能源效益及相關事項通訊
A Newsletter on Energy Efficiency and Related Matters

二零一三年 七月 Jul 2013

EnergyWits 智能

第二十一期 ISSUE NO. 21

本期內容 Contents

珍惜資源 全民節能

機電工程署
EMSD

根據《建築物能源效益條例》(610章)進行的能源審核

Energy Audit under Buildings Energy Efficiency Ordinance (Cap. 610)

上期《智能》提到，商業建築物及綜合用途建築物內作商業用途部分的擁有人，須委聘「註冊能源效益評核人」（簡稱評核人）按照《建築物能源審核實務守則》（簡稱《能源審核守則》）的要求，每十年為建築物內的中央屋宇裝備裝置進行能源審核。今期將為讀者簡介相關規定。

As mentioned in the previous issue of EnergyWits, owners of commercial buildings and commercial portion of composite buildings are required to engage Registered Energy Assessors (REAs) to conduct energy audits for the central building services installations of their buildings once every ten years in accordance with the requirements of the Code of Practice for Building Energy Audit (the Energy Audit Code or the EAC). In this issue, the relevant requirements will be briefly introduced.

能源審核目的

能源審核指有系統地審查建築物的能耗設備/系統，以便找出能源管理機會，為建築物的擁有人提供有用的資料，以決定及實施節能措施，達致環境保護和經濟效益的目標。

Objectives of Energy Audit

An energy audit involves the systematic review of the energy consuming equipment/systems in a building to identify energy management opportunities (EMO), which provides useful information for the building owner to decide on and implement the energy saving measures for environmental consideration and economic benefits.

進行首次能源審核的時間表

如商業建築物或綜合用途建築物的商業部分在2012年9月21日或之前取得由「建築事務監督」發出上蓋建築物的「建築工程展開同意書」，則須按照《建築物能源效益條例》（簡稱《條例》）附表5指明的時間表進行首次能源審核，詳情如下：

Schedule of the First Energy Audit

The commercial buildings or the commercial portion of composite buildings with the "consent to the commencement of building works" for superstructure construction issued from the Building Authority on or before 21 September 2012 are required to carry out the first energy audit according to the timetable as specified in Schedule 5 of the Buildings Energy Efficiency Ordinance (BEEO). Details are as follows:

發出「佔用許可證」（俗稱「入伙紙」）的日期 Issue date of "occupation permit"	須進行首次能源審核的限期 Period within which the first energy audit must be carried out
1988年1月1日或之後 On or after 1 January 1988	不遲於2013年9月20日 Not later than 20 September 2013
1978年1月1日 — 1987年12月31日 1 January 1978 — 31 December 1987	不遲於2014年9月20日 Not later than 20 September 2014
1970年1月1日 — 1977年12月31日 1 January 1970 — 31 December 1977	不遲於2015年9月20日 Not later than 20 September 2015
1969年12月31日或之前 On or before 31 December 1969	不遲於2016年9月20日 Not later than 20 September 2016

如新建商業建築物或綜合用途建築物的商業部分在2012年9月21日後取得同意書，則須在獲發「遵行規定登記證明書」的10年內，進行首次能源審核。

For new commercial buildings or commercial portion of new composite buildings with the consent issued after 21 September 2012, it is required to carry out the first energy audit within 10 years after the buildings are first issued with a Certificate of Compliance Registration.

能源審核表格及能源審核報告

當評核人完成能源審核後，建築物擁有人須向評核人取得能源審核表格及能源審核報告。能源審核表格載有建築物的能源使用指數。這個指數分別以兆焦耳及千瓦小時標示該建築物每年每平方米所耗用的能源。其後，建築物擁有人須在建築物的主要入口的當眼處，展示能源審核表格的文本。

Energy Audit Form and Energy Audit Report

After completion of energy audit by a REA, the building owner is required to obtain an Energy Audit Form and an energy audit report from the REA. The Energy Audit Form shows the Energy Utilization Index of a building, which indicates the energy consumption of that building in megajoules per square metre per annum and its equivalent value in kWh per square metre per annum. Subsequently, the building owner should display a copy of the Energy Audit Form in a conspicuous position at the main entrance of the building.

Form EE5 表格 EE5

The Government of the Hong Kong Special Administrative Region
Buildings Energy Efficiency Ordinance (Chapter 610, Section 22)
Energy Audit Form

香港特別行政區政府
建築物能源效益條例
（第610章 第22條）
能源審核表格

Section A 甲 部：General Information 一般資料

Section B 乙 部：Declaration 聲明

能源審核表格（表格EE5）
Energy Audit Form (Form EE5)

在建築物的主要入口展示有效的能源審核表格
Display of a valid Energy Audit Form at the main entrance

能源管理機會

《條例》要求建築物擁有人為建築物進行能源審核，以便找出能源管理機會，但無強制建築物擁有人必須實施所有能源管理機會。一般而言，能源管理機會可分為以下三類。建築物擁有人可按各自需要實施有關能源管理機會。

Energy Management Opportunities (EMO)

The BEEO requires the building owner to carry out energy audit for a building to identify EMO, but it is not a mandatory requirement to implement all EMO. In general, EMO can be divided into the following three categories. The building owner could implement the identified EMO to suit his/her own needs.

類別 Category	描述 Description	例子 Examples
第一類 Category I	涉及內務管理，所推行的改善措施無需任何投資成本，並且不會妨礙建築物的運作 Involving housekeeping measures which are improvements with no cost investment and no disruption to building operation	當房間無人使用時，關掉冷氣機或電燈、調高室內溫度等 Turning off A/C or lights when not in use, adjusting A/C temperature set-points, etc.
第二類 Category II	涉及更改操作方法，投資成本相對較低 Involving changes in operation measures with relatively low cost investment	安裝時間掣來關掉設備、將T8螢光燈管更換為T5燈管等 Installing timers to turn off equipment, replacing T8 fluorescent tubes with T5 fluorescent tubes, etc.
第三類 Category III	涉及相對較高的投資成本，以達致善用能源的目的 Involving relatively higher capital cost investment to attain efficient use of energy	加裝可變速驅動器、安裝功率因數修正器、更換冷水機等 Adding variable speed drives, installing power factor correction equipment, replacing chillers, etc.

嵌入天花板的用戶感應器
A typical occupancy sensor for lighting control (ceiling mounted)

T12、T10、T8及T5螢光燈的外觀
Physical appearance of T12, T10, T8 and T5 fluorescent lamps

《能源審核守則2012年版技術指引》

《能源審核守則2012年版技術指引》已經推出，旨在概括說明法定要求及《能源審核守則》的技術要求，並解釋相關內容。這本技術指引現已上載至《條例》網站（www.beeo.emsd.gov.hk），供各界參考。

Technical Guidelines on Energy Audit Code 2012 Edition

To provide an overview and certain explanations of the legislative requirements and the EAC's technical requirements, the Technical Guidelines on Energy Audit Code 2012 Edition has been issued and uploaded to the website of the BEEO (www.beeo.emsd.gov.hk) for public reference.

能源審核守則2012年版技術指引
Technical Guidelines on Energy Audit Code 2012 Edition

《能源標籤快訊》
Energy Label Newsletter

機電工程署能源效益事務處今年推出了全新刊物《能源標籤快訊》。該《快訊》的宗旨是向業界介紹強制性和自願性能源效益標籤計劃的資訊和最新發展，特別是滿足零售商的資訊需要。

《快訊》會定期出版，以輕鬆手法為大家介紹能源標籤的知識，有助零售商解答顧客選購電器時的問題，又可加強對有關法例的了解。除了有趣的漫畫環節外，我們還加插了有獎問答遊戲，希望大家喜歡，踴躍參加。

《快訊》第1期及第2期先後於今年1月及5月出版，分別重點介紹抽濕機和冷氣機的能源標籤。自創刊號出版以來，各界對《快訊》反應熱烈，令人鼓舞。我們會再接再厲，希望每一期的內容都能夠滿足大家的期望。

《快訊》已上載至機電工程署網頁，網址是：http://www.energylabel.emsd.gov.hk/tc/cop.html

The Energy Efficiency Office (EEO) of the Electrical and Mechanical Services Department (EMSD) has launched a new publication "Energy Label Newsletter" this year. The purpose of the Newsletter is to introduce information and the latest development of the mandatory and voluntary energy efficiency labelling schemes, especially catering to the information needs of retailers.

The Newsletter will be published periodically, instilling knowledge about energy labels in a light-hearted manner. It does not only help retailers to answer customers' questions when choosing electrical products but also enhances the understanding of the relevant legislation. In addition to the interesting comics section, we have included a quiz which we hope you will like it and try it out.

The first and second issues of the Newsletter were published in January and May this year, focusing on the energy labels of dehumidifiers and room air conditioners respectively. Since the inaugural issue was published, we have continuously received encouraging response from various parties. We will work even harder to make sure that the content of each issue can meet everyone's expectations.

The Newsletter has been uploaded to the EMSD website at: http://www.energylabel.emsd.gov.hk/en/cop.html

新修定的辦公室器具
自願性能源效益標籤
Revised VEELS for Office Equipment

為方便市民選用具能源效益的產品，機電工程署推行了自願參與的家用器具及辦公室器具能源效益標籤計劃。自願性能源效益標籤計劃採用的能源標籤分別為“確認式”及“級別式”兩類。“確認式”能源標籤用於識別達到指定能源效益和表現要求的產品。而“級別式”能源標籤則把同一類產品的能源效益分為五級，當中以“第一級”標籤代表能源效益最高的產品。本計劃旨在為消費者提供不同產品的能源消耗量及效益資料，從而有助他們購買時作出精明的選擇。

To facilitate the public on choosing energy efficient products in their daily life, Electrical and Mechanical Services Department (EMSD) operates a Voluntary Energy Efficiency Labelling Scheme (VEELS) for various household appliances and office equipment. The scheme is classified into two labelling systems, namely the “Recognition Type” and the “Grading Type” energy labels. The “Recognition Type” energy label is used to distinguish products that have met a certain level of energy efficiency and performance requirement, while the “Grading Type” energy labelling scheme classifies the energy performance of a product type into 5 grades with “Grade 1” represents the most energy efficient product. Through the scheme, general public can take the energy efficient factor into consideration before making their purchasing decision.

新修定的四種辦公室器具(即傳真機、辦公室設備、影印機及打印機)自願性能源效益標籤計劃已於2013年1月1日起生效，新修定的計劃保留原用的“確認式” 能源標籤。

Four kinds of office equipment (i.e. fax machine, multi-function device, photocopier and printer) schemes under the VEELS were revised and have been implemented from 1 January 2013. The revised schemes have still operated as a “Recognition Type” labeling system.

測試所要求

測試所必須根據GB25956-2010「印表機傳真機能效限定值及能效等級」或IEC 62301 (第一版2005-06)1.0“Household Electrical Appliances — Measurement of Standby Power”取得認可或取得美國環境保護局“能源之星認可辦公室器具測試所”資格。

Test Laboratory Requirement

The test laboratory must be accredited to GB25956-2010 “Minimum allowable values of energy efficiency and energy grade for printers and fax machines” or IEC 62301 (First Edition 2005-06) 1.0 “Household Electrical Appliances – Measurement of Standby Power” or U.S. Environmental Protection Agency “Energy Star Laboratory for Imaging Equipment”.

技術標準

在新修定的辦公室器具自願性能源效益標籤計劃下，所有型號均需要符合「典型用電量」或「操作模式」評估方法的耗電量要求，方合資格參與本計劃。

Technical Standards

To qualify for this revised scheme, all the models should meet the specified power consumption of “Typical Energy Consumption (TEC)” of “Operation Mode (OM)” evaluation method.

表1: 測試程序的適用範圍

Table 1: Test Procedure Applicability

Product Type 產品種類	Media Format 標準尺寸	Marking Technology 產品種類	Evaluation Method 產品種類
Fax Machine **傳真機**	Standard 標準尺寸	DT, DS, EP, SI, TT	典型用電量 (TEC)
		IJ	操作模式 (OM)
Printer **打印機**	Standard 標準尺寸	High Performance IJ, DT, DS, EP, SI, TT	典型用電量 (TEC)
		IJ, Impact	操作模式 (OM)
	Large or Small 大或小尺寸	DT, DS, EP, Impact, IJ, SI, TT	操作模式 (OM)
Multifunction Device **多功能辦公室設備**	Standard 標準尺寸	High Performance IJ, DT, DS, EP, SI, TT	典型用電量 (TEC)
		IJ	操作模式 (OM)
	Large 大尺寸	DT, DS, EP, IJ, SI, TT	操作模式 (OM)
Photocopier **影印機**	Large 大尺寸	DT, DS, EP, SI, TT	操作模式 (OM)

*Remark (註解): DS = Dye Sublimation顏料昇華, DT = Direct Thermal直接加熱, EP = Electro -Photography電子攝影術, IJ = Ink Jet噴墨, SI = Solid Ink固態墨, TT = Thermal Transfer熱移轉

標準尺寸格式

為標準尺寸的媒體 (例如信件、A3、A4、B4) 而設的產品。

Standard Format

Products designed for standard-sized media (e.g., Letter, A3, A4, B4).

大尺寸格式

為A2或更大的媒體而設計的產品，包括那些設計上可容納寬度超過或相等於406毫米的連續表單媒體的產品。

Large Format

Products designed for A2 media and larger, including those designed to accommodate continuous-form media greater than or equal to 406 mm wide.

小尺寸格式

為尺寸小於標準尺寸定義(例如A6、4”x 6”、微影片)的媒體而設計的產品，包括那些設計上可容納寬度小於210毫米的連續表單媒體的產品。

Small Format

Products designed for media sizes smaller than those defined as Standard (e.g., A6, 4” x 6”, microfilm), including those designed to accommodate continuous-form media less than 210 mm wide.

能源標籤

辦公室器具的“確認式”能源標籤(見圖1至4所示)均附有獨立註冊編號，方便市民於機電工程署網址查閱產品的詳細資料。

Energy Label

The “Recognition Type” Energy Labels for office equipment as shown in Figure 1 to 4 contain specified registration number, which helps to search product information from the website of EMSD.

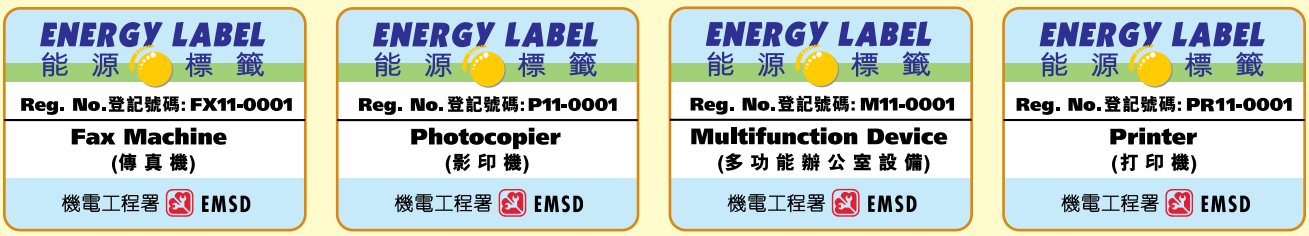


Figure 1 to 4 (圖1至4)

有關計劃的詳細資料，可於機電工程署網址瀏覽(http://www.emsd.gov.hk)，亦可致電(852) 2808 3465機電工程署能源效益事務處查詢。

For details of the scheme, please visit the website of EMSD (http://www.emsd.gov.hk). For enquiries, please contact the Energy Efficiency Office of EMSD at (852) 2808 3465.

提升運輸業能源效益的措施

Measures to Enhance the Energy Efficiency in Transportation

背景

機電工程署自2000年起，每年均會刊載「香港能源最終用途數據」。在2010年，能源最終用途的四個類別中(住宅、工業、商業和運輸)，運輸組別的全年能源消耗量是89,794太焦耳，約佔全年總能源消耗量(276,950太焦耳)的三成二。但是，相較於2000年同組別的能源消耗量(106,984太焦耳)，運輸組別的能源消耗量實際上減少了約16%。

由於業界採用先進的技術和政府多年來一直致力管制車輛廢氣的排放，車輛的能源消耗量在十年內相對減少；但根據環保署的統計，自1991年起，車輛數目和車輛的行車里數實際上按年增長，以致由運輸所造成的溫室氣體排放在1999-2000年期間的排放量一直都佔整體的溫室氣體排放的15-25%，僅次於由發電所造成的溫室氣體排放。因此，提升車輛的能源效益對駕駛者和環境保護都有幫助。

Background

The Energy Efficiency Office (EEO) of Electrical and Mechanical Services Department (EMSD) has published the "Hong Kong Energy End-use Data" since 2010. Amongst the four sectors (residential, commercial, industrial and transport), the annual energy consumption in the transport sector is 89,794 MJ in 2010, which is about 32% of the annual energy consumptions (276,950 MJ) from all sectors. Compared with the annual energy consumption (106,984 MJ) estimated in the transport sector in 2010, it is greatly reduced by 16%.

With the application of advanced technology and the Government has been working for years to control emissions from motor vehicles, its energy consumption has been greatly reduced in these ten years. However, according to an estimate from EPD, the vehicle numbers and kilometres driven has kept growing since 1991, with the greenhouse emissions maintained in the range of 15-25% of the total emissions between 1999 and 2000, which is only less than the emissions from the power generation. As such, enhancing energy efficiency in transportation is beneficial to drivers and environmental protection.

能源消耗指標及基準工具

機電工程署自2001年起採用一套能源消耗指標和基準工具。能源消耗指標主要是顯示不同車輛的能源消耗水平，使駕駛者能了解各自車輛的能源消耗水平及表現。而能源消耗基準的制定，是在各特定的能源消耗組別內，參照同類型車輛的運作及其本身的特性，從而建立能源消耗基準，供駕駛者檢視其本身的能源消耗表現。

Energy Consumption Indicators and Benchmarking Tools

EMSD has commissioned the development of energy consumption indicators and benchmarking tools for selected energy-consuming groups since 2001. Energy consumption indicators are mainly used to indicate the energy consumption level of similar vehicle types, so that drivers understand energy consumption levels and performance of their vehicles. Energy consumption benchmark is developed based on the development of benchmarking system for any particular energy consumption subgroup which allows drivers to benchmark their own energy consumption performance with others having similar operational and physical characteristics.

提升車輛能源效益的措施

採用有效的燃料能提升車輛的能源效益，不但可以降低二氧化碳的排放量，更可以降低車輛的運作成本，但影響燃料效益的因素很多。因此，駕駛者應採取提升車輛能源效益的措施。這包括

- 避免選擇運載量過大或效能低的車輛
- 安裝車輛減阻裝置，如駕駛室頂折射板、駕駛室延伸板及防撞槓下風隔
- 委任一名車隊經理以評估燃料效益
- 駕駛者應計劃合適的載貨策略，例如回程載貨，以減少所需的燃料
- 定期的車輛維持及保養
- 利用科技節省燃料，如衛星導航、無線電通訊等。

總結而言，提升車輛的能源效益能有助減少溫室氣體的排放、空氣污染物的產生和車輛燃料的費用。

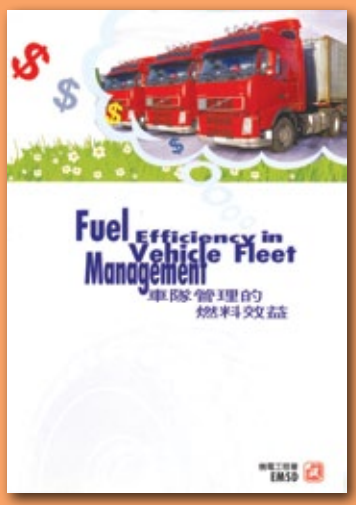
Measures to Enhance the Energy Efficiency in Transportation

Applying efficient fuel can enhance the energy efficiency in transportation. This does not only reduce the greenhouse gases emission, but also lower the operation cost. As such, drivers/ owners are encouraged to adopt appropriate measures to enhance the energy efficiency.

These measures include

- Avoid choose over-capacity or low performance vehicle
- Install drag reducing devices such as cab roof deflector, cab extension panels and under-bumper air dam.
- Employ a fleet manager to assess fuel efficiency
- Devise a strategic load decision, for example back-loading, to use less fuel in the process
- Regular repair and maintenance
- Apply advanced technologies to save fuel such as satellite navigation, radio communication etc.

As a whole, enhancing the energy efficiency in transportation can reduce greenhouse gas emissions, vehicular emission and reduce the fuel cost.



宣傳節省車輛燃料的小冊子
Pamphlet Promoting Fuel Saving in Vehicles

操作及維修淡水冷卻塔的良好作業

Good Operation and Maintenance Practice for Fresh Water Cooling Towers

短片已上載到機電署YouTube 網頁(www.youtube.com/user/emsdgovhk)
Video uploaded to EMSD YouTube Channel (www.youtube.com/user/emsdgovhk)

淡水冷卻塔擁有人應確保冷卻塔的妥善操作及維修，以避免冷卻塔受污染及對公眾人士構成妨擾。

為方便冷卻塔擁有人和物業管理公司妥善操作及維修淡水冷卻塔，機電署除制作指引外，最近亦按《水冷式空調系統實務守則》第二部制作了《空調系統使用淡水冷卻塔操作及維修的良好作業》的短片，有關短片已上載到機電署網頁 (www.emsd.gov.hk) 及YouTube 網頁(www.youtube.com/user/emsdgovhk)供業界及公眾參考。

該短片內容介紹了妥善操作及維修淡水冷卻塔的良好作業事項，以提高冷卻塔的運作表現及防止退伍軍人病菌滋生，其中重點包括:

- 保持系統狀態良好及不受污染;
- 定期監察和控制冷卻水水質，包括退伍軍人病菌的存在;
- 每年獨立審核系統的操作及維修。

The owners of fresh water cooling towers (FWCTs) shall ensure proper operation and maintenance of cooling towers so as to prevent contamination of cooling towers and nuisances to the public.

To facilitate proper operation and maintenance of FWCTs by owners and property management agents, apart from publishing a guideline, EMSD also recently published a video on Good Operation and Maintenance Practice of Fresh Water Cooling Towers for Air-conditioning Systems based on Part 2 of the Code of Practice for Water-cooled Air Conditioning System. The video has been uploaded to EMSD website (www.emsd.gov.hk) and YouTube Channel (www.youtube.com/user/emsdgovhk) for the trade and public reference.

The video introduces the good practice for proper operation and maintenance of FWCTs for improving their operating performance and preventing proliferation of Legionella, with emphasis on the following:

- maintaining the system in good and uncontaminated condition;
- regular monitoring and control of cooling water quality, including the presence of Legionella;
- annual independent audit on system operation and maintenance.

機電工程署與國家質量監督檢驗檢疫總局緊密合作
共同貫徹推進能源效益及電氣產品安全

EMSD in Close Collaboration with AQSIQ
in Furthering Energy Efficiency and Electrical Products Safety

代表人員在寧波出入境檢驗檢疫局合照
Representatives at the Ningbo Entry-Exit Inspection and Quarantine Bureau

能效小組工作會議
The Energy Efficiency Working Group meeting

機電工程署（簡稱機電署）與國家質量監督檢驗檢疫總局(簡稱國家質檢總局）於本年1月9日在寧波出入境檢驗檢疫局召開了能效小組和電氣小組工作會議。

代表在能效小組和電氣小組工作會議上，分別交流了各自的工作情況，並討論兩地能效標籤計劃的最新進展、電氣及能效產品市場抽檢工作和個案等。代表亦就擴展能效標籤計劃及提升產品能源效益級別的要求等進行探討及研究，同時分享了香港有關限制銷售能效較低的白熾燈諮詢結果及未來路向。此外，兩個工作小組透過會議，開展了編製雙方合作十周年情況報告的工作，並深化電氣及能效產品個案的交流，加強聯絡人制度及技術資訊交換的合作，以提升工作效率。

會議期間，寧波出入境檢驗檢疫局安排代表到訪其轄下的國家檢測重點實驗室、奉化出入境檢驗檢疫局及當地廠商的工場，進行交流訪問，加深了各代表對測試設備和管理、產品製造過程、企業生產管理和品質控制方面的了解。

Working group meetings were held on energy efficiency and electrical products between the Electrical and Mechanical Services Department (EMSD) and the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) at Ningbo Entry-Exit Inspection and Quarantine Bureau on 9 January this year.

At the respective meetings of the energy efficiency working group and electrical products working group, representatives reported on their work, and discussions were held on the progress to date of the energy efficiency labelling schemes both on the Mainland and in Hong Kong, the sampling inspections of electrical and energy efficient products in the market, as well as the exchange of case information between the two sides. The meetings took the opportunity to explore and study the possibility of extending the energy efficiency labelling scheme and tightening the requirements of product energy efficiency performance grades. The two sides also shared the result of the consultation on restricting the sale of energy-inefficient incandescent lamps in Hong Kong and the way forward. As they met, the two working groups also proceeded with the compilation of a report on bilateral cooperation over the past ten years, enhanced the exchange of case information regarding electrical and energy efficient products, and strengthened the contact point system and the cooperation on technical information exchanges for better work efficiency.

Concurrently with the meetings, the Ningbo Entry-Exit Inspection and Quarantine Bureau has arranged exchange visits to its state-level key inspection and testing laboratories, the Fenghua Entry-Exit Inspection and Quarantine Bureau and factory of local manufacturer respectively for the representatives of both sides, with a view to deepening understanding of the testing equipment and management, the manufacturing process of products, and the production management and quality control of the enterprises.

在奉化與當地廠商進行交流會議
Exchange meeting with local manufacturer in Fenghua

參觀寧波出入境檢驗檢疫局轄下的國家檢測重點實驗室
Visit to a state-level key inspection and testing laboratory under the Ningbo Entry-Exit Inspection and Quarantine Bureau

參觀當地廠商的生產線
Visiting the production lines of local manufacturer

代表人員在奉化出入境檢驗檢疫局合照
Representatives at the Fenghua Entry-Exit Inspection and Quarantine Bureau

教育徑的 聚光光伏示範裝置

Concentrated Photovoltaic Demonstration Installation at Education Path

機電工程署總部大樓的教育徑自2005年啟用以來，不斷增設新的節能及綠化設施，如2011年落成的垂直綠化牆，不但減低都市熱島效應，更美化教育徑的戶外環境。此外，教育徑去年亦在冷凍機房的屋頂空間增設了聚光光伏系統，**顯示政府以身作則，示範可持續發展節能科技的應用**。這項與電網接駁的光伏系統的總容電量為約1千瓦。

聚光光伏系統配有雙軌太陽追蹤裝置，讓光伏電池任何時間也自動面向陽光最強的方位以增加產電量。聚光光伏系統利用光學部件如曲面反射鏡來把太陽聚焦500倍到一個只有1 cm^2的高效率三結光伏電池上，其模組效率達到25%，比傳統單晶硅光伏模組效率高出逾兩倍。

由於聚光光伏系統使用較便宜的材料如玻璃和塑料把陽光集中於較小面積的昂貴的光伏電池上，它具有良好潛力以提高太陽能產量和降低光伏系統的成本。

Education Path has been adding new energy efficient facilities and green amenities since its launch in 2005. These include the vertical green wall constructed in 2011, which helps to lighten the heat island effect and adds aesthetic appeal to the outdoor area of Education Path. Besides, a concentrated photovoltaic (CPV) system was newly installed on the roof of the chiller plant room for demonstration of **government's willingness in leading the application of sustainable energy efficient** technology. The total capacity of this grid-connected PV system is about 1kW.

Dual-axis tracking allows CPV system to follow the sun throughout the day to maximize the electricity generated. CPV system uses optics such as curved mirrors to focus sunlight, by 500 times, onto a highly efficient triple-junction PV cells with an area of merely 1 cm^2. Its module efficiency can reach 25%, which is two times higher than that of the module of conventional monocrystalline PV cells.

Since CPV system uses less amount of costly photovoltaic cells in conjunction with less expensive materials such as glass and plastic lenses to concentrate sunlight, it may have good potential for increased energy yield and cost reductions in photovoltaic installations.

機電工程署大樓外的聚光光伏系統
The concentrated photovoltaic system (CPV) outside EMSD Headquarters building

安裝垂直綠化牆後的戶外空間
The outdoor area after installing vertical green wall

聯絡資料 Contact

任何人士如欲就本通訊提出意見或詢問，請與我們聯絡，資料如下：
香港九龍啟成街3號機電工程署
電話：(852) 2808 3465　傳真：(852) 2890 6081　電郵：eepublic@emsd.gov.hk
Anyone wishing to offer comments or make enquiries about this newsletter can contact us at:
Energy Efficiency Office, Electrical and Mechanical Services Department, 3 Kai Shing Street, Kowloon, Hong Kong
Tel: (852) 2808 3465　Fax: (852) 2890 6081　Email: eepublic@emsd.gov.hk

機電工程署 EMSD

再造紙印製
Printed on recycled paper