



Hotter planet, colder flat

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Editor of *Distillation* Colin Leverett has a bright idea and offers his alternative (and, yes, he is serious) viewpoint

"There are six light bulbs in the ceiling of my flat. Four 100W and two 60W incandescent, traditional light bulbs.

You know the sort: the ones that switch on whenever you have a good idea. But with so-called "energy saving" light bulbs, a good idea would be to leave them off.

My gripe with mercury-filled, dismally coloured, slow-to-start compact fluorescent bulbs has its basis in science. They don't save energy.

They convert electricity into light more efficiently, yes. For every 15 Watt electricity I might get as much as 5 Watt light, compared to 100 Watt electricity for a similar brightness. Brilliant.

But the worry for me is that I used that other 95 Watt. It isn't wasted. The energy that doesn't become light becomes heat. That heat gets dissipated into my room and it warms my pad very slightly.

I know this because my bedside lamp sits right next to my excessively complicated radio-controlled alarm clock weather station. When I wake up, I switch on the lamp and fumble about for my specs. By the time I roll out of bed, the temperature above my bedside table is a degree or so higher.

If my lights aren't heating my house, then something else will have to. I never wake up under my duvet and think "It's too warm to stay here, let me get up and open a window." Even if I did think that, I would open my curtains, let in the natural light and switch my lamp off.

And in the long winter evenings, those light bulbs are keeping my heating bill down. My reading light is helping to trip my thermostat a tiny bit sooner. They are six tiny little radiators."

WORK IN PROGRESS



Ian Barry

Serious risks of climate change are beyond dispute, but too often the focus is on the problem and not the solutions. Dstl's Energy Action Plan has been derived from Government strategies to reduce carbon emissions. *Distil* meets a man with a hand in the plan.

It was the screen saver on Ian Barry's computer that alerted *Distil* to the fact that not only is this man passionate about energy, he is obviously full of the stuff too. Ian is Dstl's Energy Manager and the picture showed him on one of his regular sailing jaunts. Not for the unenergetic, *Distil* is told.

Ian has been in post for six months working for Saturo Controls, a building management systems house, sub-contracted by Serco. He is at the forefront of energy management at Dstl, which is, he is quick to add, "passionately driven by Dstl Estates".

Saturo specialises in the design, commissioning, engineering, management and maintenance of Building Management Systems (BMS). Ian has so much passion for energy management at Dstl, telling *Distil* all about the BMS at Fort Halstead, which gathers data about Dstl's energy usage, and how Sigma software interacts with it to analyse our energy consumption. Graphs, charts, targets, numbers: it quite sapped *Distil*'s energy just learning about it all. But it brought it home that as an organisation, we need to understand what we can do to make a difference.

When Ian started in his role, he realised that our Dstl Energy Action Plan was out of date and that we had to collect more up-to-date data. SHEF Environment Co-ordinator Tim Weaver and Ian modified the whole document and it now sets out a series of actions that Dstl must achieve to meet Government plans.

The ten biggest energy users on each site will be profiled, using sub meters, with the aim of showing evidence that energy consumption has significantly reduced

Among the objectives in the plan is the need to analyse energy usage data from across Dstl's three core sites. Fort Halstead was chosen for this analysis first because much of the metering infrastructure was already in place due to the split between Dstl and QinetiQ. It began with meters in individual buildings to identify energy usage.

Pete Endersby, Site Manager at Fort Halstead, explains: "Fort Halstead is the site where all the initial work has gone ahead and it's proved to be exceptionally successful. That's why it is being rolled out across all the other sites. With metering in place we identified one particular building here at Fort Halstead that was using 20 or 30 per cent of the entire site's electricity.

"Ian identified that the controls on certain pieces of equipment were wrong and the machines were just chugging along 24 hours a day. Thousands of pounds worth of controls were put into the building – which is an expanding, national facility and great for Dstl – and we cut down the energy usage by about 50 per cent."

Ian adds: "It was initially costing about £2,000 a month in electricity and the latest report I have done shows it is now down to £1,000 a month. We talked to the clients and asked them how they were using the equipment too and the next step will be to ask if they need to keep the equipment on 24/7. That is just one plant here. There are many more at Porton that will be checked out."

Some of the buildings at all our sites use a great deal of power and all of these will be looked at when data metering is put in place. It is a Spend to Save project. Often this outlay can pay for itself within a year but the big win is that energy consumption has been reduced.

At Porton, the products are being procured for the lighting controls and metering is being added to identify top users. Data will also be collected from Portsmouth West and eventually all that data will come back to Ian who will be able to analyse it and draw attention to those places where energy consumption is too high.

Dstl's new build at Porton Down and the major refurbishment at Portsmouth West are set to meet the Building Research Establishment's Environmental Assessment Method (BREEAM) 'excellent' and 'very good' standard respectively. This takes account of a wide variety of environmental issues. The building's energy related carbon emissions will be in line with new Part L requirements of Building Regulations.



Dstl is striving to meet its obligation to using, or generating, ten per cent of its energy from renewable sources

Ian is also keen to see how Dstl's renewable energy projects are going to roll out. Our core sites are categorised as major energy-using establishments emitting more than 500 tonnes of carbon per year, with Fort Halstead and Porton Down among the top 30 carbon emitters in MOD. If we could start using reusable energy it would make a difference and there are moves to look at wind power.

Ian says: "Portsmouth West is probably ideal as Porton may have problems because of the flight paths nearby. Planning permission will be a consideration as there can't be any civilian dwellings within 500 metres of a turbine. But whatever site, there will be significant challenges."

Last year, Fort Halstead had some of its Department graduates look at renewable energies there, looking at things like wind turbines, photovoltaic (PV) systems, borehole heat pump recovery systems and harnessing the water. However, most of it was discounted because it was not practical. However, it makes interesting reading (available on the Dstl intranet on i link. Search for Dstl/TR19830) and suggests that there are financial paybacks to be gained.

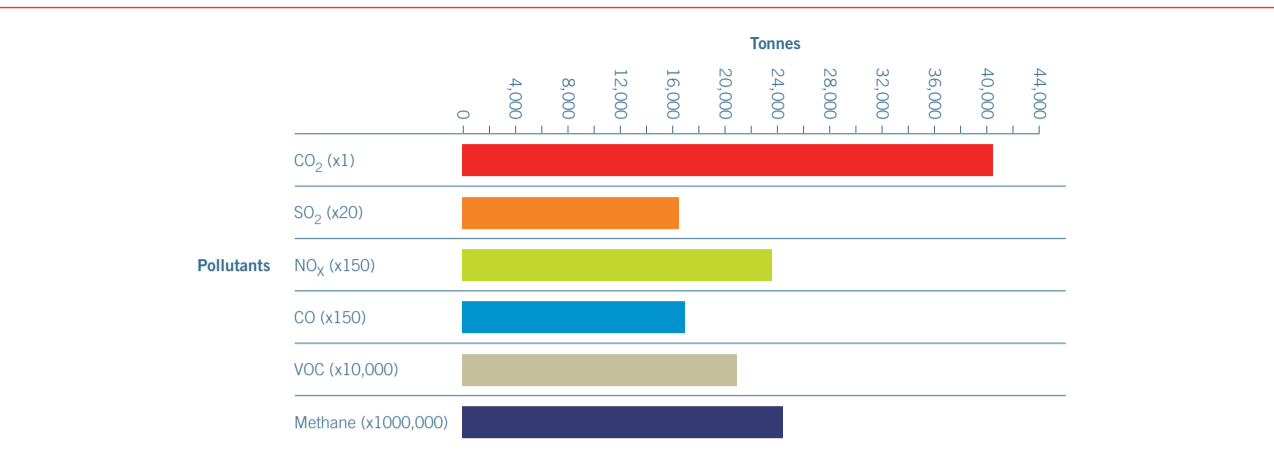
By the end of June, Ian has to inform Dstl's Corporate Social Responsibility team what Dstl's targets are for energy consumption and emissions. The Energy Action Plan will eventually have target levels incorporated within it when more data is achieved.

Energy awareness

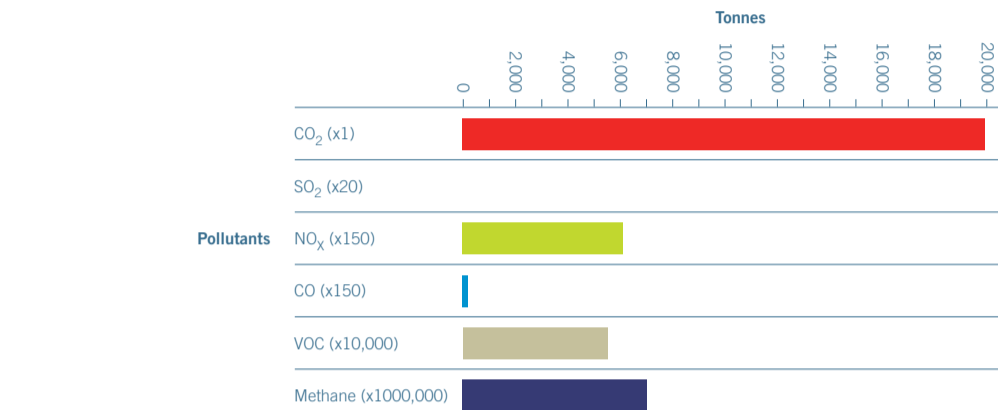
"It is all about energy awareness," says Ian. "I think in this organisation of scientists, mathematicians and engineers, hard data is going to be what makes people sit up and take notice and I am getting a lot of people showing an interest in what we're doing. You only have to look at these graphs to see what can be achieved."

Ian concludes: "We've got an action plan here and we've got to get all the actions completed. It is very much work in progress at the moment but we will meet our obligations."

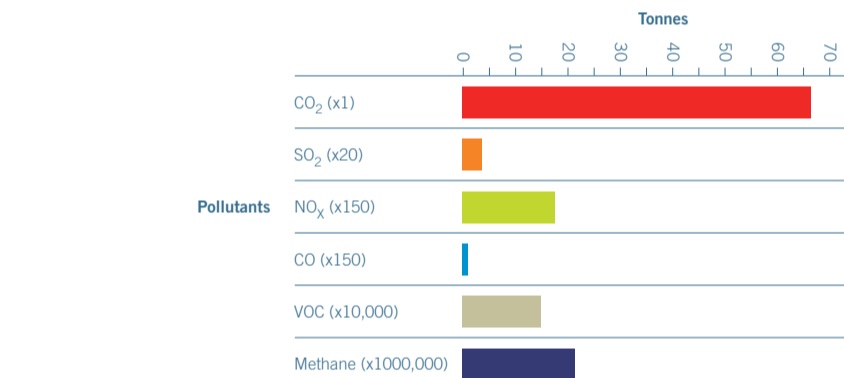
Dstl has learned that there is more to Dstl Estates than meets the eye. There is some really exciting cutting edge work that is being done to bring Dstl in line with commercial standards and to save money, not to mention resources. It would seem that Estates and the Energy Management team is fully committed and it has a real will to make sure that what Dstl is getting is the best use of our energy.



Emissions for channel and total for gas. Two-year period: Jan 2005 to Dec 2006

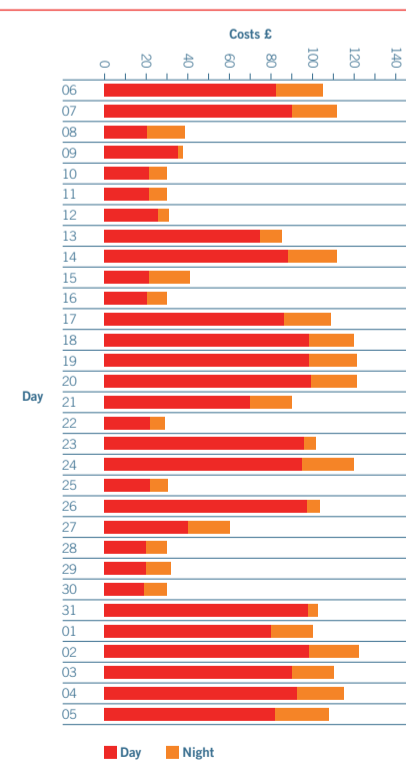


Emissions for channel and total for oil. Two-year period: Jan 2005 to Dec 2006

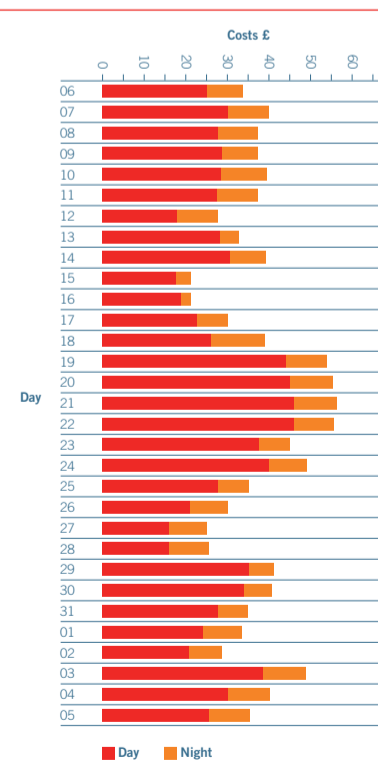


Emissions for channel and total for electricity. Two-year period: Jan 2005 to Dec 2006

Pollutants from each major fuel or utility emitted from Dstl's three core sites



Fort Halstead Monthly Energy Report from 6 Aug 06 to 5 Sept 06
Total Cost: £2,398.95



Fort Halstead Monthly Energy Report from 6 March 07 to 5 April 07
Total Cost: £1,145.73