

Full pints and no froth

Before the Campaign for Real Ale more froth than liquid fizzed into your pint of beer. It's much the same with voltage optimisation and the time is right for change, says *Gary Vizard*

VO has often been sold as a magic box: Site conditions are so variable that, without proper site surveys, it has become apparent the off-the-shelf VO just won't deliver. In some cases, the boxes literally don't fit in the space available! That's an expensive lesson for companies that don't do their due diligence!

These days a hand crafted, engineering-led solution does more than simply reduce your bills. It's as much about controlling and protecting your equipment, as saving money and avoiding extra charges.

Circumstances have to be right to make voltage management worthwhile and give you the best return on investment. For example, the site's initial voltage must be high enough to be worth reducing. It should be an easy win. European kit is standardised for voltage delivery at 220V. With a UK average of 242V you can see an instant reduction of 22V – a large reduction in power usage would follow, great potential in cost terms – without much thought.

And there's the risk. Anyone can reduce the voltage as much as possible to engineer savings (in an attempt to sell kit). There has to be a realisation you can't do this in isolation – VO always has an impact on something else, and you have to mitigate those effects where they aren't positive.

Mis-selling of VO

Here's a case study: A rival energy "management" firm told a large manufacturer they could stop using power factor correction because "the VO would solve that issue." How wrong could they be? Further down the line, the company suffered thousands of pounds of reactive charges on the electricity bill. When the PFC was turned off, efficiency plummeted. The VO had been mis-sold as being a cure-all.

Imagine that pint of beer again. Pour it too quickly and you get a load of froth. You can't use the power if the machine is not working at the right efficiency level; it's like paying for



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too much of that froth. Correct how it's poured, how the beer is supplied and the quality of it, then all your equipment is much happier.

You need both VO and PFC for full impact. Full three-phase logging to survey the site means knowledge of the variations and guaranteed savings. Carefully measuring the current ensures any equipment is sized correctly. If VO equipment is too small for the load (put in as a means of keeping the cost down) it will fail. If

you get the rating wrong on the cables, you'll have some very nasty crisp fried electrics with your lousy beer! It still happens.

An accurate site survey tells you types of loads that we are looking at, from lighting to motors to heating. Each has a different saving level; without knowing what they are, you can't accurately predict the cost reductions that will accrue.

If you get it right, paybacks can be excellent, often less than two

years. Then you go on saving for 20-25 years, with the added benefits of your equipment staying cooler, being protected against power surges and therefore lasting longer. This unquantifiable extra is of serious value to most businesses.

Wasted procurement effort

Check the engineering issues around installation. Simple physical issues about where the kit can go – just looking at the space – can save a lot of time and wasted procurement effort. EnergyAce may be unique in being engineered to fit in smaller spaces – typically the equipment is bespoke. Each unit fits individually, from the roof of the pub, to a cabinet in the bottle store. What space do you have? Others may not be bespoke or small enough

With so many different variables on a site and the massive range of possible applications, power quality is now more of an issue than ever before. You can't simply apply voltage reduction if it already risks going too low. If the power quality is erratic, you will need to smooth the flow to reduce peaks and troughs, rather than implementing a fixed reduction. Modern engineered Voltage Management systems are more viable and better engineered than previously. We can more reliably offer more cost reductions, without the hassle once prevalent in the industry.

The above were all serious issues in the early day of VO, when the equipment didn't have the control modern counterparts now provide. Just to mention - downtime isn't a big issue if the work is done well.

Remember, whatever you design on paper – in practice it never works that way! It's really important to walk round the pub, the hotel, the office, the manufacturing site and check out all the details.

Magic boxes... aren't magic! Who remembers the awful beer marketed by the slogan "Double Diamond works wonders?!" It didn't work wonders and it left you with a nasty hangover. Double Diamond is gone. Let's hope awful VO goes the same way!

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