

Fundamental

SERIES 8 MODULE 4

CURRENT THINKING ON...

Training for energy management

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In the 21st century there is no longer such a thing as a job for life. This is not only because many organisations do not survive the flexing of the economy but because technology is moving at such a pace that the knowledge acquired during our school days and early career will not be sufficient to carry us through to retirement.

A perfect example of this is the arrival of computer technologies. In the early 1980s we saw the appearance of the first publicly available computers in offices where a newly trained typist from the typing pool learnt how to manipulate text electronically. Now, there are no typing pools as we all tend to take on the responsibility for preparing and printing our own letters and documentation.

Of course, simple word processing is only the tip of the iceberg. Our computers are multi-tasking machines which not only allow us to process our own information but also to access the world of information via the internet and to communicate via e-mail. Energy engineers, at all levels, need to be able to use computers not only to provide neat printed summary documents but also to assist in the analysis of energy-related data and to carry out project and cost analysis when replacing equipment.

Tools of the trade

Word processors, spreadsheet packages and computer-aided design are not basic tools of the trade. Computers have been an integral part of schooling since the 1980s such that most people now



have a good level of competency in using the equipment. However, the older generation has had to keep up with the younger workers by undergoing training of some sort or another to 'catch up'. The days of learning are no longer limited to our formative years but are now a life-long activity.

By Continuing Professional Development (CPD) we usually mean further development after obtaining one or more of our professional qualifications - CEng, IEng or EngTech. Professional development is an obligation through the professional engineering institutions' (PEIs) Codes of Conduct, and professional engineers and technicians must ensure that

their competence is maintained and enhanced. They are expected to:

- be committed to continuous learning and improvement;
- take responsibility for their development;
- manage their own development in a systematic manner; in particular through the processes of review, plan, action and evaluation;
- provide evidence of their development, when required to their professional engineering body;
- focus personal development on achieving outputs, defined through professional or other competence standards.

The PEIs may also require individual members to provide

periodic records of their CPD. They will also directly offer opportunities for CPD, such as seminars and meetings on engineering topics, publications, special interest networks and the like.

Four key goals

The Sector Skills Councils (SSCs) are state-sponsored, employer-led organisations that cover specific economic sectors in the United Kingdom. They have four key goals:

- to reduce skills gaps and shortages;
- to improve productivity;
- to boost the skills of their sector workforces; and
- to improve learning supply.

SSCs achieve these aims by contributing to the development of National Occupational Standards, the design and approval of apprenticeship frameworks, brokering sector skills agreements and creating sector qualification strategies. There are currently twenty-five SSCs, covering about 85 per cent of the British workforce. SSCs are licensed by the Government through the UK Commission for Employment and Skills (UKCES). The Sector Skills Development Agency (SSDA) was formerly responsible for funding, supporting and monitoring SSCs and for overseeing industries that fell outside an SSC footprint. From 1st April 2008, the SSDA was replaced by the UKCES and the Alliance of

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Sector Skills Councils comprising all 25 SSCs. The full extent of the Alliance's scope is being allowed to develop over time, but its core purpose is to:

- promote understanding of the role of SSCs within the skills system across the four home nations;
 - co-ordinate policy positions and strategic work on skills with stakeholders across England, Scotland, Wales and Northern Ireland;
 - help build the performance capability of the Sector Skills Councils, to ensure they continue to work effectively on the employer-driven skills agenda.
- Maintaining and developing the nation's skill base through training, employee engagement and staff development is accepted as being an essential component of the UK economy. However, the majority of training in the UK is carried out by the private sector where organisations contract with individual specialists and professional bodies.

Range of programmes

As a prime example of the need to meet market changes, professional bodies, such as the Energy Institute, which recognises and represents professionals in the Energy market place worldwide, provide a wide range of support programmes for all organisations which are desirous of developing their energy related expertise.

In today's business market place there are a multitude of pressures associated with the use of energy resources within establishments:

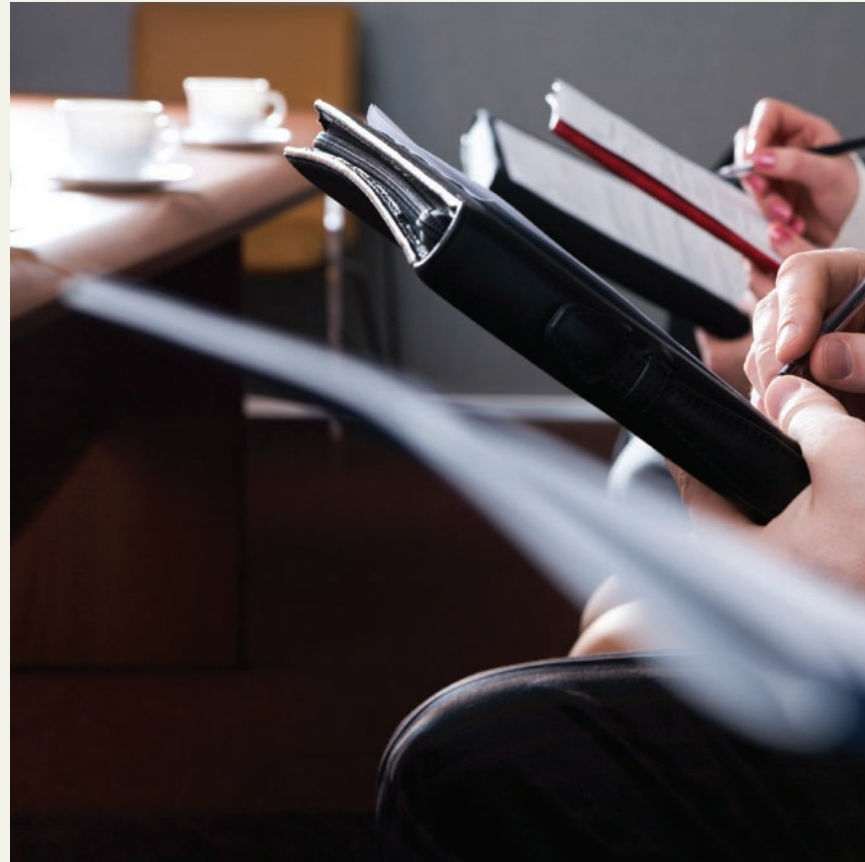
- contracting for a fair and equitable tariff structure with potential suppliers on a regular basis to reduce the impact of periodic market price uplifts;
- accounting for the energy resources used accurately, and paying the bill on agreement with the submitted invoices, quantification and charges;
- managing the utilisation of the resource within an organisation;
- recognising and dealing with use and application inefficiencies;
- monitoring, targeting and reporting consumption both internally and sometimes externally;

- accounting for the related carbon emissions from the use of specific energy resources;
- complying with the growing number of energy related Laws, Regulations, Statutes and Governmental reporting requirements;
- Climate Change Levy/Climate Change Agreements;
- European Union - Emissions Trading Scheme;
- Building Regulations;
- Building Certification (Energy Performance Certificates (EPCs) and Display Energy Certificates (DECs); and
- Carbon Reduction Commitment (CRC);
- budgeting for reductions in the cost implications of energy on the profitability of the business;
- being aware of, and reporting, environmental impacts as part of Corporate Social Responsibility (CSR);
- demonstrating to the market place that we are part of the solution and not part of the problem;
- demonstrating to our customers that we are an efficient organisation that doesn't deal with rising costs by passing them automatically on to the customer/client;
- demonstrating best practice through implementation of Standards such as BS EN 16001 (Energy Management Standard) and/or the Carbon Trust Standard

Cheap North Sea energy

In years gone by (late 1970s/early 1980s) the recognition of the need to manage the utilisation of energy was promoted by the Government with the guidance that any organisation with an overall energy bill of £1.5m (at that time) or more should have at least one full time energy-responsible person. Unfortunately, as we headed into the low cost energy period of the 1990s, thanks to cheap North Sea Natural Gas and cut backs in staffing levels, the energy responsible person was seen to be less important and slowly vanished from the management structure.

Now even the utility and energy supply companies are recognising that the customers are not just passive users of the resource but



are looking for ways to use less both for themselves and their customers. We may phone up the supplier with a query about the amount of resource used and the charges applied but now we are also asking about what we can do to limit or reduce this liability.

Most energy consultants will tell you that when they are invited to a site to carry out an energy audit or survey, the greatest weakness found is usually in the form of total lack of understanding and ownership by the workforce, at all levels, of energy resource use. This is just as clearly in evidence in the home where we tend to pay our utility bills by direct debit or standing order as we don't really understand the content, meaning, or how we can make a difference.

Staff development and training can help to overcome this gap in our acquired knowledge. This is not achieved by turning trainees into individual technical energy experts but rather by demystifying the subject so that we clearly understand which piece of

equipment is causing the most consumption and what we can do to minimise that amount. Typical of this are the one-day 'Introduction to Energy' and 'Introduction to Energy Management' courses that explain, in layman's terms where our energy comes from, and how we make use of it. Also vital is an explanation of much of the jargon and acronyms that are often used to make everything appear highly technical and complicated! If we can learn to control the consumption of energy in our homes and understand where it goes maybe then we can apply the same level of expertise and understanding in the workplace to help our employers to maintain financial viability.

The big driver in all of this is, apart from the ever-increasing legislation and compliance requirements, the realisation that the 'good times' are over. Until we discover how to harness the sun cost effectively energy costs will continue to rise with a predicted potential tripling by 2020!

Training for energy management



“It is recognised that the UK is currently going through a period of significant skill shortages which can only be met by those who are already in work playing catch up. Fortunately, the training resources are already in the market”

It is clear that all businesses and organisations need both staff and personnel who have, at least, not only a sound domestic level of energy management expertise but also managers who can assess, understand and promote better methodologies in the workplace. For those with a basic technical ability, this expertise can first be obtained by further courses on subjects such as:

- energy management systems;
- energy consuming technologies;
- finance for energy responsible persons;
- understanding and complying with energy-related regulations and requirements;
- monitoring and targeting energy use;
- reporting energy-related use/emissions;
- energy auditing/surveying your own facilities;
- negotiating/purchasing supplies;
- setting up systems to meet BS EN 16001;
- finding energy-saving solutions in

your organisation – opportunities for efficiency; and

- reducing energy waste.

Professional registration

All courses attract Continuous Professional Development points which are a necessity if an individual wishes to maintain their professional registration to a professional body and possibly the Engineering Council.

As worldwide pressure increases on the availability of energy resources (peak oil) and the need to save money, there is an increasing demand for the professional energy manager. Most large establishments such as hospitals, universities and government buildings now employ energy managers. So how do you move on to these posts that are fast becoming highly desirable and well-rewarded?

As an accredited body of the Engineering Council the energy engineer can apply to become a Chartered Energy Engineer or even a Chartered Energy Manager (both

specifically awarded by the Energy Institute).

A Chartered Energy Manager is an individual concerned with the broad management, and efficient use of energy, in its various forms. He/she will have expertise in energy management and a broad knowledge of the energy sector as a whole. He/she will provide a lead role in their organisation with regard to the management of energy and provide advice on the development and implementation of energy policies.

The focus of the qualification is on the individual's role in the factors identified within the competences detailed in the application guidance available from the Institute. There is usually no time period for qualification but it is unlikely that anyone with less than four years' experience in energy management will have attained the necessary levels of demonstrable competence.

The Energy Institute offers a diverse range of progressive routes such as being able to certify individuals who attend both individual, and groups of courses, as indicated earlier. If the prospective energy manager wishes to develop their more basic and fundamental energy expertise there are also available extended courses for delivery both in the classroom and at home.

Distance learning

TEMOL (Training in Energy Management through Open Learning) is an example of the distance learning approach for self-development. It is an Energy Institute course, developed with the University of the West of England in Bristol, where individuals study at home and submit assignments, usually over an average period of 18 months, to their tutor before eventually completing a project (which is usually based on their employer's site). At the end of the process they attain a recognised Energy Management qualification. This qualification is highly credible, especially when supported by practical work experience in the energy field. Previous participants have become successful energy consultants and energy managers

for organisations such as supermarket chains.

It is recognised that the UK is currently going through a period of significant skill shortages which can only be met by those who are already in work playing 'catch up'. Fortunately, the training resources are already in the market. However, it needs a recognition by both the individual and employer that funding such initiatives will pay back many times over as our organisations become more competent in managing their own destinies. Profit is only achieved by getting as much out of the business pot as we put in as human endeavour. Training and personal development should be seen and accepted as an individual need to enable us to progress effectively through our chosen careers. If we stop learning we stop participating in the world in which we live. The Investor's in People has recognised, promoted, and rewarded this principal over many years as an indication of the accrued benefits.

Potential for new jobs

The Government has indicated the potential for growth in the 'Green Economy' with the potential for at least 500,000 new jobs over the next few years. Where will those 'experts' come from, what training will they need and what market-recognisable qualifications will they have to demonstrate? The Government has recently issued a White Paper on the future in this area to which the Energy Institute has responded indicating its potential role in this provision of the next generation of required technical expertise.

Mark Brenner, the chief executive of Building Engineering Services Training (BEST) stated: "Like a football team, you must have employee engagement. Only when every member of the team is fully engaged and committed has the team got any chance of winning." England's performance in the recent World Cup is the perfect example of individuals not being trained sufficiently both in their own disciplines but also in working together, mixing, and matching their talents and individual expertise. ●

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ENERGY IN BUILDINGS & INDUSTRY

How to obtain CPD accreditation



Energy in Buildings and Industry and the Energy Institute are delighted to have teamed up to bring you this Continuing Professional Development initiative.

This is the fourth of ten modules in the eighth series and focuses on training for energy management. It is accompanied by a set of multiple-choice questions. To qualify for a CPD certificate readers must submit at least eight of the ten sets of questions from this series of modules to **Energy in Buildings and Industry** for the Energy Institute to mark. Anyone achieving at least eight out of ten correct answers on eight separate articles qualifies for an Energy Institute CPD certificate. This can be obtained, on successful completion of the course, for a fee of £15 (for members) or £25 (for non-members).

The articles, written by a qualified member of the Energy Institute, will appeal to those new to energy management and those with more experience of the subject. This new series of modules will run until the April 2011 issue.

The modules in the coming months will focus on: district heating; fuel cells; smart meters; air conditioning; LEDs; and power quality. Should you miss any of the modules please let EIBI know (mark.thrower@btinternet.com) and we will send you the missing modules in 'pdf' format to you either by e-mail or on a CD. The first three modules in the series focused on the CRC Energy Efficiency Commitment, insulation, and heat pumps.

The previous 70 modules from the first seven series are also available free of charge on CD.

MARK THROWER, MANAGING EDITOR

PLEASE COMPLETE YOUR DETAILS BELOW IN BLOCK CAPITALS

Name.....

(Mr, Mrs, Ms).....

Business.....

Business Address.....

Post Code

email address.....

Tel.....

Completed answers should be mailed to:

**The Education Department, Energy in Buildings & Industry,
P. O. Box 825, GUILDFORD, GU4 8WQ**

SERIES 8 MODULE 4: QUESTIONS

Training for energy management

Please mark your answers on the sheet below by placing a cross in the box next to the correct answer. Only mark one box for each question. You may find it helpful to mark the answers in pencil first before filling in the final answers in ink. Once you have completed the answer sheet in ink, return it to the address below. Photocopies are acceptable.

1. What is CPD?

- ☐ Continuous Professional Development
☐ Continuous Personal Development
☐ Continuing Process Design

2. What is a PEI, as recognised by the EC?

- ☐ Professional Energy Institute
☐ Professional Engineering Institute
☐ Public Engineer Incorporated

3. What is the Energy Institute?

- ☐ A professional representative body
☐ A business club
☐ A Government funded body

4. How many years of experience in Energy Management are required by a chartered energy manager?

- ☐ 1 ☐ 3 ☐ 4 ☐ 5

5. What is CRC?

- ☐ Carbon Removing Club
☐ Carbon Reduction Commitment
☐ Carbon Removal Contract

6. What was the proposed break point for energy managers in the early 1980's?

- ☐ £1m ☐ £1.25m ☐ £1.5m ☐ £2m

7. What is the likely increase in energy costs predicted by 2020?

- ☐ 50 per cent ☐ 100 per cent ☐ 200 per cent ☐ 300 per cent

8. What is 'Peak Oil'?

- ☐ Oil resource limits
☐ Point in time of highest availability
☐ Oil from near the surface

9. What is a kWh?

- ☐ A kilowatt
☐ A tariff
☐ A unit of energy
☐ A unit of energy that is time related

10. The Green Economy could create how many new jobs?

- ☐ 500 ☐ 5,000 ☐ 50,000 ☐ 500,000

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