

## Straight Talking – It's not easy being Green

By Clive Longbottom, Service Director, Quocirca Ltd

Green is the new black, it would seem. With many organisations now trying to 'out-green' the competition, we are rapidly running into the problem seen with the majority of bandwagons - just how real are some of the arguments coming in from the vendors on the topic?

Rationalising hardware and consolidating data centres are definitely ways of lowering power utilisation, to a small extent, but the messages have been played many times over with a different slant - whether for the rising cost of real estate, the higher costs of hardware in the past or the promise of saving on licence costs.

Changing chip designs may lead to greater power savings but is hardly a retro-fit option, and replacing a few thousand servers before they need to be replaced can hardly be seen to be green.

Taking power from green energy suppliers seems reasonable - but what happens if all organisations and homes did this? There is nowhere near enough green power being produced. The power vendors would say you would be investing in the creation of greener energy facilities down the line but would this be

As for alternative energy sources, the jury is still out on wind power and the promised output from such units has fallen well short of statements made before the systems were put in place. Wave and tidal power are still dreams for any reasonable amount of energy, as are photovoltaics (a method for generating solar power which probably uses up more power to create than you will get out).

The greenest means of generating centralised power may yet appear to be nuclear - providing you are willing to disassociate the long term green costs of decommissioning from those of the actual power.

No matter the source, green power still has one of the major problems as existing power - there is a lot of waste. The limits in the basic efficiencies of turning raw materials to electricity

mean 60 per cent of possible energy is already lost before we get any electricity out of a power station that uses fossil fuels. Efficiencies of wind and wave power systems are also poor, and need backing up by fossil fuel generators anyway, in case there is no wind or insufficient movement in the water.

The National Grid leads to further losses of nearly eight per cent of the remaining power through resistive heat dissipation, and further inefficiencies at substations and distribution to local points of usage account for yet more waste. Finally we get losses due to the inefficiencies of the electrical appliances themselves.

We can therefore look at around 70 per cent of energy having been lost before we get to use it, and we then waste more ourselves.

IT is estimated to use five per cent of all power and targets are set to bring this down to four per cent. This is probably better than nothing but can we do better?

Let's look at a typical office building. Within the IT data centre, the biggest expenditures are on power and cooling, alongside human resources. Strangely enough, the rest of the building also spends a lot on heating, ventilation and air conditioning (HVAC) - much of it for hot water.

Here we could look to heat scavenging to eliminate waste. Heat generated from the data centre could be used elsewhere in the building, for example to heat or pre-heat water. During the winter, the heat could also be re-used directly for space heating. Heat pumps could be used to change low-level heat to higher temperatures, either for direct heating or for driving small steam turbines for electricity, although the amounts of energy gained from a single data centre may not be viable for a whole building.

To combat the losses before electricity reaches us, we have to start looking to advanced solutions. If we could bring the power generation closer to the point of use, we could utilise the

heat generated in the creation of electricity within the building's HVAC requirements.

Commonly known as combined heat and power (CHP), such units were considered during the 1990s but haven't made much impact as power utilities have chosen to go with the lower maintenance and running costs of centralised power plant. Some large organisations (particularly within areas such as aluminium smelting and other electricity hungry environments) have demonstrated that CHP is a valid direction, though.

The transmission of gas has also become more efficient over time, with low losses. Gas powered CHP units can have overall efficiencies greater than 75 per cent, so we are more than doubling the base efficiency compared to large centralised electricity generation with no heat recovery.

Another option is for businesses to run at a fixed load and sell excess electricity and heat to the National Grid and local community (a concept known as Community CHP, or CCHP). The solution therefore not only creates greener, more efficient electricity but removes or cuts heating costs and can provide revenues for organisations to boot.

To be really green, organisations will need to move out of comfort zones and take long hard looks at traditional approaches. Tinkering at the edges will have little overall effect, whereas more localised heat and power generation can provide real impact on our overall carbon dioxide output due to electricity usage.

## About Quocirca

Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With world-wide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, mid-sized and small organisations. Its analyst team is made up of real-world practitioners with first hand experience of ITC delivery who continuously research and track the industry and its real usage in the markets.

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption – the personal and political aspects of an organisation's environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

Quocirca research is always pragmatic, business orientated and conducted in the context of the bigger picture. ITC has the ability to transform businesses and the processes that drive them, but often fails to do so. Quocirca's mission is to help organisations improve their success rate in process enablement through better levels of understanding and the adoption of the correct technologies at the correct time.

Quocirca has a pro-active primary research programme, regularly surveying users, purchasers and resellers of ITC products and services on emerging, evolving and maturing technologies. Over time, Quocirca has built a picture of long term investment trends, providing invaluable information for the whole of the ITC community.

Quocirca works with global and local providers of ITC products and services to help them deliver on the promise that ITC holds for business. Quocirca's clients include Oracle, Microsoft, IBM, Dell, T-Mobile, Vodafone, EMC, Symantec and Cisco, along with other large and medium sized vendors, service providers and more specialist firms.

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