

Case Study 1: A Step Forward to Energy Management – Our Roadmap on Adopting ISO 50001 Energy Management System (EnMS) Standard

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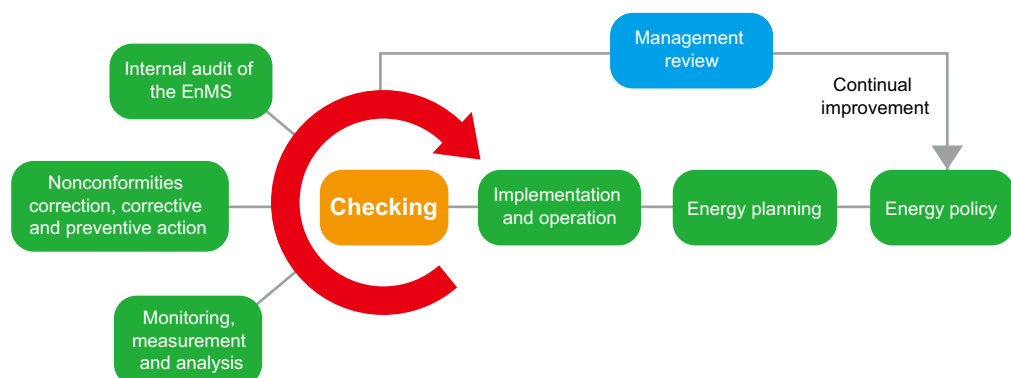


Energy management has become a global issue because of the urgency to reduce greenhouse gas emissions. To support the government's call for reducing the local energy intensity of at least 25% by 2030 (with 2005 as the base year), we have implemented a number of energy saving and efficient initiatives during design, construction and management of our public rental housing (PRH) estates. As a forward-looking government department, we have rolled out an EnMS adopting ISO 50001 framework to provide a systematic approach to strengthen and improve our energy management and performance since December 2011.

Background of the ISO 50001 EnMS Standard

The internationally recognised ISO 50001 standard was officially published in June 2011. It enables organisations to establish system and process to enhance their energy performance by improving energy efficiency and reducing consumption. This helps reduce greenhouse gas emissions and thus lessens the impact of global warming and other related environmental problems. By adopting ISO 50001 standard, organisations can also save the energy expenses as well as demonstrate their corporate commitment in sustainability.

Similar to other management system standards, ISO 50001 is based on the plan-do-check-act approach to achieve continual improvement in energy performance. The relationship between its core elements is illustrated below.



The core elements of ISO 50001 EnMS Standard

Our Preparation to Adopt the Standard

To prepare for the adoption of ISO 50001 standard, we started to equip ourselves in early 2011 prior to the official launch of the standard. These include organising training workshops to provide relevant knowledge for staff as well as conducting gap analysis and technical review for some of our operations with reference to the draft ISO 50001 standard to review our existing energy management practices.



Over 20 colleagues attended the ISO 50001 foundation training course prior to the launch of the standard

Our Implementation Targets, Milestones and Achievements

As a pioneer of the Housing Department, the Development and Construction Division (DCD) has rolled out its EnMS in December 2011 following the promulgation of the standard. We organised six training sessions in early May 2012, covering around one-third of the DCD's colleagues to further enhance their awareness in energy management.

Since the building services installations account for the major portion of our total energy consumption in communal area of residential buildings, we focus on the energy performance of the communal building services installations in public housing blocks during the initial stage of our EnMS implementation. A baseline for energy consumption of 30kWh/m²/Annum was established for building services installations in the communal areas of domestic blocks. Such energy baseline will be applied to all our new projects for comparison and for design adjustment to achieve the target performance if necessary.

During the design stage of each project, we will estimate the communal energy consumption for each domestic block and compare against the energy baseline. In case of exceeding the baseline, we will review the design and identify room for improvement to lower the energy use. We will measure the actual communal energy consumption and compare against the estimated figure after mass intake.

It should be noted that in 2000/01 before implementing the EnMS, we have already carried out a number of energy saving measures to significantly reduce around 40% of the electricity consumption in communal areas of a typical public housing block, from 1 032 kWh in 2000/01 to 596 kWh in 2010/11. These measures include:

- **Passive Design Approach** to save energy consumption with utilisation of natural ventilation and lighting;
- Optimising lift number and capacity;
- Employing light weight lift car decoration;
- Applying high-efficient lift power system;
- Employing high efficiency T5 fluorescent tube;
- Employing high efficiency electronic ballast;
- Adopting two-level lighting system; and
- Adopting electronic variable speed drive control in fresh water booster pump system.

With the EnMS in place apart from implementing the above measures, we are planning to widely adopt Light Emitting Diode (LED) light fittings in our PRH estates. It is anticipated that we could further cut down the electricity consumption in communal areas to 536 kWh in 2014/15.



ISO 50001 certificate for DCD

With the conscientious efforts of our staff, DCD achieved ISO 50001 certification with the scope of “Planning, Design, Project Management and Contract Administration for the Construction of Public Housing” in June 2012. We are delighted that we were the first organisation in Hong Kong obtaining the ISO 50001 certification in residential building design.

Our Future Planning

Estate Management Division has also embarked on ISO 50001 EnMS implementation in Kwai Shing West Estate as a pilot estate since January 2013. The estate was awarded the ISO 50001 certification on 27 June 2013. We are preparing to implement ISO 50001 EnMS and achieve certification for all PRH estates in the coming two years with the aims of raising energy efficiency in all the public facilities of PRH estates and also supporting energy saving and carbon reduction in Hong Kong.

In addition to improving our energy performance, we are planning to require some of our listed construction contractors to obtain ISO 50001 certification. A series of engagement activities, including workshops, meetings, questionnaire surveys, etc. have been conducted to seek the views of relevant contractors to implement EnMS in construction sites. As a leader in the industry to building sustainable living environment for the society, we will continue to facilitate our partners to understand and implement the EnMS.