



Power your profits through solar and storage:

A Financial Director's Guide on the use of solar and battery storage to cut overheads and boost revenues

Six things to look out for

Why financial directors should embrace solar as the energy market faces major reform and businesses face more blows to the balance sheet – **page 2**

The short and long-term financial benefits to be gained from investment in solar energy and battery storage solutions – **page 3**

The range of funding options to support the adoption of Solar PV and storage – **page 6**

Check out the Solar Financial Checklist before you go ahead with any decisions – **page 8**

How a leader in commercial transport solutions is forecasted to profit more than £3.9 million through solar energy deployment – **page 10**

How a school in Macclesfield is expecting a return on its solar investment in less than four years – **page 11**

Lighten Your Financial Load Through Solar

Businesses are facing growing financial pressure following the announcement of higher employer National Insurance contributions and the 'largest-ever cash increase' to the minimum wage - a positive development for workers navigating the cost-of-living crisis but a blow to the balance sheet for businesses.

At the same time, the Government is looking to UK plc to help address its £22 billion budget shortfall and a report from Cornwall Insight's Business Energy Cost Forecast has projected business energy bills are to remain significantly above those prior to the crisis caused by the conflict between Ukraine and Russia.

A report published by leading cost, procurement & carbon solutions company Auditel also highlighted the 'energy pressure' felt by UK businesses and the link to geopolitical instability.

Adding to the challenge is the upcoming rollout of the Market-Wide Half Hourly Settlement (MHHS) programme - a major reform that will involve electricity readings being taken every 30 minutes through a national upgrade to highly sophisticated meters, and will see businesses charged up to 48 different unit rates over a 24-hour period. Without strategic action, this could see operating costs increase.

Beyond the environmental benefits and improved energy security, solar - as a part of the renewable energy mix - also offers a powerful and proven solution to reduce the increasing cost pressures faced by businesses of all sizes and public sector organisations, whilst enhancing their operational resilience in the long term.

Now is the time for those leading on financial decisions within UK plc to explore the fiscal and strategic advantages of solar power and battery storage, unlocking potential savings while being prepared for upcoming market changes.



Stephen Barrett,
Founder and Chairman,
Solarsense

Key fiscal benefits of solar:

- **Cost savings:** One of the most significant benefits of solar for businesses is cost reduction. Once the installation has been paid off, the energy produced is effectively free, with every kWh of energy generated by your panels being one less you'll need to buy from a supplier at an estimated average cost of around 24.5p. By comparison, the cost of generating electricity through solar PV - over the lifetime of the asset - is typically around 4p to 8p per kWh (depending on the system's scale and efficiency).
- **Financial security and long-term planning:** Solar energy empowers companies to generate their own electricity, meaning they are less reliant on the grid and less exposed to fluctuating energy prices driven by unpredictable global events - such as the Ukraine-Russia war - or policy changes. It also gives businesses a better sense of long-term energy costs, making budgeting and forecasting much more straightforward.
- **Rapid payback:** Solar energy systems today offer a high-speed payback on installation costs due to the rapid decline in the cost of solar panels (estimated to be a reduction of 90% since 2010). Payback can in some cases be achieved in as little as two years.
- **Charge up to save more:** Investment in battery solutions can further increase savings generated by solar, by allowing businesses to store excess energy for use during peak grid pricing periods, maximising efficiency and cost reductions. More on battery storage on page 6.
- **Revenue generation:** Solar solutions not only have the potential to save money for businesses, but they can also generate revenue. The most common way this is achieved is through the sale of surplus electricity back to the grid via the Smart Export Guarantee. Solar carports also offer an opportunity for operations to generate additional income by billing staff and visitors to charge their EVs. Solar installations can also potentially increase land and property value.

Other solar benefits:

- **Greater energy resilience:** Solar power and energy storage enhances energy resilience, reducing dependence on the grid and protecting against outages that can cause major downtime in productivity with consequences for the bottom line.
- **Investment in reputation:** Investing in solar energy helps companies to greatly reduce the carbon footprint of their previous fossil fuel intensive operations, supporting ESG goals, and securing a strong reputation in an increasingly sustainable world. Demonstration of environmental responsibility is also now a pre-requisite for public sector and Tier 1 supplier tenders.

The wide-ranging solar opportunity

Solar panels can be installed in a variety of locations, turning unused land or roof space into an asset. Solar panels come in a variety of shapes and sizes, making them one of the most versatile renewable energy sources available. Some of the ways solar panels can be installed include:

1. Roof-Mounted Solar PV - The most common installation type for solar PV panels, particularly for property with plenty of roof-top real estate such as office buildings, factories and warehouses.



2. Ground-Mounted Solar PV - Ideal for operations with open land and can be installed in unused or underutilised spaces. Ground-mounted PV modules can be adjusted for optimal pitch and orientation, ensuring maximum daylight capture.



3. Solar Carports - A multi-purpose structure that provides shelter for vehicles whilst generating renewable energy to be used on-site and (or) used to charge electric vehicles, supporting employees' adoption of EV cars and supporting businesses which are investing in their own EV fleets. Solar carports are rapidly gaining popularity with organisations that have already filled their roofs with solar PV and want to visibly promote their dedication to sustainability. As highlighted previously, solar carports can increase land value and allow operations to generate additional income by billing staff and visitors to charge their EVs, with some charge points even allowing you to tier charging prices depending on the user.



4. Building Integrated Photovoltaics (BIPV) - BIPV refers to the integration of solar PV technology directly into the building's structure, such as the roof, walls, or windows. This can include in-roof PV systems, solar tiles, brise soleil, canopies, photovoltaic glass and more. BIPV systems are often chosen for their aesthetic appeal and can be designed to match or complement the building's design.



5. Battery Storage – Integrating solar panels with a battery storage solution allows operations to increase the efficiency of their solar PV system and maximise the potential benefits. This is because you gain greater control over your energy consumption and can store excess solar energy to be used when you need it most, or when it is most cost effective. Even without on-site solar energy generation, organisations may choose to charge up a battery at a time when energy prices are low (e.g. at night) for use during peak times (e.g. 4pm - 7pm). Battery storage can also enable businesses to supply extra power (above their DNO connection capacity) if they are constrained by grid capacity, or to provide back-up power for emergencies. Effective battery storage for solar will become increasingly critical with the upcoming introduction of mandatory half-hour metering.

Flexible finance options for solar

There are a wide-range of options to help with the funding and deployment of solar power. Businesses can take advantage of a number of financial benefits when procuring a solar system, including:

- Tax advantages – such as capital allowances, which allow business to offset investment against taxable profits
- No upfront costs, avoiding initial capital outlay
- Fixed, and therefore predictable, energy prices over a contract term
- Maintenance free contracts, ensuring a system without add on costs
- Preferential interest rates on loans associated with the investment
- Spreading costs over a number of years, reducing immediate outlay and freeing up capital for other areas of the business
- Improvement of financial metrics by not including the system as an asset on the balance sheet
- Generating a revenue stream through selling excess solar energy to the grid

Some of the solar financing schemes in place include:

- Self-Financing
- Asset Finance
- Smart Ease Payment Plan
- Power Purchase Agreement (PPA)

More information on finance options and which are best suited for your sector is available at: www.solarsense-uk.com

Speeding up the process of installing solar

We all know time is money, so to speed up the process of deploying solar on your site, it is highly recommended that you have the following information to hand to assist the solar energy provider:

- Google earth image or marked image of the building roof and surrounding area
- Type of roof (e.g. flat, tiled or trapezoidal)
- Type of power supply (e.g. single or three phase)
- Annual half hourly data (or as much data as possible)
- Current unit price of energy
- Finance in place or needed (e.g. asset finance, Smart Ease payment plan)
- Any future expansion plans (e.g. fleet of electric vehicles)



The Solar Financial Checklist

There are several financial considerations that businesses should take into account when looking at investing in solar and battery storage to ensure they understand the fiscal benefits and end up with a solution that will have the best positive impact on their balance sheets.

When discussing your needs with a solar energy specialist, here are a list of questions that will help you make the right choice.

- ✓ What is my current energy consumption, and how much of it can solar cover?
- ✓ How does the cost of solar compare to my current long-term energy expenses?
- ✓ What is the projected return on investment of the solar installation – how long will it take the system to pay for itself through energy savings?
- ✓ What is the expected annual saving in energy bills for my business?
- ✓ What financial support options do I have and what's best for my organisation?
- ✓ How will solar reduce my dependency on grid electricity?
- ✓ Are there any ways to maximise energy generation and enhance ROI – i.e., adding battery storage?
- ✓ Are there any ongoing maintenance and operational costs, and how will these be offset by savings to my business' energy bill/potential revenue generation?
- ✓ How much revenue could be generated through reselling surplus energy to the grid?
- ✓ What insurance do I need to take out to cover my solar panels?
- ✓ What challenges do I need to be aware of so they can be dealt with upfront and avoid any hidden surprises down the line of the project?
- ✓ Does investing in solar align with my business's long-term financial goals?
- ✓ Can my business afford to be exposed to fluctuating energy prices and market volatility?
- ✓ What is the value of increased energy security to my business?

Other considerations:

- ✓ What are my main motivations for installing solar – are they to reduce costs?
- ✓ How many solar panels do I actually need?
- ✓ What solar energy systems are best for my specifications?
- ✓ What do I need to consider when half hour metering is introduced?
- ✓ Why could battery storage be good for my organisation, and do I have the space for batteries to store my energy?
- ✓ What legislation and regulation do I need to comply with?
- ✓ Will the DNO restrict the number of solar panels I can install? Are there ways around this limit to maximise my PV system and benefits sought?



Solar in action

Driving profits through solar

Company: MC Group - Southampton Depot/Hythe Depot

System size: 280kWp/189kWp

Number of solar panels: 701/462

Annual output: 288,313kWh/185,123kWh

Own power consumption: 143,959kWh/133,988kWh

Annual carbon savings: 79,857kg/38,902kg

Estimated payback period: 3-years/3-years

Estimated 25-year net profit: £3,920,200/£3,446,305

MC Group - a leading supplier of commercial transport solutions with more than 30-year's experience - approached Solarsense to conduct a feasibility study, including detailed calculations to determine the amount of solar energy the company could generate at their transport depots in Southampton and Hythe. Each site provided several obstacles to overcome, including an asbestos roof at the Southampton depot which required over-cladding.

Following a detailed technical review, site survey and feasibility study, the design engineers at Solarsense specified 400W solar PV modules due to their high efficiency and power output. This allowed MC Group to maximise their on-site energy generation from the available roof space and significantly reduce their reliance on buying electricity from the National Grid.

While MC Group had the capital available to pay for the solar PV project upfront, they preferred the option of commercial financing through a Smart Ease Payment Plan spread over 5-years. This allowed the company to retain their capital and match the savings to the cost of installation, freeing up cash to spend on other business activities.

The 280.4kWp solar PV system installed at the depot in Southampton is estimated to generate 288,313kWh of clean energy each year to generate a net profit of more than £3.9million for the company over the next 25-years. Positive early data indicates the solar panels are generating in line with the financial projections and likely to pay for themselves within three years. For the Hythe depot, the 189kWp solar PV is estimated to generate 185,123kWh of clean energy each year and deliver a 25-year net profit of £3,446,305.

"From a cost-benefit perspective, the payback was less than 5 years, while the solar panels have more than a 20-year life. It's a bit of a no-brainer really. We also know the cost of 40% of our electricity for the next 20 years. It takes quite a weight off your mind." **Peter Booth, Group Financial Director - MC Group**



MC Group - Southampton Depot

Score with solar

Company: King's School, Macclesfield - Sports Hall

System size: 184kWp

Number of solar panels: 444

Annual output: 163,566kWh

Own power consumption: 112,256kWh

Annual carbon savings: 34,672kg

Estimated payback period: 4-years

Estimated 25-year net profit: £2,140,084

The King's School, is an independent school for day pupils in Cheshire, England. After conducting a thorough energy audit and concluding that solar PV would deliver the highest carbon reductions for the costs involved, King's School and their partners Control Energy Costs (CEC) approached Solarsense to design, install and maintain a solar PV system for their new Sports Centre. Following a detailed technical review and site survey, the design engineers at Solarsense specified 415W Q Cells solar PV modules due to their high efficiency and power output. The Sports Centre solar array is comprised of 444 solar panels, which are fixed to the flat roof using a purpose manufactured ballasted base frame. This mounting system ensures the weight of the solar array is kept to a minimum and allows the design engineers to optimise the pitch of the solar modules to balance performance against wind loading.

The new 184.26kWp solar PV system is estimated to generate 163,566kWh of clean energy each year; reducing the school's carbon footprint by 34,672kg per annum. As well as significantly improving the sustainability credentials of the school, the large-scale on roof solar panel system installed for King's is estimated to generate a net profit of more than £2.1million for the school over the next 25-years. Positive early data indicates the solar panels are generating in line with the financial projections and likely to pay for themselves within four years, freeing up capital that can be reinvested in both academic and extracurricular facilities.

"Together with CEC we opted for Solarsense because they are a company aligned with our own values for the environment, have a very transparent and practical way of presenting their proposal (we could see the total costs, the impact we could expect, the payback period and more) and were price competitive." - **Jonathan Spencer Pickup, Bursar and Director of Finance - King's School**



King's School, Macclesfield - Sports Hall

About the guide's publisher

This guide has been published by Solarsense, the UK's leading consulting, design and installation business in the commercial and industrial solar energy and battery storage marketplace.

Headquartered near Bristol, the business, which operates nationwide, is an employee-owned B Corporation and provides a range of complementary clean energy solutions that deliver financial savings, carbon reductions and energy independence for clients across a range of sectors.

Established in 1995, Solarsense has completed more than 20,000 renewable energy installations and is responsible for powering some of the UK's leading organisations. It places great emphasis on the quality of its renewable energy installations and has won more than 20 national awards in recognition of its unparalleled expertise, excellent customer service, and pioneering renewable energy projects.



Making solar work for your balance sheet

Solarsense recognises that the positive impact on your finances is one of the prime reasons for deciding to turn to solar energy. That's why it's design engineers use industry leading software to accurately predict how much solar energy can be generated, stored and used at your specific premises, and provide detailed economic efficiency calculations to ensure you understand exactly when you can expect to break even, the structure of repayments and the overall profitability for your organisation in the long-term.