

# Case Study #24

Voltage Power Optimisation



## Energy savings take flight at Brize Norton

**Why it is interesting:** With an estate valued at nearly £20 billion, with some 4,000 sites including airfields, naval bases and barracks the MOD has an energy challenge that dwarfs almost all other organisations. It is estimated that £2.9 billion is spent every year on running the estate.

### RAF Brize Norton

#### Annual Savings

|                     |        |
|---------------------|--------|
| kWh:                | 10.5%  |
| CO <sub>2</sub> kg: | 95,500 |
| £:                  | 14,100 |
| Payback:            | 25mths |

Don't take our word for it...

"powerPerfector may be just one part of our sustainability drive, but it's helping us achieve big results."

Major Leigh Jackson  
Facilities Manager



#### Further information

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RAF Brize Norton in Oxfordshire is the largest station in the RAF with approximately 6,000 service personnel and 1,400 Ministry of Defence (MOD) civil servants and contractors working at the site. It is the home of the Air Mobility Squadrons and, as the main airport used for deploying UK troops Worldwide, Brize Norton is the 'gateway to operations'.



The MOD itself has an estate valued at almost £20 billion, with around 4,000 sites across the UK. Many of these sites hold energy intensive equipment ranging from large machinery to computer systems, plus accommodation and staff services.

The cost of energy required to power Defence equipment runs at £450m per year.

Couple this with the fact that the MOD is under pressure to reduce spending due to public sector cut backs and the need to become more energy efficient is clear. If MOD sites can reduce energy spend, it will go a long way towards hitting its financial targets. Not only this, but they take a giant leap towards meeting the MOD's Greening Government Commitment to reduce greenhouse gas emissions by 25 per cent by 2015.

As such, the MOD faces an energy challenge unparalleled by most other organisations. As its largest station, RAF Brize Norton is at the centre of this.

#### Starting up the sustainability engine

In 2011, RAF Brize Norton identified the need to overhaul its utility management systems to help achieve the required energy and,



ultimately, cost savings. The station was under added pressure because energy savings were required to be hit within three years. Core management decision makers at Brize Norton discussed the challenges and identified where energy could be saved. During this audit, it was acknowledged that some technologies were operating at too high a voltage. Brize Norton is not alone in this problem - around 90 per cent of UK buildings use more electricity than needed because the incoming voltage is too high, meaning they overpay for electricity by 15 per cent and emit up to 15 per cent more CO<sub>2</sub>.

Figures like this prompted Brize Norton to look at voltage optimisation technology as a way of improving the station's sustainability. Having done industry research into such technology, management identified **powerPerfactor** as the right partner to achieve the energy and cost savings required, with the station's in-flight catering function and traffic control centre chosen to be fitted with **powerPerfactor** technology.

The decision was based largely on **powerPerfactor**'s proven track record across various public sector organisations. For example, **powerPerfactor** provides Voltage Power Optimisation (VPO) technology to 28 separate government departments including Ofgem and The Department of Energy & Climate Change (DECC). Its VPO® technology can cut energy use by up to 15 per cent, reduce carbon emissions by a similar amount and prolong the life and reliability of all electrical equipment in premises – exactly the kind of savings Brize Norton were aiming for. The delivery of this technology is backed up by an industry-leading appraisal, project management, engineering and evaluation process.

As Major Leigh Jackson, Facility Manager at RAF Brize Norton explains, "We knew voltage optimisation technology would help us meet our sustainability targets and of course help us cut costs as a result. What made **powerPerfactor** stand out was the fact that we could see a clear journey – from initial audit of our systems to installation and the energy savings. We knew **powerPerfactor** would work with us from day one and help us achieve our targets. It gave us confidence that, with **powerPerfactor**'s on-going guidance, we would be able to drastically reduce our energy usage within the three year time limit."

### Rising above the energy clouds

Since installation in 2011, **powerPerfactor**'s technology has been monitoring energy saved in both the in-flight catering production and traffic control area of RAF Brize Norton. Although still awaiting confirmation of savings at traffic control, the results from in-flight catering have been significant and have given Brize Norton even more confidence in the **powerPerfactor** technology.

In just over two years, RAF Brize Norton has achieved savings of 10.5% kWh, 95,500kg of CO<sub>2</sub> and an estimated financial saving of over £14,000 per year. These savings have in fact exceeded expectations with Brize Norton setting a target of eight per cent kWh savings – meaning actual results are over two per cent higher than anticipated. Following the success of this project, the station has since bid for £2m funding to further invest in sustainability with a view to saving more and more energy in the coming years.

"We're delighted with the results so far – especially given they were achieved well within the three year deadline," commented Major Jackson.

"The success has driven us to look at how we can extend the sustainability programme to other buildings and we've applied for the funding to do this. **powerPerfactor**'s technology has shown us that investing now will mean savings later. In fact, the project has been such a success that we were awarded the MOD Energy Award in 2012.

"Brize Norton is the largest station in the RAF and we want to lead by example. **powerPerfactor** may be just one part of our sustainability drive, but it's helping us achieve big results."

There are a range of case studies and client testimonials available on our website, please visit [www.powerperfactor.com](http://www.powerperfactor.com) for further information.