

Securing the future at an historic building

Why it is interesting: Having played an integral part in the past, our historic buildings now have modern day problems, such as the need for energy conservation and carbon emissions targets. This case study demonstrates how **powerPerfector** works with historically important and protected buildings to ensure that the integrity of the building is maintained whilst environmental improvements are put in place.

Westminster Abbey

Annual Savings

kWh:	72,467
CO ₂ kg:	50,600
£:	8,400
Av. saving %:	12.3
NOx kg:	82

Don't take our word for it...

"The units were installed in late 2011 and the savings we were guaranteed have been independently assessed and found to have been exceeded. The performance guarantee meant no risk on our part and I would recommend the system to anyone."

Jim Vincent
Clerk of Works

WESTMINSTER  ABBEY

Further information

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When your destination is referenced by a recorded message on the London Underground as a key tourist destination, you know you are visiting somewhere special.

Westminster Abbey has been the coronation church since the Battle of Hastings, is the final resting place of 17 monarchs and has played host to 16 royal weddings.

Oliver Cromwell, Isaac Newton, Geoffrey Chaucer and Charles Darwin are all buried there.

It is a UNESCO World Heritage Site because of its special cultural significance, and was the UK's top paid for visitor attraction in 2009.

As an operational church, it is committed to The Church of England's challenging carbon reduction target of 80% by 2050, with an interim target of 42% by 2020.

As a result, the Church of England is actively seeking energy saving measures. The challenge is exacerbated by the need to protect the historical and cultural significance of buildings such as the Abbey.

"Our World Heritage status and importance rules out intrusive measures such as solar panels and wind turbines, so we examined numerous energy savings measures, but needed something that would not materially change the building," explains Jim Vincent, Westminster Abbey's Clerk of Works. *"The Abbey chose **powerPerfector** because it was non-intrusive and promised excellent savings."*





Ideal Loads

powerPerfector Voltage Power Optimisation units were installed on the incoming supply for the Blowing Chamber, which circulates air around the Abbey and the Floodlighting Cabinet which, as the name

suggests, keeps the Abbey illuminated at night.

The types of electrical loads at the Abbey are well suited to VPO®. We see good savings from most lighting, air conditioning and chiller loads, whilst the long operational hours increase the level of savings.

The **powerPerfector** reduces the voltage 'pressure' on equipment. As a result, electronic equipment and motors will be subject to reduced wear and tear and an improved lifespan. The financial benefits of not replacing equipment are difficult to quantify, but anecdotally our clients suggest a maintenance spend reduction of 10 per cent is not uncommon.

Specialist Delivery

As part of the installation, one of the units required a customised enclosure (6cm smaller than standard) in order for the unit to fit underneath the existing trunking.

The installation in the Blowing Chamber required a delivery down 14 stairs just 70cm wide.

We worked with a specialist logistics company, who used an A-Frame and hoist to deliver the **powerPerfector** in individual component parts. The unit was delivered, reassembled and positioned in the chamber without incident.

Valuable Savings

The installation of two **powerPerfector** units at the Abbey ensures that the supply is more efficient and secure. It will cut bills by over 12 per cent, saving approximately £8,400 a year. Carbon emissions are reduced by over 50 tonnes every year.

Aside from the energy savings, VPO® also provides power conditioning benefits in the form of a reduction in harmonic distortion, transients and three phase imbalance.

Jim Vincent, Westminster Abbey's Clerk of Works, said: *"The units were installed in late 2011 and the savings we were guaranteed have been independently assessed and found to have been exceeded. The performance guarantee meant no risk on our part and I would recommend the system to anyone."*

A history of historic buildings

The Abbey is not the only historic building in London benefitting from VPO®. Two units are installed within the Tower Of London, the most popular paid for tourist attraction in the country.

Access for the installation of two 830 kVA units was across a cobbled, Dickensian Street, where the Yeoman Warders and their families live.

The Tower has twin supplies. Units were installed on each in turn, so as to maintain the power supply to the site and ensure the alarm systems on the Crown Jewels were not compromised.

The Tower opted for a busbar arrangement despite the higher costs and longer pay backs

this would mean. In historic buildings that have been standing for a 1000 years you want the best, most solidly engineered solution, which is why the Tower chose **powerPerfector**.

The Tower is now saving 11 per cent in kWh consumption, equating to £26,555 and a reduction in CO₂ emissions of 168 tonnes every year.

Tony King, Head of Maintenance and Facilities, said: *"We have been delighted at the Voltage Optimisation at the Tower of London. Having independently assessed the performance of the technology it was shown to have met the expected savings."*

There are a range of case studies and client testimonials available on our website, please visit www.powerperfector.com for further information.