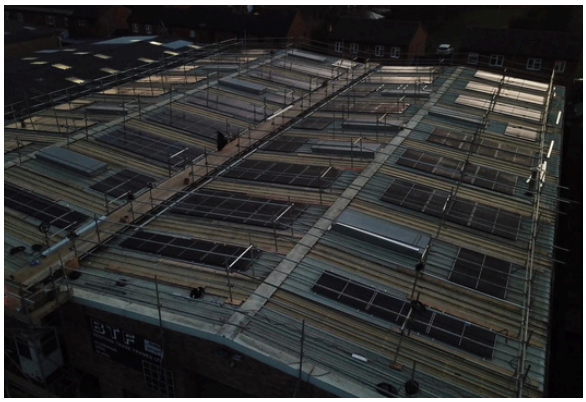
CASE STUDY

Solar Installation at Bedford Trade Frames LTD, Bedford

the greenway Solar

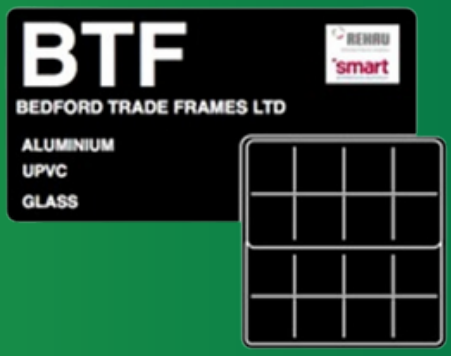
OVERVIEW



Bedford Trade Frames, a UPVC double glazing manufacturer, partnered with The Green Way Solar to install a 75.65kWp solar photovoltaic (PV) array and 23.2kWh of battery storage at their manufacturing plant. The project aimed to reduce the plant's reliance on grid electricity, lower energy costs, and align with sustainability commitments. The installation utilised the factory's trapezoidal roof and incorporated advanced technologies for monitoring and performance optimisation.

THE CHALLENGE

The project presented several challenges that required innovative solutions. The unique five-degree pitch of the trapezoidal roof necessitated a custom design to maximise solar generation from both the southerly and northerly elevations while avoiding roof penetration and ensuring that roof lights were unobstructed. Structural evaluations were conducted to confirm the roof's capacity to bear the additional load without damage. Potential shading issues and complex Distribution Network Operator (DNO) restrictions also had to be addressed to ensure a seamless grid connection. Additionally, it was critical to integrate components securely and in compliance with all safety and performance standards.



OUR SOLUTION

The Green Way Solar delivered a customised and comprehensive solution to meet the specific requirements of the project. A detailed system design was created to optimise sunlight exposure while avoiding interference with existing roof lights.

Using Bedford Trade Frames' historic half-hourly energy data, the PV inverter and battery storage were sized accurately to align with the manufacturing plant's energy demands.

The installation process was efficient and adhered to all manufacturer and industry standards, with high-capacity inverters and advanced monitoring equipment ensuring optimal performance and reliability. Robust monitoring systems were implemented to track solar irradiation, ambient temperature, and voltage, while automated reports and fault alerts enabled continuous performance optimisation. To ensure reliability and safety, necessary measures such as surge protectors and circuit breakers were incorporated, and the system was designed to comply with all grid regulations.

RESULTS

The project delivered substantial benefits for Bedford Trade Frames.

The solar PV system now generates 3.1mWh of clean energy annually, significantly reducing reliance on grid electricity and lowering energy costs. Over its lifetime, the system is projected to reduce carbon emissions by 139 tonnes, supporting the company's sustainability goals. Financially, the installation has already delivered savings of over £5,500 in the first year and is expected to save more than £150,000 over its lifetime, achieving a return on investment (ROI) period of seven years.

Money Saved ↑ £5,500

Renewable Energy Generation ↑ 3.1 mWh

WHY CHOOSE THE GREEN WAY SOLAR?

Our role in the Bedford Trade Frames project demonstrates our expertise in delivering sustainable, high-quality solar installations that support building owners and developers in meeting their energy and sustainability goals. With a focus on innovative design, efficient installation, and long-term performance, we helped transform Bedfrod Trade Frames into a model of sustainable commercial real estate.

CONCLUSION

The Green Way Solar successfully provided a tailored Solar PV and Battery Storage solution that met Bedford Trade Frames' energy efficiency and sustainability needs. The project highlights the significant financial and environmental benefits of adopting renewable energy, as well as the value of a well-executed, customised approach. Bedford Trade Frames expressed high satisfaction with the professionalism of The Green Way Solar team and the immediate benefits of the system in reducing energy costs and improving operational efficiency. This project exemplifies The Green Way Solar's commitment to delivering high-quality renewable energy solutions that drive efficiency and promote environmental responsibility.