizons. Whether you’re an occupier focused on energy savings or a landlord looking to improve asset performance, there are accessible routes to solar that require little to no upfront investment.

Power Purchase Agreement

A third party funds, installs and maintains the solar system. The tenant (or building user) purchases the electricity it generates at a fixed rate, typically lower than the market rate. These agreements generally last 10-25 years, offering long-term stability in energy costs.

Owners/landlords of distribution centres and other warehousing facilities usually fund, develop and own the rooftop PV arrays while supplying electricity to tenants at favourable rates.

Best for: Tenants seeking energy savings without self-funding, or landlords looking to increase asset value and offer lower-cost energy to occupiers.

Advantages:

- No upfront cost for tenant [or landlord if using a third party]
- Fixed, below-market energy pricing
- Zero maintenance responsibility
- Optional system buyout at a later stage
- Increases appeal and retention for leased sites

What is a sleeved PPA?

A sleeved PPA is a variation of a standard PPA, where electricity is purchased directly from a renewable generator but delivered through the company’s existing energy supplier. This provides the business with the stability of a long-term renewable energy price, along with the convenience of a supplier managing delivery, billing, and balancing. For logistics and warehousing, sleeved PPAs can be particularly attractive where operators want to link EV fleet charging or multiple sites to a guaranteed supply of renewable electricity.

CapEx

The site owner or tenant funds the system directly, either from cash reserves or through asset finance (such as a lease or loan). In both cases, the purchaser retains full ownership. All energy savings, carbon reductions and system benefits remain with the business, along with any depreciation or tax incentives.

Best for: Landlords or occupiers with substantial cash reserves, or those investing under a sustainability or net-zero capital programme.

Advantages:

- Full system ownership
- Immediate savings on energy
- No interest or third-party involvement
- Carbon savings

Grants

In some cases, regional or sector-specific grants may cover part or all of the system cost. These are typically available for innovation-focused or sustainability-linked projects and can sometimes be combined with other funding models.

Best for: Businesses or sites eligible for government, local authority or innovation funding.

Advantages:

- No repayment required
- All the benefits of ownership, without the upfront cost
- Can enhance ROI or reduce payback periods

What’s right for your business?

Choosing the right funding option depends on who owns the building, how energy costs are managed between landlord and tenant, and what level of flexibility or control each party needs.

Whether you’re leasing warehouse space or managing a portfolio of logistics assets, Geo Green Power can help you structure the right solution, with clear financial modelling, risk assessments and options that align with your business case.

	CapEx	PPA	Asset Finance	Grants
How much of the initial investment do I pay?	100%	0%	20%*	100%**
Do I own the system?	Yes	No	Yes	Yes
Will there be a reduction in energy costs?	Yes, significant	Yes, good	Yes, significant	Yes, significant
Do I pay maintenance costs?	Yes	No	Yes	Yes
What is the typical term?	N/A	10 to 15 years, but can be up to 25 years	4 to 7 years, but can be between 2 and 10	N/A
Do I pay interest?	No	No	Yes	No
Will credit be required?	No	No	Yes	No
What is the set up time?	Quick	Moderate	Moderate	Slow
What happens at the end of the term?	N/A	Option to purchase system or end contract	Full ownership	N/A

* Typically the VAT value, which you can claim back in the next quarter
** This is the same as CapEx and whilst you pay for 100% of the system, a grant or subsidy goes towards that investment



“Solar shouldn’t sit on the back burner because of CapEx availability. With the right funding model, it can start delivering for your site immediately.”

**James Cunningham, Managing Director
Geo Green Power**

Tailored solar solutions for your business profile

Warehousing is well-positioned to benefit from solar energy, but no two operations are alike. We take the time to understand your site, energy profile and business priorities, then design the most effective solution to meet them.

Possible solutions



Rooftop solar

Most warehouse buildings have extensive, underused roof space that is ideal for solar PV. Rooftop systems deliver energy directly to the building below, with minimal disruption to site operations.

Why it works:

- Makes the most of your building footprint
- Scalable to match daytime energy loads
- Minimal operational disruption during installation
- Suitable for both owned and leased properties, including via PPA



Ground mount systems

Where roof space is limited or already at capacity, ground mount installations offer additional flexibility. They're especially valuable at sites with adjacent land, or those seeking larger-scale generation for EV fleets or future expansion.

Why it works:

- Ideal for large sites or out-of-town locations
- Can be sized to meet high or growing demand
- Easy to maintain and upgrade over time
- Can be positioned for optimum generation



Solar car ports & EV integration

Fleet electrification is on the rise, and warehouse car parks and loading areas offer untapped solar potential.

Why it works:

- Dual-use: generate power and provide shelter
- Supports warehouse or delivery fleet electrification
- Demonstrates sustainability to staff, visitors and clients



Battery storage

Storing solar energy extends its value, making it available for use during peak grid times or when sunlight is low. Batteries support energy security, reduce exposure to price spikes, and enable greater energy autonomy.

Why it works:

- Store excess solar generated during the day
- Charge overnight when grid rates are cheaper
- Support backup or critical systems during outages

The business case for solar investment

An at-a-glance overview of the strategic benefits of solar for manufacturing businesses.

Strategic benefit	Why solar
Financial return on investments	Reduce energy bills by up to 70%. Projected payback in 5-7 years via CapEx. Long-term savings of several million for larger systems.
Zero-CapEx options	Power Purchase Agreements (PPAs) enable immediate benefits with no upfront cost and the ability to lock in low, predictable electricity costs for 15 years or more.
Minimal operational disruption	Installation takes as little as 3-14 days, depending on size, with no production downtime required.
Maintenance & uptime	Minimal servicing required, but can be provided every year to protect yield and performance.
Carbon & ESG performance	Cuts Scope 2 emissions and enhances sustainability credentials. Supports TCFD-aligned reporting and investor engagement.
Grid resilience	Reduces reliance on the grid and mitigates future grid capacity constraints.
Scalability	Solar can be rolled out site-by-site, adapting to operational needs and building a portfolio-wide energy strategy.
Commercial advantage	Enhances bid competitiveness, supports supply chain requirements, and demonstrates leadership in cost control and carbon reduction.

Why partner with Geo Green Power?

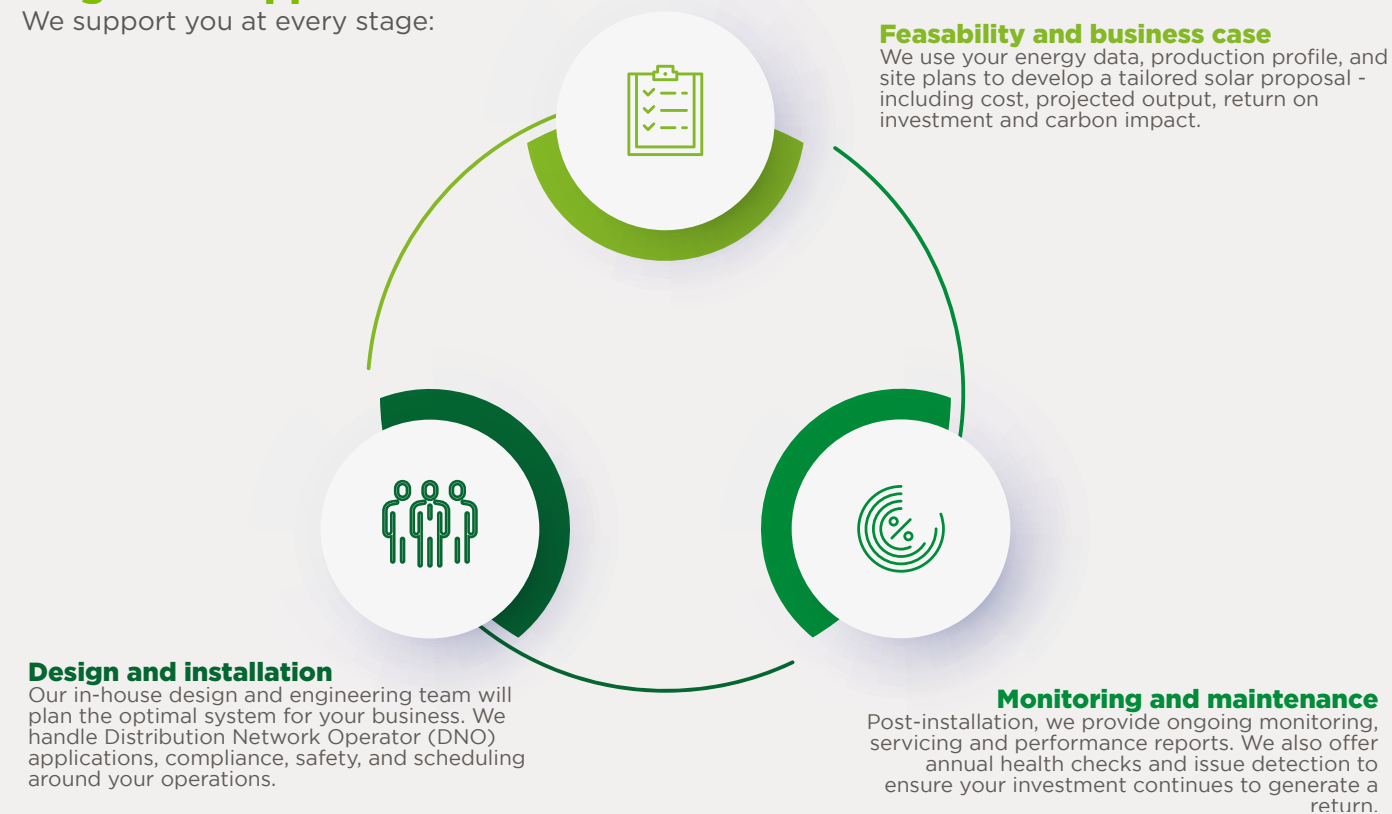
Your energy strategy deserves more than a one-size-fits-all solution.

Choosing solar is a strategic business decision, and the partner you select to deliver it can significantly impact the long-term success of your investment. At Geo Green Power, we don't just design and install systems. We build long-term relationships based on quality, transparency and performance.

We've delivered solar projects for UK businesses of all sizes for over 15 years. Our approach is pragmatic, data-led, and focused on outcomes that work for your business.

A partner from feasibility to long-term support

We support you at every stage:



We understand warehousing

We recognise the operational demands and commercial pressures facing warehousing and logistics, from energy-intensive processes and EV rollout to grid limitations and ESG targets. With over a decade of experience in industrial solar, we deliver tailored, low-disruption solutions that work for both landlords and occupiers.

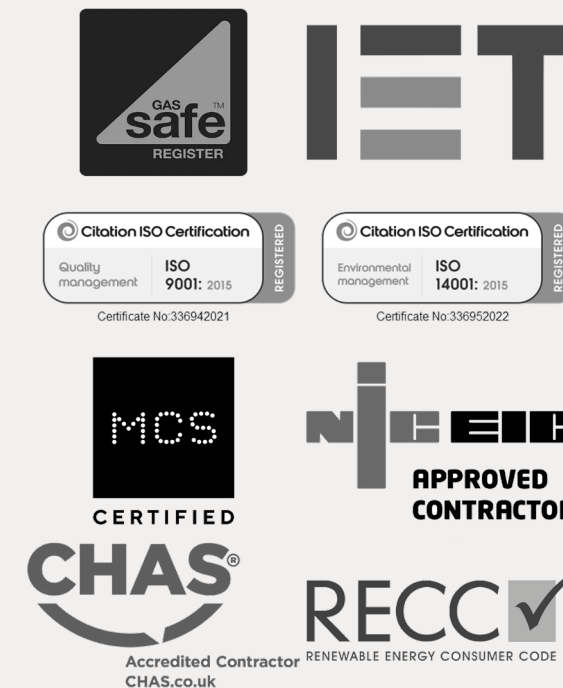
Built on trust and transparency

Everything we do is grounded in honest advice, clear timelines and upfront pricing. We don't push what isn't needed, and we don't disappear after the install. Our reputation is built on long-term performance and personal accountability - values that matter just as much to us as they do to our clients.

We promise to:

- ✓ Take the time to understand your business, energy needs and priorities
- ✓ Provide straightforward, honest advice
- ✓ Communicate clearly and regularly throughout your project
- ✓ Deliver safely, on time and budget
- ✓ Support your system's performance long after installation

Our accreditations



"We never start with a sales pitch - we start with what works for your site, your energy use, and your business model."

**James Cunningham, Managing Director,
Geo Green Power**



Revis Transport

About the business

Revis Transport is a UK-based logistics company with a strong focus on sustainability and efficiency. With a large fleet of vehicles, the business is actively exploring ways to reduce its carbon footprint and enhance its environmental credentials.

Why solar PV

Revis already had solar panels installed on its premises when it contacted Geo Green Power in 2023. However, the system wasn't sufficient to meet their growing energy demand or the company's ambition to improve its ESG performance. By expanding its solar generation, Revis aimed further to reduce the carbon impact of its transport operations while improving energy cost control.

The system

 **Solar System Size: 500kWp**

The results

 **Annual Output: 372,000kWh**

 **Annual CO2 Saving: 105 Tonnes**

 **Expected Payback Period: 4 years**

 **Equivalent Cars Off The Road: 21**

A word from our MD

“The Revis project was a great example of a logistics company taking proactive steps to offset the carbon from their fleet of vehicles, as well as improve operationally by reducing energy costs. We were very proud to help Revis achieve what they wanted.”

**James Cunningham, Managing Director,
Geo Green Power**



The Cotswold Company

About the business

The Cotswold Company, an oak furniture and homeware business, has sustainability at its core. All its timber is responsibly sourced and every piece of furniture is crafted using traditional woodworking methods.

Having planted over 85,000 trees and removed 97% of polystyrene from its product packaging, the company continues to build on its sustainability goals, which include reducing Scope 2 emissions, becoming a B Corp-certified company, and providing sustainability training to all staff.

Why solar PV

A move to a new site in Lichfield fuelled the company's desire for solar, along with a goal of reaching net zero on its Scope 2 emissions by 2025. With its warehouse generating a significant portion of these emissions, it made sense to prioritise this site for its first solar installation.

The system

 **Solar System Size: 155kWp**

The results

 **Annual Output: 146,000kWh**

 **Annual CO2 Saving: 30 Tonnes**

A word from our client

“It was great to find out that Geo Green Power are a family-based company. Since our first meeting with James on site and during our subsequent dealings with the team, we felt that Geo Green Power’s values aligned with our own in terms of customer service, quality and sustainability goals.”

Jacquie Silvester, Head of Sustainability, The Cotswold Company



“Thank you for taking the time to read our Powering Production guide.

At Geo Green Power, we’ve delivered commercial solar systems for more than 15 years, and in that time, the conversation has completely changed.

What was once a future-focused sustainability discussion is now firmly a boardroom priority. Manufacturers are facing persistent energy price volatility, increased grid pressure, and growing scrutiny from customers, investors and regulators.

We understand that investing in solar isn’t just about the technology, it’s about building resilience into your operations, cutting costs, and creating confidence in your long-term energy planning. Our approach is designed to make that process straightforward, tailored and commercially sound from day one.

We don’t believe in one-size-fits-all solutions. We work closely with facilities managers, finance leads, and sustainability teams to understand your energy profile, site constraints and commercial goals, and then design the right system for you. Whether you’re ready to go to tender or want to explore the business case, we’re here to support that conversation with real numbers and real experience.”

James Cunningham, Managing Director