

Voltage stabilisation and renewable energy

VS (voltage stabilisation) may not be the most familiar acronym to businesses, but it soon will be. **Duncan Biggins** of e-efficient Energy explains why VS is becoming essential as the UK's power networks change for the greener.

Voltage stabilisation (VS) is about stabilising the UK's mains-voltage supply so that firms' equipment and plant aren't damaged by mains voltage peaks, troughs and surges.

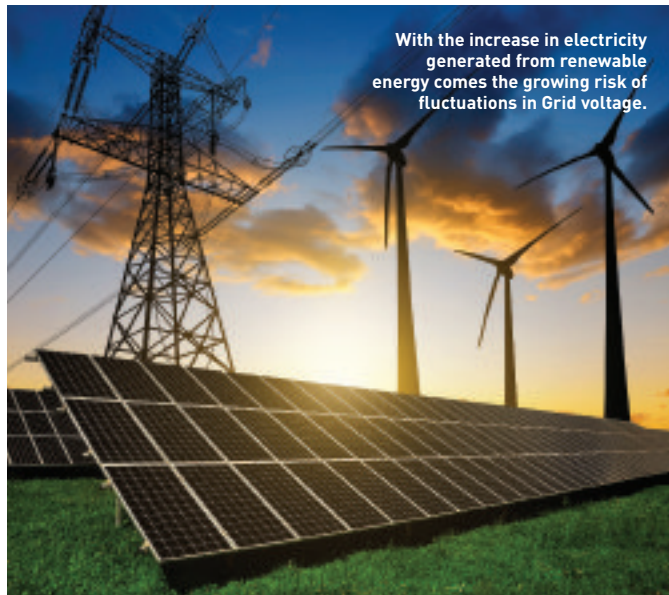
This is more and more relevant as the UK mains voltage becomes ever more volatile. This is largely because of the increasing mix of renewable-energy sources coming onto the Grid and the forthcoming closure of aging nuclear and coal-fired power stations.

The problem is this; renewables aren't always 'on', because the Sun doesn't always shine and the wind doesn't always blow.

But when wind does blow, power peaks, then troughs when it drops. This causes mains-voltage fluctuations, and these feed straight into your kit — be it a computer or a blast furnace. Peaks and troughs in voltage level can seriously damage equipment and reduce its lifespan.

For the first time on record recently, wind turbines generated more electricity than was used in the whole of Scotland on a single day.

That's great news, but it shows the extent to which renewables are now powering the UK, and thus the extent to which Grid fluctuations



With the increase in electricity generated from renewable energy comes the growing risk of fluctuations in Grid voltage.

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“Peaks and troughs in voltage level can seriously damage equipment and reduce its lifespan”

are a real danger. Mains stability is essential, and the best way to deliver it isn't to wait, it's to install voltage-stabilisation equipment yourself.

Every single piece of equipment, from lighting to freezers, production plant or computers, all

are affected by mains voltage. Keeping voltage safe and controlled across your estate is essential.

The switch to VS is happening across the world, in tandem with the renewables revolution. But how does it actually work?

Voltage-stabilisation systems use latest-generation semiconductors to control the output from specially designed multi-tap transformers. These provide plant and equipment with stabilised voltage, smoothing out peaks and dips from the Grid before they hit your essential kit. The e-ST voltage stabilisers can be designed to accept an exceptionally wide range of voltages (-65 <+45% of a 400 V nominal voltage).

The solutions are specifically designed for use in areas where the electrical supply grid is prone to sudden changes such as spikes or sags (500 V/s rates of change). Right now, that's most of the UK.

Voltage stabilisation is an essential investment for every business. You simply can't afford for peaks in voltage from the mains to damage and shorten the lifespan of your crucial business assets.

However, voltage stabilisation can simply and affordably prevent this from happening. We are really keen to see renewables coming online in the UK; our role is to enable this transition by making the power they generate reliable and safe for end users.

Duncan Biggins is managing director of e-efficient Energy.

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