

ISO 50001 “on fire”

Energy management standard goes global

Since publication of ISO 50001 last year, implementation and certification to ISO’s new energy management standard is gaining pace around the world. Statistics to the end of January 2012 (compiled by Reinhard Peglau, Senior Scientific Officer on Environmental Management at the German Federal Environment Agency), indicated that about 100 organizations in 26 countries had already achieved certification, and are reaping the benefits in increased energy efficiency, reduced costs and improved energy performance.

ISO 50001:2011, *Energy management systems – Requirements with guidance for use*, is a new voluntary International Standard that establishes a framework for large and small industrial plants and commercial, institutional and government facilities to improve the way they manage energy.

Improved energy performance can provide rapid benefits for an organization by maximizing the use of its energy resources and energy-related assets, thus reducing both energy cost and consumption.

But is ISO 50001 really living up to the bold claims made for it? *ISO Focus+* decided to find out by asking four early ISO 50001 adopters to report on the measurable effects of ISO 50001 implementation. The organizations were selected from four very different sectors – a drinks manufacturer, a shipping line, a hotel, and a university campus – to ascertain if all were achieving energy saving benefits (see also, “Early ISO 50001 adopters report major gains through energy management standard”, *ISO Focus+*, October 2011).

Coca-Cola Enterprises – United Kingdom

Coca-Cola Enterprises Ltd. of Wakefield, England, Europe’s largest drinks manufacturing plant, is thought to be the



Coca-Cola produces 6000 cans of soft drinks every minute at its Wakefield plant.

Latest ISO 50001 adopters

Within the German Federal Environment Agency, Reinhard Peglau, compiles statistics of global ISO 50001 certifications. The report dated 31 January 2012 indicates that about 100 organizations in 26 countries had already achieved external certification by the end of January 2012 including:

- Automobili Lamborghini, Italy
- Bouygues Telecom, France
- China Steel Corporation, Taiwan
- Delhi International Airport, India
- Equinix Data Centre, Holland
- Hong Kong Science and Technology Parks Corporation
- Hyundai Motors, Korea
- Italcementi Group, Bulgaria
- Lindt & Sprüngli, Germany
- Northern Rail, UK
- Pfizer, Ireland
- Pilkington Floatglas AB, Sweden
- Repsol Refinery, Spain
- Tokyo Energy Service, Japan
- Utico Middle East, UAE
- WEG Equipamentos Elétricos, Brazil
- Yokohama Tire Manufacturing, Thailand.



Ian Johnson, Operations Director at Coca-Cola Enterprises.

first company in the food and drinks sector to achieve ISO 50001 certification. The accomplishment forms part of the US parent company's plans to make the Wakefield plant one of the most efficient in the world.

Since 2007, Coca-Cola has invested GBP 51 million in improving its operations at Wakefield, which produces 6 000 cans of soft drinks every minute. The plant has cut water consumption by 10% and energy use by 16.5%, and has implemented ISO 50001 in its bid to further Coca-Cola's ambition to become a low-carbon business.



Coca-Cola's ISO 50001 certified facility in Wakefield, England, Europe's largest drinks manufacturing plant.



(left to right) Mark White, Utilities and Facilities Manager; Lee Baker, Bottle Blowing Manager; Nikki Anson, Management Systems Coordinator and Angus Kippen, Environment Manager with the ISO 50001 energy management certificate presented to Coca-Cola Enterprises.

ISO Focus+ asked Ian Johnson, Operations Director at Coca-Cola Enterprises, to comment:

ISO Focus+: *What difference do you expect ISO 50001 implementation and certification to make to Coca-Cola?*

Ian Johnson: Coca-Cola Enterprises is proud to be the first company in the global food and beverage industry to be officially recognized for its energy management practices, and believes the certification will help us drive forward with new efficiencies and cut our carbon footprint and costs even further. We now have a structured approach to identify opportunities to improve, and then a formal management review to follow through on actions and record success.

ISO Focus+: *Can you outline some of the energy saving measures and initiatives*

you are implementing to meet ISO 50001 requirements?

Ian Johnson: We currently have several energy initiatives in place, including LED lighting, bottle blowing oven optimization, and air recovery from our compressed air systems. The standard focuses on energy consumption, but we use the same approach for our water consumption. Various initiatives have helped to cut energy consumption at the site. These include:

- Introducing natural light to our lines where possible
- Filling cans and bottles at more ambient temperatures to cut energy used by chillers
- Installing a real time monitoring system to measure how much energy and water is being used, where, when and under what circumstances.

ISO Focus+: Can you already comment on the benefits of implementation?

Ian Johnson: The benefits we have seen so far are around the focus it brings to energy saving in the business, and the systematic approach that must be followed. This helps us to achieve continual improvement of energy performance, including energy efficiency, energy use and consumption. In addition, there is a financial benefit for the business given the current high prices of energy.

A financial benefit for the business.

Going for ISO 50001 certification provides a point of focus and galvanizes the people involved to identify and deliver significant improvements.



Made in Wakefield and proud of it: Coca-Cola employees feature in the company's advertising campaign.

last six years to measure, trend and reduce fuel consumption on board our whole fleet of technically managed vessels. The ability to apply and successfully pass the ISO 50001 certification audit allows us to demonstrate that we have sound practices and procedures to allow optimization of energy supply for the fleet.

ISO Focus+: Can you outline some of the energy saving measures and initiatives you are implementing to meet ISO 50001 requirements?

Philip Fullerton: Initially we focused on energy management processes on board the vessels to achieve a baseline for achieving optimal performance prior to investing in technical enhancements. The priority was to develop a fleet-wide energy management reporting tool so we could achieve a consistent level of accurate reporting. We believe that if you cannot measure fuel consumption you cannot manage it. Establishing the baseline was the backbone of the project to show how far away from the optimum we were operating.

Raising awareness among the ship's officers is the most important controllable factor. If voyage management is not executed properly then the additional bunker consumption is significant. Commercial and environmental impacts are huge. We had an objective to reduce fuel consumption by 5% and this was achieved over a two-year period. Since the objective was met we have continued to refine the savings, and with ISO 50001 a more structured approach can be taken.

ISO Focus+: Can you already comment on the benefits of implementation?

Philip Fullerton: The main benefit is external verification of progress on the steps we have taken to manage the energy consumption on the managed fleet. This also benefits us by refining our structured approach to an International Standard, which can later be used for benchmarking.

Shipping receives a huge amount of annual audits, but as we were the first shipping company to gain ISO 50001 certification there was no precedent for the audit programme, so no stone was left unturned. This meant that even experienced auditors were surprised that, while the implementation process was clear, the audit process was so stringent.

Northern Marine Management – United Kingdom/USA



Philip Fullerton, NMM's Technical Director.

In late 2011, Northern Marine Management Ltd (UK) and Northern Marine Management LLC (USA) (NMM), part of the Stena Sphere Group, reportedly became the first shipping company in the world to achieve ISO 50001 certification. The organization manages 57 vessels, including the Stena tanker and gas carrier fleet, and vessels for other blue-chip ship owners.

ISO Focus+ asked Philip Fullerton, NMM's Technical Director, to comment.

ISO Focus+: What difference do you expect ISO 50001 implementation and certification to make to NMM?

Philip Fullerton: ISO 50001 certification is a way point in assessing all the processes and projects we have completed over the



Heritage Ahungalla Hotel – Sri Lanka

The Heritage Ahungalla, described as Sri Lanka's leading five-star resort, recently became the first hotel in the country to achieve ISO 50001 certification. The decision to implement the energy management standard was taken by owner Aitken Spence Hotel Management as a tool to reduce energy consumption, particularly in view of ever-increasing costs and energy supply limitations in Sri Lanka.

By implementing ISO 50001, the hotel is now able to effectively manage energy consumption without compromising guest comfort, and expects to meet current and future energy efficiency targets required by green house gas emissions reduction legislation.

ISO Focus+ asked Refhan Razeen, General Manager of the Heritage Ahungalla, to comment:

ISO Focus+: *What difference do you expect ISO 50001 implementation and certification to make to the hotel?*

Refhan Razeen: We expect to reduce energy consumption by 8% per occupied room compared to last year's consumption.

ISO Focus+: *Can you outline some of the energy saving measures and initiatives you are implementing to meet ISO 50001 requirements?*

Refhan Razeen: We have a central air conditioning system divided into five hotel sections A to E. During low occupancy, rooms are allocated in such a way that air conditioning can be switched off section by section. For example, if there are only 59 rooms in occupancy at a given time, the front desk will make sure that those rooms are allocated to section A. Since the four other sections are not used, significant energy can be saved by the hotel for each day they remain unoccupied. However, if a guest requests a room in another section, we have no option but to switch power back on to that section since it is our duty to cater to customer needs first.

Additional energy saving incentives include:

- Replacing all incandescent light bulbs with energy saving bulbs
- Creating staff awareness
- Establishing energy efficient operating procedures for significant



(left to right) **Malin Hapugoda**, Managing Director and **Susith Jayawickreme**, Deputy Managing Director of Aitken Spence Hotel Management, watch **Dr. Sri Lal de Silva**, Chairman of Quality International Certification Services (QICS), light the traditional Sri Lankan oil lamp to signify the opening of the ISO 50001 certification award ceremony.

energy-consuming machines and equipment

- Reducing cold room opening hours
- Operating laundry machines only when fully loaded
- Operating kitchen pastry-mixer machines at off-peak hours only
- Implementing proper preventive maintenance schedules for all equipment
- Cleaning chiller condensers periodically
- Cleaning machine filters regularly.

ISO Focus+: *Can you already comment on the benefits of implementation?*

Refhan Razeen: By setting a target to reduce the energy bill by 8%, the bottom line expenses will be reduced too. During November 2011 we achieved a considerable reduction in the energy bill. Reducing operating costs during low occupancy periods also helps the hotel immensely. By practicing energy saving thoroughly and conscientiously we not only save money, but also contribute to the national grid in a very positive way.

Also, by regular training and seminars on energy saving we have managed to educate our staff to a level where they are now conscious of energy consumption. Leaflets on energy saving methods, which can also be applied at home, have been distributed to every employee.

Reducing energy consumption by 8%.



Refhan Razeen, General Manager of the Heritage Ahungalla.

University College Cork – Ireland

University College Cork (UCC) claims to be the first university worldwide and the first public sector body in Ireland to achieve ISO 50001 certification. Aided by ISO 50001 implementation software (Enerit) that covered significant energy users, energy saving opportunities, energy actions and planning, corrective actions and audit management, UCC implemented its energy management programme in just four months.

While universities may not immediately spring to mind in relation to energy management, they are ideal candidates for ISO 50001 certification, says UCC. A university campus typically comprises a vast amount of building stock, and an energy bill that makes up a large portion of its running costs.

ISO Focus+ asked Maurice Ahern, Energy and Telecoms Manager for UCC, to comment:

ISO Focus+: *What difference do you expect ISO 50001 implementation and certification to make to the university?*

Maurice Ahern: It has increased the visibility of our energy management activities among all staff and students. We have been actively implementing energy improvements for over 20 years but now our efforts are receiving a much higher profile. ISO 50001 certification has given us independent external verification of our good work. Being a world first obviously has facilitated raising our profile externally. This increased profile is allowing us to increase the support for our efforts from our senior management.

ISO Focus+: *Can you outline some of the energy saving measures and initiatives you are implementing to meet ISO 50001 requirements?*

Maurice Ahern: Every year we have been adding energy saving projects, many utilizing advanced technologies. The completion rate of these projects has not changed as a result of ISO 50001 implementation. However, as a result of the energy review process of our energy management system, we have identified many opportunities to improve operational control of our equipment and systems. Natural gas for building heating is our largest energy use and its consumption has fallen by 5.2% in the past six months, coinciding with the period of preparing for certification. Examples of ongoing energy initiatives include:



Seen with the ISO 50001 certificate presented to University College Cork were (l to r): **Mark Poland**, Director of Buildings and Estates, **Paul Prendergast**, Buildings Officer, and **Maurice Ahern**, Energy and Telecoms Manager.

- Installing thermal solar heating in the O’Rahilly building
- Upgrading lighting in all Boole Lecture Theatres and in the Perrots Inch and Perrots Avenue car parks
- Refurbishing ventilation in the civil engineering IT laboratories
- Upgrading lighting and thermal heating for Crossleigh House as a test case for energy research by the Civil and Environmental Engineering Department
- Installing extra heat metering in the Central Campus buildings
- Upgrading roof insulation in the Council Room, and Enterprise and Connolly buildings
- Upgrading the Building Management System (BMS) site wide communications network
- Upgrading data loggers for the energy monitoring and targeting (M&T) system
- Monitoring water usage and implementation of further savings in consumption, e.g. replacement of conventional urinal control to an enzyme based system
- Upgrading boilers, steam traps and heating plant rooms, including insulating steam pipes, as part of the annual rolling upgrade programme.

Our capital programme uses the most up-to-date energy saving technologies supported by the Sustainable Energy Authority of Ireland (SEAI). Energy awareness focuses on electricity usage and the objective is to reduce electricity consumption in all college buildings. Monthly electricity consumption monitoring reports are circulated to all staff, and we distribute energy awareness posters across the campus.

We have projected some of the annual energy savings directly attributed to these

energy initiatives in terms of total electrical kWh or thermal kWh saved per annum, as follows:

Air handling Unit (AHU6)	85 560 elec/kWh
Quadrangle heating upgrade	397 268 therm/kWh
Staff and main restaurant lighting upgrades	15 472 elec/kWh
O’ Rahilly Building solar photovoltaic system	5 227 elec/kWh
North Mall wind turbine	3 107 elec/kWh
Cold water booster pumps upgrade	14 892 elec/kWh

The solar photovoltaic and wind turbine projects have long paybacks but will be used as test cases for energy research by researchers and students in the Department of Civil and Environmental Engineering.

ISO Focus+: *Can you already comment on the benefits of implementation?*

Maurice Ahern: Improved operational control of existing equipment and systems has received a strong focus as a result of implementing ISO 50001. We have been impressed by the new savings opportunities we have identified, many at low cost.

As an educational establishment with a strong sustainability faculty and ethos, we use our own energy projects and management system to assist in our academic research into improving energy sustainability.

Our energy management system, based on a platform developed by Enerit, has recently been demonstrated online at an ISO/DEVCO* national energy management seminar in Delhi by Liam McLaughlin, who acted as consultant in our ISO 50001 implementation. We are delighted to allow others to see our system in the hope that it may help them in their efforts to improve their energy performance. ■

*ISO/DEVCO is an ISO committee established to address the needs of developing countries. ISO/DEVCO’s membership comprises over 135 national standards institutes from industrialized as well as developing countries. Its overall objective is to help developing countries focus on acquiring world-class technological competence and on achieving a good understanding of the technical requirements underlying global trade. Assisting developing countries in the fields of standardization and related activities is a key goal.