

# Your energy efficiency will be rewarded

## Report on the 3rd BSI Annual Cleanrooms Conference

Joe Ridge

In April 2010 the mandatory Carbon Reduction Commitment (CRC) Energy Efficiency Scheme, came into force under the Climate Change Act of 2008. This is part of the government's policy to save energy and reduce carbon emissions. But has it any relevance to cleanrooms and sterile production?

This was one of the questions put at BSI's Annual Cleanrooms Conference in London on June 9th. The Conference had the theme of regulatory compliance and energy management. During the morning it became clear that the main focus was on energy saving and reducing the impact on the environment.

Tony Harrison, Life Sciences manager for Pharmagraph and a BSI technical expert kicked off the conference by emphasising the need for compliance with standards. He described the draft changes to ISO 14644-1, stimulated by the current statistical approach to air particle counts. For example, the current classification includes single figure concentrations that need huge sample sizes – these will be removed. And there will be a warning about the remaining low concentrations that still require large sample sizes.

Tim Eaton, sterile manufacturing specialist at AstraZeneca, then launched the main conference theme of energy saving by pointing out that HVAC control parameters, developed in the 1960s for the electronics industry, have not been tailored for the pharmaceutical environment. He said there is a gathering momentum to establish and implement energy saving measures for cleanroom users. One example that he mentioned was the successful use of 0.3 m/s airflow

velocity in unidirectional airflow systems, instead of the 0.46 m/s normally expected by the regulators. This gave a spectacular 'square law' reduction in power consumption. Another potential saving could be by reducing the specification of HEPA filters which were, in his view, much more efficient than really needed.

### The CRC Energy Efficiency Scheme

Coming back to the CRC Scheme, this offers even more than energy saving and reducing the impact on the environment. Brendon McManus, managing director of Clean Air Technologies showed how the Government has created a double incentive for the 6,000 UK companies who have at least one ½-hourly electricity meter and an electricity supply of at least 6,000 MWh (£500k) per annum: the Government will pay these companies money to save money, he said.

The scheme will work as follows: Companies will first have

to register (there's a heavy penalty for non-registration) and then monitor their emissions. They will then purchase allowances to emit carbon dioxide. The more CO<sub>2</sub> an organisation emits, the more allowances it will need to purchase, the current cost being £12/ton. The revenue raised by the sale of allowances will be "recycled" to participants according to the amount of energy they save. In addition, the participants will be placed in a league table based on year-on-year energy reductions and the better performers will get an addition bonus.

So what's all this got to do with cleanrooms? A lot, apparently. Apart from the incentives and penalties of the Scheme outlined above, in the pharma industry for example, 25% of energy consumed is on processes, 10% on lighting, whereas 65% is used on heating, ventilation and air-conditioning.

The problems are that cleanrooms have to operate 24/7, there are regulatory requirements for environmental parameters,



## 3<sup>rd</sup> Annual Cleanrooms Conference

### Regulatory compliance and energy management

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there are large air change rates and HEPA filters have a high resistance to airflow. In these lie some of the means of reducing energy requirements, as already demonstrated by Tim Eaton.

### BS EN 16001

One reason for the meeting was to discuss the new European Energy Management Standard BS EN 16001:2009. Its key purpose is to provide guidelines on improving energy performance in a systematic way. Trevor Floyd, principal consultant of the Tenby Consultancy Group, advised the audience to first read the BSI Standard, then visit the "Self Assessment" modules on the BSI website, consider how energy is currently measured, identify improvement opportunities and finally start saving on energy, costs and CO<sub>2</sub> emissions.

In the following discussion session, the audience was asked whether they thought BS EN 16001

appropriate for cleanrooms. The answer was affirmative. As Tim Triggs, director of DOP Solutions, who led the discussion, enthused: Get excited by energy saving – there is big money to be saved and made!

### More on contamination control

Dick Gibbons, a Chartered Engineer and a long-standing BSI committee member, discussed ways of reducing problems caused by air and surface particulates in both the electronics and medical device industries and presented a number of graphic case studies. He reiterated the need to comply with the new Parts of the established ISO 14644 series of standards.

Other sessions in this excellent conference included one on the validation of cleanroom disinfectants by Karen Rossington, a senior manager at Shield Medicare, a division of Ecolab, and another on validating cleanrooms

for pharmaceutical manufacture by Richard Swift, microbiologist at Eli Lilly.

The take-home lesson was that the energy efficient company can save money, earn money from the new Government Scheme and at the same time enhance its "green" reputation and improve its share price. And this with the blessing of the regulators, who no longer worry if every single prescribed parameter is not strictly adhered to, as long as the result is right. Let's see how companies using cleanrooms make out in 2011 once the Scheme comes into force.

### Postscript

At the end of the Conference, delegates were asked in the usual way to fill in a form evaluating the Conference, its organisation and speakers. It would have perhaps been also a good opportunity to ask delegates what energy efficiency measures they have already installed and their future intentions.

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