NHS
Sustainable Development Unit

# Case Study

ENERGY

NORFOLK AND SUFFOLK NHS FOUNDATION TRUST


**Saving carbon saves money. And one way of making those savings is for NHS organisations to reduce their energy bills by supplying their equipment with a voltage at an optimum level.**

Voltage power optimisation gives energy, cost and carbon savings by conditioning the power and bringing a site's voltage to 220V. By optimising the voltage, electrical equipment runs better and consumes less energy.

Already more than 30 NHS organisations are reducing energy costs and carbon emissions in this way.

**Norfolk and Suffok NHS Foundation Trust is the result of a merger between Norfolk and Waveney Mental Health NHS Foundation Trust and Suffolk Mental Health Partnership NHS Trust.**

**The organisation provides mental health, child, learning disability and eating disorder services for people living in Norfolk and Suffolk and employs more than 3000 people. The FT decided to optimise its voltage supply after it was found that the supply coming onto site was too high.**

## How does voltage optimisation improve sustainability?

Electrical equipment is designed to run at its most efficient at 220V however the UK average supply level is 242V.  It is estimated that 90% of sites in the UK are operating at this higher voltage.

This leads to significantly higher energy consumption, increased heat losses and a reduced life span for electrical equipment.

So if an organisation can optimise voltage to 220V and condition the power, then it can save money, reduce carbon emissions and improve the operation and lifespan of its equipment.

## Carbon and financial savings

The environmental and financial savings depend on the size of the trust and how widely the technology is used across the organisation.

**Norfolk and Suffolk NHS FT** is currently reducing its average energy consumption by more than 11% saving 163 tonnes of $CO_2$ per year and more than £23,000.

**Sheffield Teaching Hospital** is reducing its energy consumption by more than 8% and emissions by 239 tonnes while saving £45,000 a year.

**Oxford Health** is saving more than £16,000 a year along with 115 tonnes of $CO_2$

**Billericay Community Hospital** is making annual financial savings of £2,000 and carbon savings of 11 tonnes.

**Robert Forster, Estates Manager at Norfolk and Suffolk NHS Foundation Trust, says:**

**"The first assessments show that we have at least met, or even slightly improved on the initial energy saving predictions, leading us to look at further installations in some of the Trusts other properties. Together with other initiatives the installations are helping the Trust move towards meeting its Carbon Reduction Commitment."**

**One firm which installs the units says:**

**"Some medical staff worry about their equipment working correctly at an optimised voltage level, however several companies have confirmed that their equipment works normally and benefits from the power quality improvements afforded by the units."**

## Any difficulties?

The biggest challenges have been around ensuring that the power supply is maintained at hospital sites while voltage power optimisation units are installed.

This has been accomplished by operating back-up generators onsite or arranging for mobile generation to be brought onsite while final connections are made.

## Success factors?

Carbon savings mean organisations can improve the Display Energy Certificate ratings of sites and reduce expenditure under the CRC scheme.

Sensitive electronic equipment, such as operating systems for MRI and CT scanners, can also be protected by the power quality improvements afforded by the units which reduces equipment maintenance and replacement costs.

**Further Information:**

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