

ENGINEERING EFFICIENCY

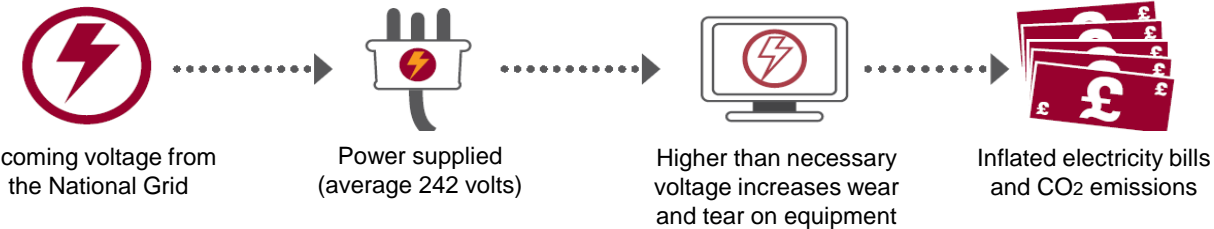
Buildings supplied with electricity at a higher voltage level than needed will suffer from wasted energy, excessive levels of carbon emissions, and higher than necessary electricity bills.

DELIVERING ENERGY EFFICIENCY THROUGH VOLTAGE OPTIMISATION

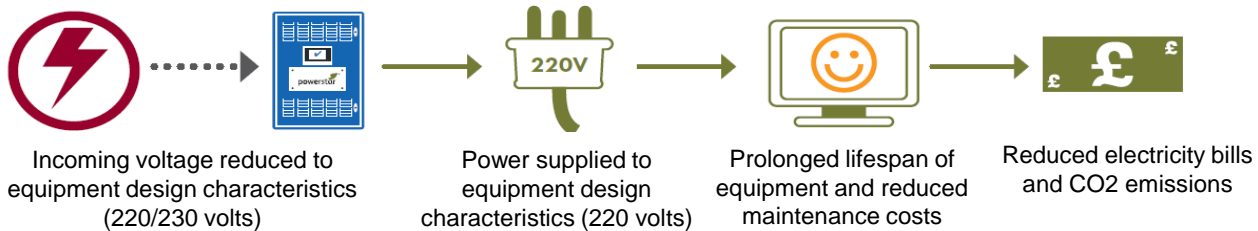
Optimising voltage levels to a controlled, stable level at a site will not only reduce the cost of energy but also enhance equipment performance, prolong equipment life, reduce maintenance costs, and reduce carbon emissions.

Due to the patented design of Powerstar, a third control winding is used to create negative power (back EMF) whereby any excess voltage is subtracted and sent in the direction of the supply. This ensures only around a tenth of power is transformed, resulting in reduced voltage and current. Below is a simplified diagram explaining the difference between normal electricity consumption and optimised electricity consumption.

NORMAL ELECTRICITY CONSUMPTION



POWERSTAR CONTROLLED ELECTRICITY CONSUMPTION



THE POWERSTAR ADVANTAGE

In addition to the direct benefits voltage optimisation technology delivers to businesses, there is a range of additional benefits that implementing Powerstar technology provides, these include:



No moving parts: Powerstar's technology has been designed to a specification that means it contains no moving parts.



Maintenance free: As a result of no moving parts, Powerstar system's are a maintenance free solution.



15 year warranty and 50 year expected lifespan: The extensive warranty period of Powerstar's solutions offers peace of mind and supports the high performance of the asset which has an expected lifespan of 50 years.



Guaranteed savings: Following analysis of site data, Powerstar provides a detailed proposal underpinned with a 100% savings guarantee based on the percentage of kWh savings the system will provide.



Transparency of performance: As energy and carbon reporting increases in importance, Powerstar has developed its own remote monitoring platform that displays all the key performance data of the system on one easy to use platform which can be accessed from anywhere with an internet connection.



Concept to completion: As a business with an engineering core, Powerstar's in-house capabilities span the entire project lifespan from data analysis to post-sales. The team of experts are fully trained to design, build and commission systems and the after-sales team are available for any post-sales support that may be required.

It is our belief that energy saving assets should complement the activities of the site and add value opposed to adding additional work.

GROWING CHALLENGES FOR ENERGY MANAGERS

In recent years, growing demands for businesses to lower carbon emissions, coupled with rapidly rising energy costs, is increasing pressure on energy managers to find a solution to both sides of the problem.

Since autumn 2018, many fixed term energy contracts have been renewed. As a result, businesses are being exposed to significant rises in energy costs. According to a leading UK energy broker, a typical manufacturing site is expected to see a 51% increase in energy costs within 3 years if they don't take action. This heightens the requirement for businesses to maximise savings to keep operating efficiently and profitably without passing cost increases to customers. One well-established technology that delivers significant consumption and cost savings is voltage optimisation.

THE BENEFITS OF POWERSTAR

The savings to both energy consumption and energy costs that Powerstar's range of voltage optimisation solutions provide have benefits across an entire business. The lower energy costs strengthen a company's bottom line in addition to the optimised voltage enabling electrical equipment to lengthen its lifespan, reducing the costs of capital replacement.

Additionally, the electricity consumption savings will protect a company's CSR and wider reputation due to the company becoming more sustainable as a result of lower energy use. This lower energy use also inevitably leads to a cut to the company's carbon footprint and will therefore assist in a business' aims to achieve carbon neutrality. Therefore, Powerstar offers a complete solution for optimising the use of energy for businesses, especially high energy users who will feel the impact of rising energy prices the most.



SAVE
ENERGY COSTS



PROTECT
CORPORATE SOCIAL
RESPONSIBILITY



REDUCE
FINANCIAL RISK



CUT
CARBON EMISSIONS

POWERSTAR SAVINGS & VERIFICATIONS PROCESS



Savings from all Powerstar systems are 100% guaranteed, with analysis based upon International Performance Measurement & Verification Protocol (IPMVP) and is carried out via the steps outlined below.



STEP 1 Compares 28 days pre install kWh data against 28 days post install kWh data

STEP 2 Compares 28 days post install kWh data against the same dates a year previous (pre install)

STEP 3 Compares 84 days (12 weeks) post install kWh data against the same dates a year previous (pre install)

STEP 4 Involves a regression analysis. An accurate model is created based upon pre install kWh consumption data and variables such as temperature

STEP 5 A verification providing a snapshot of the savings achieved from the negative power (back EMF) generated through the patented Powerstar design.

Verification of savings continues to be important to evidence return on investment as well as to ensure the technology is performing as expected. In addition to the IPMVP process, Powerstar offers a remote monitoring platform that enables energy managers to view the performance and savings in real-time from anywhere with an internet connection.



As energy prices continue to rise, efficiency savings from Powerstar will increase over time.