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THE CARBON REDUCTION COMMITMENT ENERGY EFFICIENCY SCHEME

The Carbon Reduction Energy Efficiency Scheme (CRC) is a mandatory climate change and energy initiative that has been developed by the Department of Energy and Climate Change, the Scottish Government, the Welsh Assembly and the Department of the Environment Northern Ireland. Its purpose is to reduce energy consumption and resulting carbon emissions in medium to large public and private organisations. It affects around 20,000 organisations of which around 5,000 are required by law to participate fully.

With only 1,582 organisations registered as of 1st. August 2010, the Director of the M and C Energy Group, Chris Davenport, who is quoted in the August/September issue of the *Water, Energy and Management* journal, is expressing concern that 'many UK businesses and public sector organisations are unaware of the obligations placed on them in terms of the data collection and information that needs to be reported'.

Under the scheme organisations consuming less than 6,000 MWh of half-hourly metered electricity in calendar year 2008 are required to make an information disclosure. This includes a list of Half-Hourly Meters (HHM) and ID numbers. If half-hourly consumption is over 3,000 MWh, then details of all electricity meters and total electricity consumption are required. If half-hourly consumption is less than 3,000 MWh, then organisations have to supply just the HHM details.

Where an organisation has consumed more than 6,000 MWh in calendar year 2008, the information required is more complex and half-hourly electricity use, group structure and information necessary for identity checks have to be disclosed.

Organisations that fail to comply with the CRC may incur fixed and/or variable fines, publication of non-compliance, and blocking of carbon trading accounts.

In order to assist organisations in meeting their obligations M and E Energy Group, who are the UK's largest energy consultancy and represent businesses consuming £4 billion of energy, offer a service that will help to clarify what clients need to do to operate efficiently and within the law, as well as understanding the financial implications of the legislation.

In addition to the above, another consultancy, STC Energy, have developed a unique, fully managed solution to enable compliance with the CRC.

Under the CRC participants are required to hold data records for seven years after the phase to which they relate. Any data that supports an organisation's baseline year (Footprint Year) will need to be kept for the duration of the entire CRC scheme, which is currently planned to run for 33 years. For this a client's data will be held in STC's powerful Navigator SQL or NAVSQL energy management database. Reports are provided via STC's advanced energy and carbon web reporting system, which will allow information to be shared by designated personnel throughout a client's organisation.

Participants are also required to monitor and collate their energy usage throughout each year. These records will form the basis of an Evidence Pack. All audits will include a desk-based assessment of the Evidence Pack and potential site visits to any related company premises. Around 20 per cent of participating organisations are expected to be audited each year and the Government has advised that all participants should expect to be audited at some point every five years. For this STC create and manage valid Evidence Packs which can be made available to clients at any time for audit purposes.

CRC participants are measured using three metrics the scoring of which will define the organisation's position in a Performance League Table. This League Table will then be used to evaluate the bonus or penalty that the organisation will receive. The three metrics are as follows:

(i)   Early Action Metric

This metric provides recognition for organisations that have taken proactive steps to monitor their energy usage prior to the start of the scheme. It consists of an AMR component, whereby the percentage of an organisation's emissions covered by voluntarily installed AMR meters will count towards 50 per cent of the Early Action Metric score, and a Carbon Trust Standard or equivalent component, which recognises any approved energy efficiency accreditation that the organisation holds and makes up the other 50 per cent.

With this metric STC Site Operations arranges and manages AMR meter installation programmes, and assist with implementation of the Carbon Trust Standard or BS EN 16001.

(ii)   Growth Metric

This metric accounts for emissions in relation to the organisation's growth by giving credit to those organisations that can grow or rationalise in an efficient manner. It measures the change in emissions per unit of turnover relative to the average annual emissions previously reported within the CRC, up to a maximum of five years of data.

For this STC calculate the client's turnover to emissions ratio on an annual basis.

(iii)   Absolute Metric

This metric concentrates on absolute carbon emissions reduction relative to the average annual emissions previously reported within the CRC up to a maximum of five years of data. A score in this metric will be based on the emissions that an organisation discloses as part of its Annual Report.

For this STC provide accurate historic data records, development of carbon management programmes, carbon surveys, carbon abatement reports and energy awareness training.

In relation to the above STC Energy state:

'STC has formed strategic relationships with key companies within the mechanical and electrical engineering sectors to offer a complete end-to-end solution towards CRC compliance. This will not only allow for consultation on the CRC and associated carbon reports, but also for the implementation of necessary physical changes in order to meet the overall aim of absolute carbon reduction'.

Further information may be obtained from:

M and E Energy Group, Claymore House, Enterprise Way, Dunfermline, Fife KY11 8PY. Telephone: 01383 745 000. Also www.mcenergygroup.com

STC Energy, Buckshaw House, East Terrace Business Park, Euxton Lane, Euxton, Chorley, Lancashire PR7 6TB. Telephone: 01257 236 820. Email: info@stcenergy.co.uk

THE CARBON TRUST LOAN

In order for the UK to meet its climate change targets the Government is keen to support business in achieving carbon dioxide emissions reduction. Through the establishment of The Carbon Trust the Government has therefore provided funding to support UK business investing in projects and products that will reduce carbon dioxide emissions.

Loans are available for projects costing between £3,000 and £400,000 and are repayable in line with the project payback period up to a maximum of 4 years on an interest free basis. The amount of the loan is based on the amount of carbon dioxide that can be saved by going ahead with the project, which independently verified by the Carbon Trust.

For public sector financing, Salix was set up in conjunction with The Carbon Trust and provides funding on exactly the same basis.

The loan is worth between £3,000 and £100,000, unsecured, has no application fee, is repayable over a period of up to four years, and is designed primarily for small and medium sized enterprises.

In many cases the interest free repayments from the loan can be more than offset by savings on energy bills.

More information is available from www.carbontrust.co.uk and www.salixfinance.co.uk

INTEGRATING ICT ENERGY MANAGEMENT

The first ever system designed to manage operational energy from Information Communication Technology (ICT) equipment such as PCs, monitors, printers, photocopiers and docking stations together with electrical equipment in the building has been launched by Marshall Tufflex Energy Management.

The new solution, known as Ipsis, monitors, controls, reduces and reports on electrical consumption down to socket and user level.

Manufacturers Marshall Tufflex state:

'Ipsis is an energy reduction system designed to measure, monitor, and control (reduce) energy consumption of equipment in both existing and new buildings, eliminating the need for costly rework and major disruption. Ipsis delivers a single solution that can manage both the electrical items and ICT.

'Ipsis is pre-integrated into a range of cable management products which include floor boxes, perimeter wall trunking, power poles and desk top modules. This holistic range allows specifiers, developers, contractors and building ownersto integrate an energy reduction system into the infrastructure of the building from the outset, effectively removing installation costs; making zero carbon easier to achieve for everyone.'

Ipsis is an IP-enabled system with a dashboard that can be fully customised so as to be ideal for use in receptions and lobbies. This dashboard manages the system and is web-based providing the ability to manage the system remotely, making it especially suitable for organisations such as nationwide businesses, local authorities and universities.

Ipsis reporting capabilities include:

- Real-time organisational and managed equipment reports

- aMandT and AMT meter data collection

- All reports configurable in multiple reporting parameters e.g. £, KWh, CO2

- Energy apportionment by department, cost centre and project

- Energy use by equipment type e.g. PCs, monitor, vending

For further information contact Marshall Tufflex Energy Management Limited, Churchfields Industrial Estate, Hastings, East Sussex TN38 9PU. Telephone: 01424 856 610. Email: info@marshalltufflexenergy.com

NEW APPROACH TO AUTOMATIC ENERGY DATA CAPTURE

A new approach to energy data capture is now provided by the ESCOT clip-on metering system. This uses CTs to transmit a low voltage signal directly proportional to energy consumption. Low specification signal cables can be routed throughout a building rather like telephone wires, suspended over ceilings and via risers/cupboards to collator units.

The major advantage of using clip-on ESCOT CTs is that unlike standard sub-meter installations, no fused 230V or 415V connections have to be made at each remote meter point. This offers enormous cost savings for monitoring and targeting applications, particularly in multi-storey buildings.

The ESCOT collators derive their operational power from a single-phase supply. This means that the collator must share the same distribution transformer supply as the network over which the system ESCOTs are fitted.

Each 36-way panel accepts up to 36 ESCOT CTs of any type. Unbalanced three-phase loads need three CTs whilst balanced and single-phase loads use only one. Multi collators can be fitted into suitable enclosures or supply mounted on a back panel only.

The installer has the choice to use kWh pulse or RS485/RS232/USB serial data outputs. For the serial data output, up to eight 36-way panels can be looped together to create a 288-way system.

Through using the ESCOT system a large amount of data can be collated which can pinpoint areas where energy is being wasted and can subsequently be saved. The ESCOT system will work in line with established metering software companies such as Optima and EFT to simplify and condense the time needed to fully understand the energy use pattern. Primarily it relieves the energy manager's communication responsibilities by automatically producing and emailing specific cost centre reports to appropriate personnel.

The ESCOT Basic software produces an on-line display and a daily CSV file of amps, power factor, kW, kWh and Volts for each of up to 288 single-phase or 96 three-phase metering points. This acts both as verification of correct operation during set-up and overall view of distribution system performance for proactive maintenance purposes. The ESCOT Basic software is recommended to run on a stand-alone adjacent or remote PC.

The ESCOT Manager software provides automatic data collection and simplicity in use. High speed operation allows relevant data to be extracted by a couple of mouse

clicks for standard or advanced reports for individual or virtual meter points. The number of points determines the cost of the software.

Details: Marshall Tufflex Energy Management Limited as above.

NEW SOFTWARE FOR ENERGY AUDITING

A new assessment and software application that enables accurate modelling of a commercial or public building to be combined with detailed forecasting of energy efficiency improvements has been launched by Limefig.

The application is designed for use on all types of commercial and publicly owned buildings and on pre-launch trials have identified savings of between 32 and 70 per cent of current spend. It is aimed primarily at organisations currently spending £5,000 p.a. or more on their combined gas, electricity and water supplies, but can be applied to virtually any situation.

The Limefig assessor carries out a two-stage assessment procedure which garners asset, behavioural and consumption data, which is fed into the software. The assessor can then model the effects of enacting energy efficiency measures from a simple timing switch on a vending machine right through to a full boiler replacement. The effects of lighting replacement, voltage optimisation, improved HVAC controls and retro-insulating etc can all be modelled, plus a variety of LZC technologies and water saving devices such that the client receives a full run down on efficiency opportunities for their building.

The output of Limefig, which gives not only monetary saving figures but also kWh and CO_2 saving figures, is then rolled out into a comprehensive Energy Report and Action Plan, which informs the client of which measures to prioritise and which to leave for a later time. Measures offering a simple payback of less than 4 years may be covered by an interest free Carbon Trust Loan [details above – Ed].

The manufacturers state:

'Using a holistic approach Limefig allows users to understand how physical and behavioural changes can be implemented to impact any building's running costs as well as its energy efficiency and CO_2 emissions, thereby enabling organisations to optimise financial savings, and comply with energy efficiency legislation – including any requirements enforced and incentivised under the CRC Energy Efficiency Scheme.

Users can model a vast amount of changes to a building and see real-time how the changes influence efficiency savings This unique approach means that every modification will link to every other area of the building, for example changing to energy efficient lighting will affect how hard the boiler works and adding roof insulation will affect how hard the cooling system has to work. Limefig makes these calculations without the user having to make any manual adjustments.'

For more information contact Limefig Limited, Crown House, Dartford DA1 1DZ. Telephone: 0845 094 4772. Email: info@limefig.co.uk

CASE STUDY IN ENERGY MANAGEMENT: WELCOME BREAK

Welcome Break provides motorway service areas throughout the UK. They provide food and retail services with high street brands such as KFC, Burger King, and McDonalds accompanied with Food Connection and Coffee Primo outlets, and operate 22 hotels.

With rising energy procurement costs Welcome Break needed to identify areas where there were likely to be high levels of energy wastage, and to encourage the adoption of best practice. With each Welcome Break site being occupied by many different food outlets managed by separate companies, the likelihood of discovering excess wastage was high.

As part of this drive against waste it was desired that site-based Facilities Managers have access to the energy monitoring and targeting system, so that those who had the most influence on energy consumption would be equipped with the tools that they needed to drive down energy costs.

The first phase of the project used half-hourly energy data already available from the electricity supplier, together with manual meter readings and historical data. The second phase would then see the installation of secondary metering and logging.

The IT department within Welcome Break required a solution that was simple to install, used standard Microsoft technology, and could be upgraded from a single source within the company. This led them to recommend a browser-based solution that was run from a single server but was accessible from anywhere on their network.

For the first phase of the project eSight Energy's eSight monitoring and targeting suite was installed on a server within Welcome Break's head office at Newport Pagnell. The database was deployed to an existing server running SQL Server and the eSight application to their Intranet server. This meant that there was no requirement to procure additional hardware.

The Energy Manager, who was one of the Facilities Managers and a representative from the IT department, was given eSight administration training, following which the solution was rolled out across each of the sites with training provided to each of the Facilities Managers.

An important feature of eSight is the eSight Data Exchange Module, which was extremely useful as it enabled energy data to be extracted from an email account:

'Half-hourly data is sent from the supplier to an email address at Welcome Break, where eSight extracts the data and imports it into the eSight database. This provides a very fast deployment and low cost way of obtaining energy data for analysis within eSight.

The power of eSight allows energy to be analysed in many different ways. The need to analyse energy for the 24-hour service areas with separate food outlets is different from that of the hotels. eSight can be used to analyse the energy against different driving factors such as Degree Days for a heating or cooling load or guests for the hotel facilities.'

With eSight Welcome Break are able to obtain:

- Energy Analysis

- Financial Analysis

- Performance Analysis using regression, deviation and CUSUM charts

- Degree Data Analysis

- Baseload Analysis

- Electricity Analysis including Tariff Rate Analysis, Load Factor and Maximum Demand Analysis

In addition, analysis charts and bespoke reports can be scheduled for distribution by email. This means that standard monthly reports can be generated and emailed with no manual input.

Alarms and exception reports can also be created to alert key personnel when energy consumption breaches specific targets.

Jonathan Taylor, IT Manager for Welcome Break commented:

"eSight was very easy to deploy onto our existing company Intranet and upgrades can simply be applied to one server."

Further information may be obtained from eSight Energy Limited, 5 Carisbrooke Court, Buckingway Business Park, Anderson Road, Swavesey, Cambridge CB24 4UQ. Telephone: 01954 231 436. Email: sales@eSightenergy.com

CASE STUDY IN ENERGY MANAGEMENT: CARILLION PLC

Carillion plc, as a leading infrastructure, construction and business services company providing facilities management for a large range of clients such as PFI hospitals, universities and much of the Government estate, required an enterprise-wide energy management solution that was capable of being accessed from any of their client sites whilst being managed centrally from within the Carillion plc infrastructure.

They required a solution that they could use for both energy and financial analysis and invoice validation, as well as providing tailored client reports.

With eSight's fully browser-based functionality the eSight database only needed installing to a single, central location, namely the Carillion plc head office. With this eSight could be accessed from any location across the internet by a user who has been granted access. All that is required on the client PC is Internet Explorer, thus making rollout simple and cost effective.

A particular requirement for Carillion was the ability to collect their client's energy data automatically from a variety of data loggers, BMS systems and electronic billing data. They also wanted to be able to use self-meter readings so as to reduce the large number of estimated reads and improve budgetary control.

With eSight a combination of data input can accommodate what is already in place on each remote site and collect data from disparate systems. It can enable automatic importation of supplier billing data, which allows bill validation and analysis plus monitoring, targeting and reporting. Invoice data can therefore be checked before it is validated against independently collected meter data where available.

The client services provided by Carillion plc through eSight enable accurate analysis and management of energy data with a view to controlling and driving down energy costs. Clients are kept informed of progress with bespoke reports that Carillion plc are able to design and schedule on a client-by-client basis, ensuring that the service received is both personalised and on time.

The eSight Invoice Validation Module provides drivers that recognise billing data according to TRADACOMS Electronic Data Interchange (EDI) formats used by suppliers across the UK:

'Invoices can be imported and even checked automatically in bulk to determine errors. Tolerance levels can be set so that only invoices outside an acceptable percentage or monetary range will be flagged for attention.'

Where invoices are available in paper format only, Carillion plc can manually input the information directly from the invoice using eSight's quick manual entry screen.

The Head of Carbon Management for Carillion plc, Kevin Thomas, commented:

"eSight Invoice Validation has saved Carillion plc valuable time spent collating and analysing billing data as well as saving money by automatically identifying billing errors."

The eSight Energy Analysis menu provides a clear set of 'traffic light' reporting options so that Carillion plc are able to easily see which type of report format their client requires and, by choosing the relevant option, to set up reports detailing that specific area of energy consumption. In addition eSight also provides a standard set of pre-written report templates that may be run against different sets of energy data.

All reports within eSight may be run on an ad hoc basis, exported to Excel or scheduled for automatic production and distribution via email.

Contact: eSight Energy Limited as above.

GERM GENIE COMBATS INFECTION TRANSMISSION FROM COMPUTER KEYBOARDS

Multi-user computer keyboards are now recognised as being one of the most common ways by which infections can be passed from person to person. This arises because:

(i) Computer keyboards are almost never cleaned between users.

(ii) Computer keyboards may be touched by many people in a 24-hour period.

(iii) Computer keyboards are often touched straight after a person has touched their nose or mouth area.

(iv) The average keyboard contains around 3,295 microbes per square inch.

A recent study by Reading University tested keyboards in many different locations including public libraries, office receptions, hospital wards, internet cafes, supermarkets, shared public computers and veterinary surgeries and many were found to have high levels of bacteria.

The types of bacteria that a typical computer keyboard may harbour include e-coli, MRSA, Influenza and C.Dificile, whilst NHS flu advice advises that flu viruses can survive on a hard surface for up to 24 hours.

In order to help to reduce some of these risks, Falcon Innovations have pioneered the 'Germ Genie', which uses ultra-violet light to destroy harmful microbes. After each use of the keyboard it performs a sanitation cycle that lasts for approximately one minute, although this can be adjusted.

Research at the University of Hertfordshire has shown that in its one minute sanitation cycle the 'Germ Genie' will destroy 99.9 per cent of e-coli in the middle of the keyboard and over 90 per cent across the whole keyboard.

In most situations the 'Germ Genie' will run sanitation cycles for more than ten minutes each day, but it has been designed to ensure that no user will be exposed to more UV light than the ICNIRP safe level guidelines, which are equivalent to less than ten minutes in the sun on a sunny day.

The 'Germ Genie' is currently priced at £140.00 plus post, packing and VAT, with a discount available for bulk orders (more than five units).

For further information contact Falcon Innovations, 134 Cock Lane, High Wycombe, Buckinghamshire HP13 7EA. Telephone: 020 3239 6727. Email: info@falconinnovations.co.uk

BREAKTHROUGH IN BROADCASTING FOR DEAF VIEWERS

A team led by Italian broadcaster RAI has achieved a technological breakthrough in the real-time translation of television subtitles into sign language.

The Atlas project uses subtitle translations to drive a computer-generated avatar that signs along the main TV image.

The translation is driven by two approaches. The first maps the grammar and syntactical structure of the input language to the sign language output over four steps, namely:

- morphological analysis and dictionary access

- syntactical analysis

- semantic interpretation

- translation in Atlas/notation frames

The second approach uses statistical translation and relies on classical machine-learning algorithms.

The breakthrough is expected to be particularly beneficial to deaf children who, as a result of being deaf from an early age, find it difficult to learn to read because they cannot associate sounds with words and characters. It may also, however, be beneficial for the profoundly deaf by, for example, translating announcements in railway stations.

The project has a dedicated website at www.atlas.polito.it

THE INSTITUTION OF ELECTRONICS WISHES ALL OF ITS

MEMBERS A VERY MERRY CHRISTMAS AND A HAPPY

AND PROSPEROUS NEW YEAR