

Dispatches October 2011 – Full Article

How Green is my Data Centre? By Ian Mills

There are many opinions about global warming, fossil fuel usage and energy consumption associated with whether or not there are links. Energy usage is increasing and a “bête noire” for such corporation energy consumption as the traditional Data Centre. In the UK now corporation that are consuming more than 60 Megawatts of power must report on that usage and their efforts to reduce their absolute carbon emission or reduction in carbon emission per unit of production. Failure to comply results in fines and so what is the BIG deal?

From an HP report on sustainability they point out that “A recent EPA report estimates that without significant improvements to both facilities and IT components, data centers will consume 100 billion kilowatt hours of energy by 2011---compared to 61 billion kilowatt hours in 2006. Gartner estimates that the manufacturing, use, and disposal of information and communications technology generate about two percent of the world's CO2 emissions. By 2020, this figure is expected to rise to three percent. “ That does not mean only a mere 3% it means at least another 1% and (just focusing on Kuwait) the capacity versus demand for electricity consumption sees capacity exceeding demand for the next couple of years until about 2015 we shall return to summer rotational cuts (maybe).

The data centres are the Bête Noire but they link to hundreds of desk top products used to access a range of corporate and Internet accessible data possibly used extensively each *day* at work. In the UK there are questions about the taxation that would be applied to the higher power consumers. The efficiency of a Data Centre can be improved by consolidating several smaller units into a larger overall construction. The larger data centres would put their head above the parapet for taxation and the Financial Time reported on 28 August 2011 that “Memset a web and IT hosting provider, had cut back plans to build its own centre in the UK due to the uncertainty of Carbon Offset taxation.” The FT article “IT Sector Fears Impact of Carbon Targets” by Maija Palmer presents a gloomy future for such development opportunities that might go to Ireland (tax incentives there) or France (cheaper electricity). But if the centres are going to be built somewhere perhaps the opportunity left is by whom with whose money.

This links to the Cradle to Grave concerns for all development if an “electric” car is cheap to run in terms of gas emissions but costs significantly in the production, maintenance and eventual disposal then score draw. (The car to watch is the new Vauxhall Ampera reckoned to be the stuff of fantasy in the real world – “an electric vehicle for everyday driving, its revolutionary Voltec propulsion system gives the Ampera up to 50 miles of battery-powered driving with zero tailpipe emissions and the extended range technology (ERT) can give you up to an extra 310 miles between re-charging.” (see www.vauxhall-ampera.co.uk) The ERT is giving you about 175 mpg from the generator that takes over running the electric engine but still with a low CO2/km emission. This will undoubtedly have been shout about at “ecovelocity 2011” and where better to stage such an event than Battersea PowerStation. So I want to bang the drum for electronics

in general and those use the IT business in particular. You might ask so why does the individual user worry about 60 Megawatt consumption figures?

So at the one small step level what can individuals do or be encouraged to do to save the planet from IT consumption of power? Well there is a useful guide for the individual or even larger company purchasing. This is EPEAT® who are from their own Mission Statement “the definitive global registry for greener electronics.” (see www.epeat.net) They provide world wide registration for environmental rating of electronic products providing environmentally sustainable manufacturing and usage. To give you an idea of why and how this will become maybe our and certainly our children’s future, Kuwait has a next generation initiative to build environmental awareness education into its curricula to change the cultural perception. The K companies (KPC, KOC, et al) have launched corporation wide projects on environmental awareness developing teams of qualified professionals in a range of areas including Green IT where the training and certification is provided by the British Computer Society. The training and examinations were conducted by Mark G. O’Neill a man with extensive experience in Best Practice Consultancy and training. He was responsible for developing the UK’s first officially accredited Green IT training course under the ISEB, Information Systems Examinations Board. But do not take my word for it go look at www.bsc.org/greenit/promo and see for yourself.

How many people tied to their screens all day leave the beast switched on all night? Oh it’s OK you might say, it goes in power saving mode and then it uses hardly any power. Such arguments do make sense as do associated ones about petrol consumption or air-conditioning setting as long as you are either not paying for the petrol or electricity or at least it is as cheap as those products are in Kuwait. How might you feel sitting in the dark a few years hence during a particularly hot summer’s night, still in Kuwait? Still not your problem? Maybe the long term goal for Kuwait cultural development is to build the environmental sustainability issues into the future generations and thus in thirty year’s time there will be a given understanding for such savings? I hear something like “Oh gee Dad why should I switch one light off, I mean like you are so boring and uncool.”

That is me the Hi-Tech nerd on the left going on (and on) about all sorts of International Standards, Best Practices and such really boring stuff. Like using a correctly fused and moulded BS1363 plug for power lines to your PC equipment rather than wedging a (DIN standard) 2 round pin plug into the square socket on the wall. No Earth connection? Well that does not matter either because the power lines do not have a circulating earth and they are a series of extension cords some of which have no earth line either. Shocking? Maybe a small but again significant increase in the overall power consumption including losses from destructive harmonic components or the dangerous heating issues in the cables. So which problem should we address first?

The average 21st century home has a wide range of items charging, on stand-by and otherwise requiring a mains connection. This can often outstrip the sockets provided in your apartment or villa and so extension leads and adapters become useful and provide evidence of capacity

limitations. It is not so unusual or surprising to find an intriguing web of wires behind some shelves or cupboard housing TV, PVR, Hi-Fi and such core components of the home electronics. Do such cover ups have any place in the office? The capacity planning of most works spaces does not keep pace with the proliferation of devices that “must” be supported. Thus power system management becomes a black art particularly when the calculations get back to the amount of power supplied to a large office block. Designed and built maybe more than 20 years ago with limited scope of individual desk power supplies. The modern desktop configuration may only mean an extra amp per desk but this with all the network services could easily result in an overload on the building transformers.

One neat solution to reducing “wander” leads that are always in the way, are not at all



aesthetic, and more often than not, they don't have enough space for plugs because adaptors are too big for them. This original and, above all, functional design known as Rozektus 3D is the solution to all these problems. Rozektus' 3D design transforms one plug into five, each on one of the Rozektus' faces so that none of the plugs is in the way of others. The concept for this cube-shaped socket was developed by Russian art collective Lebedev Studio. And, best of all, if you only need one socket, it can simply be pushed inside the wall and out of the way. From what I've managed to find out, it is now available only as the DIN

standard (European) shown here!

The workstations on people's desks can be the tipping point but still the company's data centre and associated peripherals make the biggest impact. Such peripherals include the air-conditioning, lighting, fire-protection and security. In the home and at work there is a tendency to over provide services where a focus other than cost would be needed to reign in what in the UK government has very recently been described as “‘Obscene’ sums ‘wasted’ on government IT” as reported by Nicholas Timmins, Public Policy Editor in the FT on 28 July.