能源效益及相關事項通訊
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機電工程署獲美國能源工程師學會頒發獎項

EMSD receives awards from Association of Energy Engineers

機電工程署（機電署）於9月26日獲美國能源工程師學會頒發亞太區「區域能源管理機構獎」，以表揚機電署在制訂、籌辦、管理和實施綜合能源管理計劃方面的傑出成績。

機電署在1994年成立能源效益事務處，這是香港首個負責推廣能源效益及可再生能源的政府機構。23年來，機電署率先推行多項能源效益及節約能源計劃，並推廣可再生能源、提高社區意識，以及推動香港在促進能源效益方面在國際間佔一席位。

截至2015年，香港的700多萬居民每年消耗約30萬太焦耳的能源。自2005年以來，香港的能源強度下降了超過26%，節能成績在亞太區經濟合作組織的經濟體中名列前茅。機電署會繼續努力，實施不同的能源效益策略，例如「政策和承諾」、「參與和獎勵措施」、「法例和守則」等。

The Electrical and Mechanical Services Department (EMSD) on 26 September 2017 received the "Regional Institutional Energy Management Award" for the Asia-Pacific Rim Region from the Association of Energy Engineers (AEE) owing to the Department's outstanding performance in developing, organising, managing and implementing its comprehensive energy management programme.

In 1994, EMSD established the Energy Efficiency Office (EEO), Hong Kong's first government institution to promote energy efficiency and renewable energy. For 23 years, EMSD has pioneered numerous energy efficiency and conservation schemes, promoted renewable energy, raised community awareness and put Hong Kong on the world map of energy efficiency achievements.

Up to 2015, over 7 million inhabitants in Hong Kong consumed about 300,000 Tera-joules of energy annually. Since 2015, Hong Kong's energy intensity has been reduced by over 26%, a performance ranked among the best in the member economies of the Asia-Pacific Economic Cooperation group. EMSD is keeping up the momentum to implement different energy efficiency strategies such as "Policy and Commitment", "Engagement and Incentives", and "Legislations and Codes".

▲ *機電工程署署長薛永恒（右二）於9月26日出席在美國亞特蘭大舉行的美國能源工程師學會頒獎典禮，代表機電署接受學會主席 Ian Boylan（左二）頒發的亞太區「區域能源管理機構獎」。*

The Director of Electrical and Mechanical Services Department, Mr Alfred Sit (second right), on 26 September attended the award presentation ceremony of the AEE in Atlanta in the United States. On behalf of the department, Mr Sit is pictured receiving the "Regional Institutional Energy Management Award" for the Asia-Pacific Rim Region from the President of the AEE, Mr Ian Boylan (second left).

▲ *機電工程署署長薛永恒（右三）及醫院管理局高級行政經理（工程）源柏樑博士（左二）於9月26日出席在美國亞特蘭大舉行的美國能源工程師學會頒獎典禮，接受學會頒發的亞太區「區域能源項目獎」。負責為項目核實成本效益的香港科技大學機械及航空航天工程系講座教授趙汝恆（右二）亦有出席。*

The Director of Electrical and Mechanical Services Department, Mr Alfred Sit (third right), and the Senior Manager (Engineering) of the Hospital Authority, Dr Yuen Pak-leung (second left), on 26 September attended the award presentation ceremony of the AEE in Atlanta in the United States, where they received the "Regional Energy Project of the Year Award" for the Asia-Pacific Rim Region. The Chair Professor of the Department of Mechanical and Aerospace Engineering of the Hong Kong University of Science and Technology, Professor Christopher Chao (second right), who assisted in the verification of the cost effectiveness of the project, also attended the ceremony.

另外，機電署亦聯同醫院管理局（醫管局）奪得亞太區「區域能源項目獎」，該獎項表揚創新的能源管理項目。自2015年起，機電署和醫管局合作為多間醫院更新高效能製冷機，並安排香港科技大學核實成本效益，結果顯示有關措施每年節省約1,300萬千瓦小時的耗電量。

這些獎項對機電署在過去二三十年間為推動香港成為一個更節能和環保的城市而付出的努力，作出了肯定。

The EMSD and the Hospital Authority (HA) jointly received the "Regional Energy Project of the Year Award" for the Asia-Pacific Rim Region, an award commending innovative energy-management projects. Since 2015, EMSD has been co-operating with the HA in installing high-efficiency chillers in various hospitals, and engaged the Hong Kong University of Science and Technology in verifying their cost effectiveness, which concluded that an annual electricity consumption of around 13 million kWh has been saved.

These awards are recognition of what EMSD has done in the last two to three decades in making Hong Kong a more energy efficient and greener city.

全民節能 2017

Energy Saving for All 2017

全民節能 2017

環境局和機電工程署於2017年繼續推行「全民節能」運動，推動各界攜手節約能源，應對氣候變化。「全民節能2017」運動於五月十八日舉行啟動禮，運動涵蓋《節能約章2017》、《4Ts約章》、《慳神有計大比拼2017》和《慳神大比拼2016》頒獎典禮。

節能約章 2017

超過3,300個團體簽署《節能約章2017》。獲邀請簽署界別的名單擴大至餐廳、酒店及醫院等，與員工和學生共同實踐節約能源措施。除在盛夏期間（即六月至九月）維持旗下物業的平均室內溫度在攝氏24至26度之間，約章亦包括關掉不需要使用的電器，和選購具能源效益產品之承諾。

4Ts約章

超過1,000個場所承諾參與2017年首次推出的《4Ts約章》。約章內容包含四個部分：訂立節能目標（target）並制定時間表（time-line）、確保透明度（transparency）報告節能成效以及鼓勵全民共同（together）參與達成節能目標。

Energy Saving for All 2017

The Environment Bureau and the Electrical and Mechanical Services Department are jointly holding the "Energy Saving for All" campaign again in 2017 to promote energy saving in all sectors to combat climate change. The launching ceremony of the "Energy Saving for All 2017" campaign was held on 18 May. The campaign comprises the "Energy Saving Charter 2017", the "4Ts Charter", the "Energy Saving Championship Scheme 2017" and the Award Presentation Ceremony of the "Energy Saving Championship Scheme 2016".

Energy Saving Charter 2017

Over 3,300 organisations have signed up to the "Energy Saving Charter 2017". The invitation list has been expanded to include restaurants, hotels, hospitals and more in order to engage staff and students to adopt the energy saving practices together. Apart from calling for the maintenance of the average indoor temperature at their premises between 24 and 26 degrees Celsius during mid-summer (i.e. June to September), it also included pledges for switching off appliances when not in use and procuring energy-efficient appliances.

4Ts Charter

Over 1,000 premises have pledged to join the newly launched "4Ts Charter". The Charter is comprised of four parts: setting an energy saving "target", establishing a "timeline", ensuring "transparency" to track the energy saving result, and encouraging people to work "together" on achieving the energy saving target.

慳神有計大比拼 2017

《慳神有計大比拼2017》是《慳神大比拼2016》的延續。比賽目的為表揚在節能應用、節能計劃及推廣節能上有卓越表現的模範團體，以鼓勵業界共同節約能源。今次的評審準則增加了4Ts元素，涵蓋組別擴大至10個建築物類別，推動業界一同節約能源。

慳神大比拼 2016 頒獎典禮

共有279個場所參加在2016年推出的《慳神大比拼2016》。得獎團體將以身作則，推動業界節約能源，包括在研討會分享典範經驗，以及將節能措施上載至《全民節能》網站推廣和分享。

有關「全民節能2017」的詳情，請瀏覽專題網頁：
www.energysaving.gov.hk。

Energy Saving Championship Scheme 2017

The "Energy Saving Championship Scheme 2017" is a continuation of the "Energy Saving Championship Scheme 2016". This scheme aims to give recognition to exemplary organisations with outstanding performance in the application, planning and promotion of energy saving, so as to encourage businesses to work together to save energy. Elements of the 4Ts have been incorporated into 2017's assessment criteria. Its coverage is extended to 10 building categories to promote concerted efforts among industries in energy saving.

Award Presentation Ceremony of Energy Saving Championship Scheme 2016

A total of 279 premises participated in the "Energy Saving Championship Scheme 2016" launched in 2016. The winning organisations will take the lead to promote energy saving among the industries by sharing their exemplary experience in seminars, and uploading their energy saving measures to the "Energy Saving for All" website for publicity and sharing.

For details of the "Energy Saving for All 2017" campaign, please visit the thematic website:
www.energysaving.gov.hk.

頒獎典禮的相片
Photos of Award Presentation Ceremony

▲ *一眾嘉賓及相關界別代表在啟動禮開始前大合照。*
Guests and representatives from relevant sectors joined a group photo at the beginning of the ceremony.

▲ *環境局局長黃錦星、時任機電工程署署長陳帆與各個組別的至尊慳神大獎獲獎隊伍合照。*
The Secretary for the Environment, Mr Wong Kam-sing; the then-Director of Electrical and Mechanical Services Department, Mr Frank Chan; and the members of the Hanson Grand Award winning teams from all categories.

▲ *《節能約章2017》及《4Ts約章》簽署儀式在「全民節能2017」運動啟動禮後舉行。環境局局長黃錦星（前排右四）及時任機電工程署署長陳帆（前排左四）與參與機構代表合照。*
The signing ceremony for the "Energy Saving Charter 2017" and the "4Ts Charter" were held after the launching ceremony of the "Energy Saving for All 2017" campaign. Photo shows the Secretary for the Environment, Mr Wong Kam-sing (front row, fourth right), and the then-Director of Electrical and Mechanical Services Department, Mr Frank Chan (front row, fourth left), with the signatories.

▲ *環境局局長黃錦星（中）、時任機電工程署署長陳帆（左三）及其他嘉賓為「慳神有計大比拼2017」揭開序幕。*
The Secretary for the Environment, Mr Wong Kam-sing (centre); the then-Director of Electrical and Mechanical Services Department, Mr Frank Chan (third left); and other guests start the "Energy Saving Championship Scheme 2017".

區域供冷創先河 啟德變身環保之城

First-of-its-kind District Cooling System at Kai Tak Development for Environmental Friendly City

先驅性供冷構思　為環保出一份力

供冷及通風在現今越趨密集的社區已經是不可或缺的一環。商業或大廈用戶，都會認同空調為重要樓宇設施。為大眾所認知的空調系統一般為傳統的窗口式和分體式冷氣機或中央空調系統，此外還有什麼選擇呢?相信有留意第二十三期「智能」《啟德發展區區域供冷系統》或第二十八期《香港科技大學中央供冷站轉化為區域供冷系統》的讀者都一定知道區域供冷是另一種選擇。

時至今日，啟德區域供冷系統已進行到第三期。在機電工程署聯同邁進基建環保工程的設計及監督下，第三期(組合甲)工程合約已為香港兒童醫院、工業貿易大樓、聖公會聖十架小學和保良局何壽南小學安裝接駁冷凍水設施，並於南北兩廠加裝冷凍機組。敷設水管至兒童醫院更牽涉全港首創海底工程，難度之大無可比擬。憑藉出色表現及創新技術，我們啟德發展區域供冷系統工程團隊勇奪首屆香港顧問工程師協會年獎的「整體最佳大獎」。

面對挑戰而迎難而上的高級土木工程師唐志康先生及高級屋宇裝備工程師盧兆權先生多年來負責管理及監督區域供冷工程，在這次訪問中令小記長了不少知識。

Energy conservation by first-of-its-kind district cooling system

Air-conditioning and ventilation is an indispensable part in this modern and dense society. The air-conditioning is considered as an important facility in commercial premises. Besides the traditional window-type, split-type air-conditioning units and centralized air-conditioning system, are there any alternatives? Readers who have read "Energy Wits" issue no. 23 "District Cooling System at Kai Tai Development" and issue no. 28 "Remodelling the Central Chiller Plant to a District Cooling System at HKUST" must know district cooling is another choice.

Now, the construction of District Cooling System (DCS) at Kai Tai Development (KTD) is at Phase III. Under the design and supervision of EMSD and Meinhardt Infrastructure and Environment Limited, the Phase III (Package A) contracts have installed connection facilities in Hong Kong Children's Hospital, Trade and Industry Tower, S.K.H. Holy Cross Primary School and Po Leung Kuk Stanley Ho Sau Nan Primary School and additional chiller units in the North and South DCS Plant. The pipe jacking works for the connection to Hong Kong Children's Hospital even involved the first-of-its-kind subsea construction in Hong Kong with inconceivable challenges. By virtue of our outstanding performance and innovative technique, the Kai Tak District Cooling System team was awarded the "Overall Best Award" in the inaugural Annual Awards of the Association of Consulting Engineers of Hong Kong (ACEHK).

Mr. Tong Chi Hong, Senior Civil Engineer, and Mr. Lo Siu Kuen, Senior Building Services Engineer, who had managed and supervised the district cooling project for years, had faced numerous challenges. The interview with them had really broaden the interviewer's knowledge a lot.

▲ *高級土木工程師唐志康先生*
Mr. Tong Chi Hong, Senior Civil Engineer

▲ *高級屋宇裝備工程師盧兆權先生(右)*
Mr. Lo Siu Kuen, Senior Building Services Engineer (Right)

『機電署勇奪顧問工程師協會年獎!』

唐先生表示，工程項目在設計及建造過程中遇上不少挑戰，包括如何將冷凍水由南廠輸送至位於啟德明渠進口道對岸的香港兒童醫院。我們在進口道的兩岸，各挖掘了一個深達25米的豎井，利用全港直徑最大的隧道鑽挖機，以無坑頂管法於海　下安裝兩條直徑2.8米套筒的預製組件，然後在套筒內敷設兩條冷凍水水管。隧道鑽挖機要有足夠的動力，才可以在25米深的地底前進。鑽挖機運作時，我們要緊密監察它前進的方向並作出適當的調較，以確保鑽挖機能從此岸的啟動豎井，準確到達350米外的回收井。此外，亦要確保豎井週邊的泥土不會在開鑿隧道時湧入豎井。

EMSD recognized by ACEHK Annual Award!

According to Mr. Tong, there were many challenges during the design and construction of the project, including how to supply chilled water from the South Plant to the Hong Kong Children's Hospital on the other side of the Kai Tak Approach Channel. A 25m deep vertical shaft was dug on each side of the approach channel. By employing the city's largest tunnel boring machine (TBM), two prefabricated sleeve pipes measuring 2.8m in diameter were laid below the seabed by trenchless pipe jacking method, with two chilled water pipes installed within each sleeve pipe. Sufficient power was required to drive the TBM to move forward at 25m under ground. During the TBM operation, we need to closely monitor the direction of advancement and make adjustment accordingly to ensure the TBM can reach the receiving shaft located 350m away from the jacking shaft. Moreover, we need to ensure the soil surrounding the vertical shafts will not get into the vertical shaft during the tunnel boring.

▲ *發展局常任秘書長（工務）韓志強先生頒發「整體最佳大獎」予機電工程署和工程顧問公司及承建商。*

EMSD, consultant and contractor received the "Overall Best Award" from Mr. Hon Chi-keung, Permanent Secretary for Development (Works)

啟德區域供冷系統小知識　Facts for DCS at KTD

啟德區域供冷系統小知識

一. 極大製冷量

啟德所需製冷量約為284兆瓦，所使用的製冷機製冷量亦同樣驚人，為全港最龐大的五千冷噸。

二.　南北廠選址心思巧

由於覆蓋範圍擴大，選址需考慮地形及避免喉管太長，亦要選擇發展潛力性低的地皮，減低興建成本。經過審慎考慮後，最終敲定北廠選址為近天橋及地底為渠務保留地的地皮，而南廠則建於地底。

三.　極大節能

區域供冷規模全港首屈一指，不僅要安裝製冷量龐大的機組，還要抽取海水製冷。使用該系統每年可節省8,500萬度電，相應減少排放59,500公噸二氧化碳。

Facts for DCS at KTD

1. Huge cooling capacity

The required cooling capacity of DCS at KTD is about 284 MWr. The cooling capacity of the chillers are rated 5000RT, the largest of this kind in Hong Kong.

2. Subtle Choice of Plant Location

As the coverage area was large, the plant location was selected based on topography and avoidance of long pipes. In addition, we chose a low development potential land to reduce opportunity cost. After thorough consideration, the North DCS plant was located in a land near the skyover and with an underground drainage reserve while the South DCS plant was constructed underground.

3. Huge Energy Saving

The scale of DCS at KTD is at the forefront in Hong Kong. The DCS not only equipped larger chillers but also use sea water for cooling. By using DCS, 85 million kilowatt-hour (kWh) of electricity can be saved, with a corresponding reduction of 59,500 tonnes of carbon dioxide per annum.

採取環保的供冷方案 · 有別於傳統大廈製冷

盧先生說，區域供冷有別於傳統樓宇供冷，個別用戶無須為樓宇裝設獨立的製冷機組和相關機電設備，樓宇設計可更具彈性。另外，系統亦裝有電腦自動系統，使用光纖網絡，用作傳輸滲漏監測系統訊號及能源數據，以便即時監察和控制。

區域供冷系統除了可節省能源，提高經濟效益外，建築物無須裝設空調機組的散熱器和製冷機組，因而可避免這些機組運作所引致的噪音和震動，令建築物更環保舒適。世界各地如中東、新加坡、歐洲和美國已廣泛採用區域供冷這項技術。政府亦正積極研究於其他新發展區興建區域供冷系統，包括東涌新市鎮擴展計劃等。

Making a difference to conventional air conditioning systems by adopting environmental solutions

According to Mr. Lo, DCS is different from conventional air conditioning system in buildings. Buildings do not need to install their own chillers and the associated electrical equipment; more flexible building designs can be adopted. Furthermore, the system is equipped with automatic computerized system using optical fibre network for transmission of leakage detection system signal and energy data for central monitoring and control.

Apart from energy saving and economic benefit, DCS can eliminate noise and vibration arising from the operation of heat rejection equipment and chillers of air-conditioning plants in buildings, as such equipment will no longer be necessary for buildings subscribing to district cooling services. This makes the buildings more environmental friendly and comfortable. District cooling has been widely adopted in other parts of the world, such as Middle East, Singapore, Europe and United States. The government is also actively studying the feasibility of constructing district cooling system in other new development areas, such as Tung Chung New Town Extension.

「重新校驗」
"Retro-commissioning"

簡介重新校驗技術指引及網頁

「重新校驗」是一個具有成本效益的系統檢測過程，用作定期檢查既有建築物的性能。此流程可找出一些在運作上可提升效能的措施，而這些措施能有效地節約能源，從而減少電費開支。

「重新校驗」在海外已實行並獲認可為一種有效的節能措施。然而，香港缺乏一些本地的指引及實際的例子能展示進行「重新校驗」的好處，因此「重新校驗」仍未於本港廣泛實行。為了克服這些障礙，機電工程署率先制定「重新校驗技術指引」(TG (RCx))，並實行「重新校驗先導計劃」以推動既有樓宇進行「重新校驗」。

▲ 「重新校驗技術指引」(2017年版)
"Technical Guidelines on Retro-commissioning" (2017 Edtion)

機電工程署於2016年制定了重新校驗技術指引草稿供業主、大廈運行人員及其他持份者參考。多所不同規模、用途、樓齡及能源年耗量的政府建築物被選為試點項目以試行《重新校驗技術指引》草稿。我們以從諮詢獲得的意見和從「重新校驗先導計劃」所得到的經驗去修定技術指引草稿的內容。「重新校驗技術指引(2017年版)」及相關網(http://www.energysaving.gov.hk/en/retro_commissioning_rcx/index.html)已於2017年6月30日公布。

重新校驗技術指引介紹了「重新校驗」的背景和流程，詳述四個主要階段，包括規劃、調查、實行和持續校驗。技術指引不單提供了一些理論基礎、更編寫了不同的表格、樣本和提供實際例子來闡述實際進行「重新校驗」的方法。

簡介「重新校驗先導計劃」

在建立《重新校驗技術指引》的過程中，六所不同規模、用途、年齡和能源年耗量的既有政府建築物被選定進行重新校驗先導計劃的試點項目。被選定的政府建築物包括辦公室、教育服務中心和市政服務大樓，樓齡介乎10至

Introduction of Technical Guidelines on Retro-commissioning and Webpage

"Retro-commissioning" (RCx) is a cost-effective systematic process to periodically check an existing building's performance. The process identifies operational improvements that can effectively save energy and thus lower energy bills.

RCx has been adopted a proven energy saving measure in overseas. However, due to insufficient local guidelines on RCx and lack of real life examples to demonstrate the benefits of RCx, it has not been widely implemented in Hong Kong. To overcome these obstacles, Electrical and Mechanical Services Department (EMSD) has been taking the lead to develop "Technical Guidelines on Retro-commissioning (TG(RCx))" and implement Retro-commissioning Pilot Projects in order to drive a wider spread of RCx in existing buildings.

In 2016, EMSD developed a draft TG(RCx) for building owners, building operators and other stakeholders' reference. A number of government buildings with varying size, usage, age and annual energy consumption have been selected for pilot projects on implementation of the draft TG(RCx). The feedback and experience gained from both consultation and pilot projects were used to fine-tune the draft TG(RCx). The 2017 edition of TG(RCx) and the corresponding web page (http://www.energysaving.gov.hk/en/retro_commissioning_rcx/index.html) has been launched on 30 June 2017.

The TG(RCx) stated the background and definition of "Retro-commissioning". It explained the four major stages for carrying RCx in details, including Planning; Investigation; Implementation and Ongoing commissioning stages. More than theoretical content, typical forms, templates and real case examples for RCx are provided in the TG(RCx) and hence to illustrate the approaches on applying RCx in real practice.

Introduction of "Retro-commissioning Pilot Projects"

In the development process of TG(RCx), six numbers of existing government buildings of different sizes, usages, ages and annual energy consumption have been selected to join the Pilot RCx Project. The selected government buildings include government offices, education services centres and municipal services buildings from 10 to 30 years old. These buildings are in high rank of energy

30年之間。這些建築物均屬於高能耗，當中有些亦設有建築管理系統。為了達到重新校驗的節能目標，重新校驗團隊及機電營運基金相關部門共同合作，檢視建築能耗表現、找出節能機會，並落實節能措施。之後，經改善的系統運行表現將被量度，節能效果亦會被驗證。此外，營運基金相關部門會利用重新校驗的經驗，為建築物進行持續校驗。

「重新校驗」的推廣

隨著《重新校驗技術指引》及其網頁於2017年6月30日發布後，本署於2017年7月24日舉辦了「重新校驗」研討會，當中邀請了各大發展商、專業機構、業界協會及學術界人士出席。我們於會上與這些持份者分享了《重新校驗技術指引》的框架、相關的網頁及在機電工程署的「重新校驗先導試驗計劃」中所得到的實際經驗。為了使我們分享的內容更豐富，我們還邀請了一名本地及一名海外專家在研討會上分享他們在「重新校驗」方面的實際經驗。是次研討會得到不少正面的回應，大部份出席者都希望認識更多「重新校驗」。

除上述對外的研討會外，我們亦於2017年8月14日舉辦了一場內部分享會。是次分享會的主題是分享一些從「重新校驗」中找到的節能貼士及在「重新校驗先導計劃」中獲得的效益，以鼓勵同事在他們負責保養的建築物內進行「重新校驗」。

實際上，機電工程署於2017年1月至8月期間已舉辦15場關於「重新校驗」的研討會。於2017年下旬，　本署已加強對「重新校驗」的推廣，再安排11場講座讓各持分者參與，當中包括專業機構、非政府機構、物業管理公司、酒店業界、學術界等人士。

consumption and some of them have building management systems. In order to achieve the energy saving goal of RCx, the RCx team collaborated with relevant divisions of Electrical and Mechanical Services Trading Fund (EMSTF) to review the building energy performance, identify the energy saving opportunities and implement the energy saving measures. After that, improved system operating performance will be measured and the energy saving result will be verified. Furthermore, EMSTF will make use of the experience gained in RCx process to carry out on-going commissioning for the buildings.

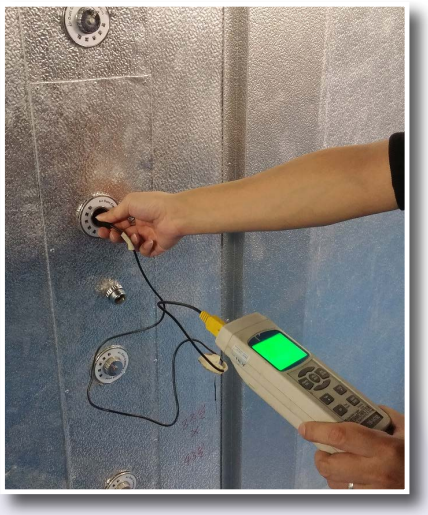
Promotion of "Retro-commissioning"

In connection with the formal issue of "Technical Guidelines on Retro-commissioning" and its relevant web page on 30 June 2017, a seminar on "Retro-commissioning" was held on 24 July 2017 in presence of major developers, professional institutions, trade associations and academia in Hong Kong. In this seminar, the framework of Technical Guidelines, the designed website of "Retro-commissioning" and our practical experience on EMSD's "Retro-commissioning pilot projects" was shared. In order to enrich our sharing content, a local and an overseas guest speaker were also invited to share their valuable experience on "Retro-commissioning". The responses of the participants were positive and the majority of them would like to know more about "Retro-commissioning".

Apart from the above external sharing, we also arranged internal sharing session with our colleagues on 14 August 2017. The main theme of the sharing was to share some energy saving tips and the benefits that were found in EMSD's "Retro-commissioning pilot projects" and to encourage our maintenance colleagues to conduct "Retro-commissioning" in their buildings.

In fact, EMSD had already conducted 15 nos. of internal and external seminars on "Retro-commissioning" from January to August of 2017.　In late 2017, we had step up the promotion and arranged another 11 nos. of talks to our stakeholders including professional institutions, non-government organizations, property management companies, hotel sector and academia, etc.

▲ *「重新校驗」研討會*
Seminar on "Retro-commissioning"



▶ *進行「重新校驗」時量度送風速度*
Conducting air velocity measurement in "Retro-commissioning"

政府建築物節能項目
Energy Saving Projects for Government Buildings

香港的總耗電量約為440億度電，其中建築物佔全港用電量約90%及超過60%的碳排放。有鑑於此，政府正　力推動提升建築物的能源效益，以減少碳排放。

機電工程署（機電署）已為政府各政策局和部門安裝能源效益較佳的工程系統和落實最佳節能做法，在2003至2014年期間減少了16%的耗電量。政府在2015年施政報告中宣布，為政府建築物訂定新的節電目標，以冀在2015至2020年期間減少5%的耗電量（以2013-14年度的運作環境為基年）。

政府在2017年施政報告中宣布，預留不少於5億元用作提升政府建築物的能源效益，逐步落實節電目標。

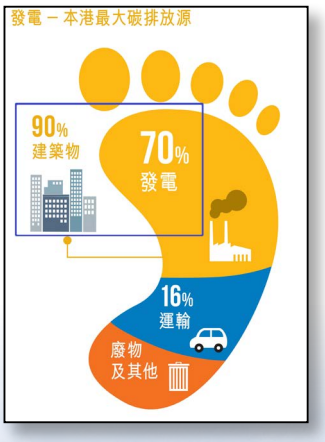
在2017-18財政年度，機電署已協助相關政府部門開展有關的節能項目，總項目預算約為1.5億元。節能項目主要涉及將老化的空調設備更換為具高能效的空調設備，將照明系統更換為LED照明設備，以及優化製冷機組等項目。

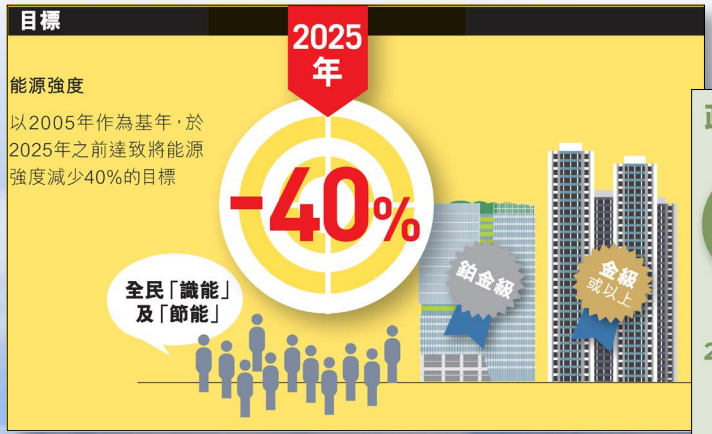
The total electricity consumption in Hong Kong is about 44 billion kWh, with our buildings accounting for about 90% of the city's electricity usage and over 60% of our carbon emissions. In light of this, our government is committed to improving energy efficiency in buildings for reducing carbon emissions.

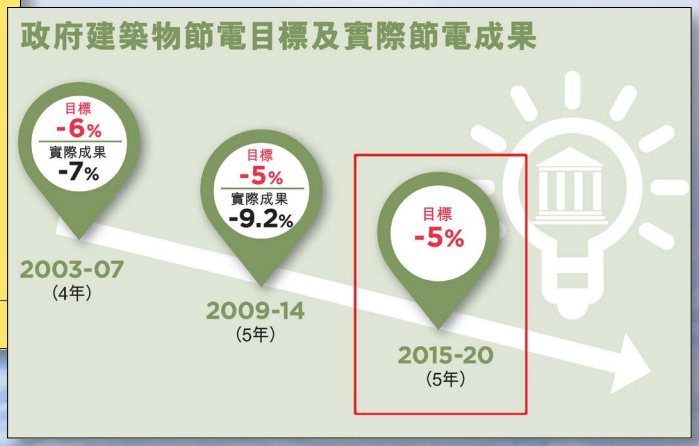
The Electrical and Mechanical Services Department (EMSD) has helped government bureaux and departments achieve energy savings through the installation of more energy efficient engineering systems and the implementation of energy saving best practices, thus achieving a 16% reduction in electricity consumption during the period from 2003 to 2014. The 2015 Policy Address announced a new target of 5% saving in electricity consumption for government buildings under comparable operating conditions from 2015 to 2020 (with 2013-14 as the base year).

As announced in the 2017 Policy Address, the Government will earmark at least $500 million to enhance energy efficiency of government buildings and to gradually achieve the electricity saving target.

In the financial year 2017-18, EMSD commenced energy saving projects for the relevant government departments. The total project estimate is around $150 million. These energy saving projects mainly involve replacement of aged air-conditioning equipment with high-efficiency equipment, replacement of lighting system with LED lighting, and optimization of chiller plants, etc.







減緩氣候變化－增加可再生能源
Mitigating Climate Change – Increasing Renewable Energy

為應對氣候變化，政府於2017年1月公布《香港氣候行動藍圖2030+》報告。報告載述香港2030年減少碳排放的新目標，以及有關各方為達到這目標而共同制訂的計劃。

應對氣候變化的措施中，其中一環是率先由公營部門利用現時市場上已發展成熟的技術更廣泛地和具規模地應用可再生能源。為落實這項措施，政府部門已提出於基礎建設和設施上應用可再生能源的計劃。

兩個在公共基礎設施上興建的太陽能板發電系統已相繼投入運作。他們分別是由水務署負責興建的石壁水塘浮動太陽能板發電系統，及由渠務署負責興建的小濠灣污水處理廠太陽能發電場。

To confront climate change, the Government had promulgated the Hong Kong's Climate Action Plan 2030+ report in January 2017. The report sets out Hong Kong's new carbon emissions reduction target for 2030 and the concerted plans for achieving the target.

Among mitigation measures in combating climate change, one of them is the public sector taking the lead to apply mature and commercially available renewable energy technologies on a wider and larger scale. To implement this measure, government departments have put forward plans of adopting renewable energy in public sector infrastructure and facilities.

Two Photovaltic (PV) systems built on public infrastructure have been put into commission one after another. They are the Floating PV system at Shek Pik Reservoir built by the Water Supplies Department (WSD); and the solar farm at the Siu Ho Wan Sewage Treatment Works built by the Drainage Services Department (DSD).

石壁水塘浮動太陽能板發電系統

水務署於2017年1月在石壁水塘安裝全港首個浮動太陽能板發電系統。該先導計劃在塘面安裝一個由352塊太陽能板組成的發電系統。該系統把光能轉換成電能，並將所產生的電力供應給石壁　井塔內的抽水泵。這個總面積為1,100平方米（約佔塘面面積0.1%）的系統，設計功率為100千瓦，每年發電量可達12萬度，將為抽水站節省25%電費支出。此外，它可覆蓋部分水塘面積，減少水源蒸發，還能抑制藻類生長，有助改善水質。水的冷卻效果更會提升太陽能板發電效率。

Floating PV system at Shek Pik Reservoir

The WSD installed Hong Kong's first floating solar photovoltaic (PV) system at the Shek Pik Reservoir in January 2017. In this pilot project, a set of 352 solar PV panels were installed on the reservoir surface. The system converts sunlight into electricity which is supplied to the pumps at the nearby Shek Pik Valve Tower. Occupying about 1,100m^2 (about 0.1% of the total reservoir surface), it is designed for an output power of 100kW that would harvest about 120,000 units of electricity annually, which will help save the electricity expenses of the pumping station by 25%. Besides, by covering some of the reservoir area, the PV system will help reduce water evaporation of reservoirs. It also helps improve water quality by suppressing algal growth. The cooling effect brought by the reservoir water will also improve the efficiency of the solar PV system.

小濠灣污水處理廠太陽能發電場

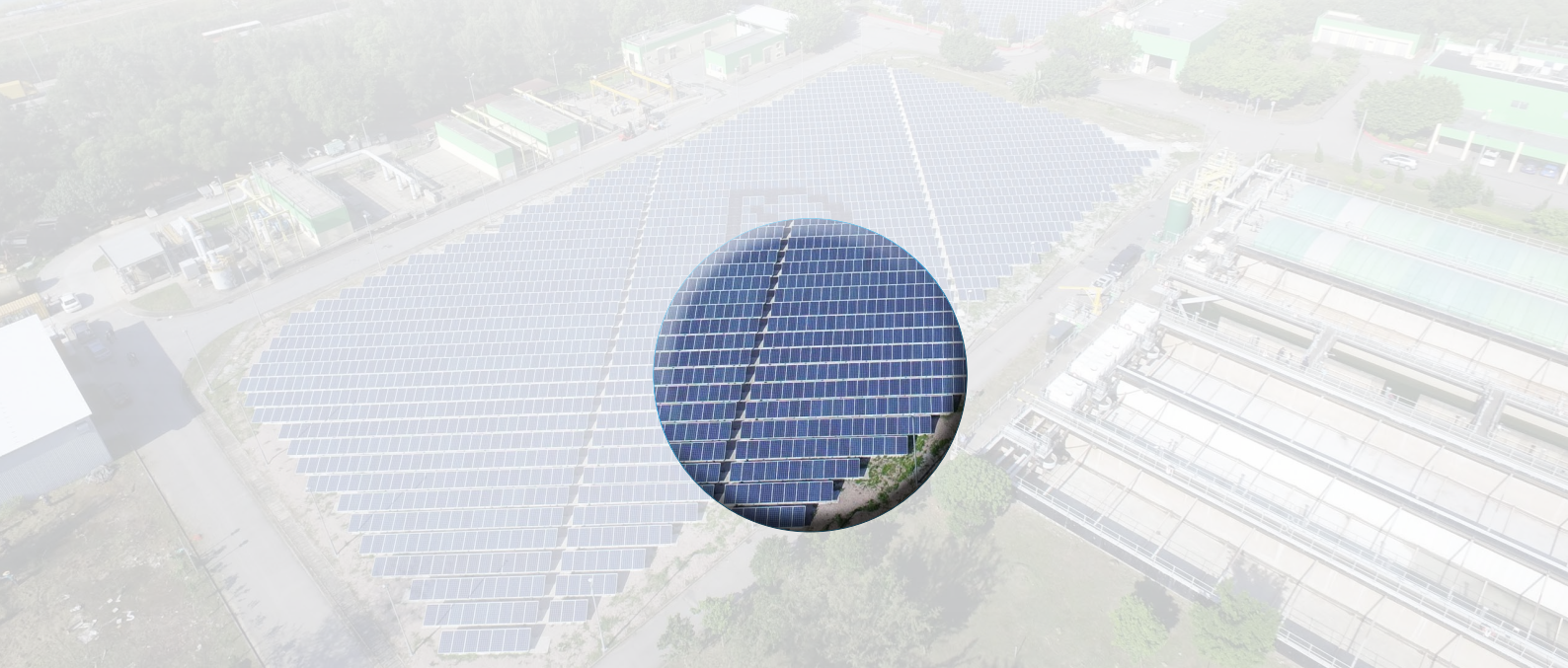
渠務署小濠灣污水處理廠太陽能發電場於2016年12月正式投入運作。該座發電場是現時全港規模最大的太陽能發電場，由超過4,200塊多晶硅太陽能光伏板組成，總裝置發電容量達110萬瓦特，每年發電量可達110萬度。

小濠灣污水處理廠太陽能發電場所產生的電力會通過廠房內的網絡，為廠內的各項設施提供電力，如隔篩設施、工場、行政大樓、紫外光消毒設施、污泥處理設施等，預計其產電量可達現時廠房每年總用電量的25%。

The solar farm at the Siu Ho Wan Sewage Treatment Works

The solar farm at the Siu Ho Wan Sewage Treatment Works of DSD came into operation in December 2016. Being the largest of its kind in Hong Kong, the solar farm comprises over 4,200 polycrystalline photovoltaic panels with an installed generation capacity of 1.1MW. It can generate as much as 1.1 million units of electricity annually.

The electricity generated by the solar farm at Siu Ho Wan Sewage Treatment Works will be fed through an internal power distribution network to various facilities inside the plant, such as screening facilities, a workshop, an administration building, an ultra-violet disinfection system and sludge treatment facilities, which will account for as much as 25% of the current annual electricity consumption of the plant.



強制性能源效益標籤計劃第三階段
The Third Phase of the Mandatory Energy Efficiency Labelling Scheme

第三階段 The 3rd Phase of MEELS

強制性能源效益標籤計劃自2009年推出以來，市場上具能源效益的產品不斷增加，令消費者有更多選擇。此類產品不但消耗較少能源，長遠來說更可幫助市民節省金錢，並有助保護環境。為方便市民選擇具能源效益的產品，能源標籤把同一類產品的能源效益分為五級。產品如獲得第一級能源標籤，即表明該產品為市面上能源效益最高的產品，如獲得第五級能源標籤，則表示該產品的能源效益最低。

Since the implementation of Mandatory Energy Efficiency Labelling Scheme (MEELS) in 2009, the number of energy efficient products in the market has been increasing and consumers can have more choices. Energy efficient products not only consume less energy, but they also save you money in the long run and help protect the environment. The energy label classifies the energy performance of a product type into five grades to help consumers in choosing energy efficient products. A product with Grade 1 energy label is among the most energy efficient in the market while a product with Grade 5 is least energy efficient.

強制性能源效益標籤計劃的第一及第二階段已分別於2009年及2011年全面實施，涵蓋五類訂明產品，包括空調機、冷凍器具、慳電膽、洗衣機（洗衣量屬7公斤或以下）以及抽濕機。當中，空調機、冷凍器具及洗衣機的評級標準已於2015年11月全面提升，以鼓勵進口商及供應商引入更多具能源效益的電氣產品。

The initial and the second phrases of MEELS were fully implemented in 2009 and 2011 respectively, covering five types of prescribed products, including room air conditioners, refrigerating appliances, compact fluorescent lamps, washing machines (with a washing capacity of 7kg or below), and dehumidifiers. Among these prescribed products, room air conditioners, refrigerating appliances, and washing machines had their grading standards upgraded in November 2015 so as to encourage importers and suppliers to introduce more products with better energy performance.

為擴大節約能源的成果，在強制性能源效益標籤計劃的第三階段，機電署建議涵蓋下列電氣產品：

With a view to further explore energy saving potential, in the third phrase of MEELS, Electrical and Mechanical Services Department (EMSD) proposed to extend the coverage to five additional types of electrical products as shown below:

建議的新訂明產品 Proposed new prescribed products			建議擴展現有訂明產品的涵蓋範圍 Proposed extension of coverage of existing prescribed products	
				
電視機 Televisions	**儲水式電熱水器** Storage Type Electric Water Heaters	**電磁爐** Induction Cookers	**洗衣機** （擴展現時涵蓋範圍由洗衣量不多於七公斤增至不多於十公斤） Washing Machines (Extend existing coverage of washing capacity from not exceeding 7kg to not exceeding 10kg)	**逆轉循環型空調機** （擴展現時只涵蓋製冷功能至同時具備供暖功能） Reverse Cycle Type Room Air Conditioners (Extend existing coverage from cooling performance only to both cooling and heating performance)

擬納入第三階段的五類產品，約佔每年住宅用電量的15%，估計在第三階段強制性標籤計劃下每年可節省約1.5億度電，相等於每年減少排放10萬5千公噸二氧化碳。

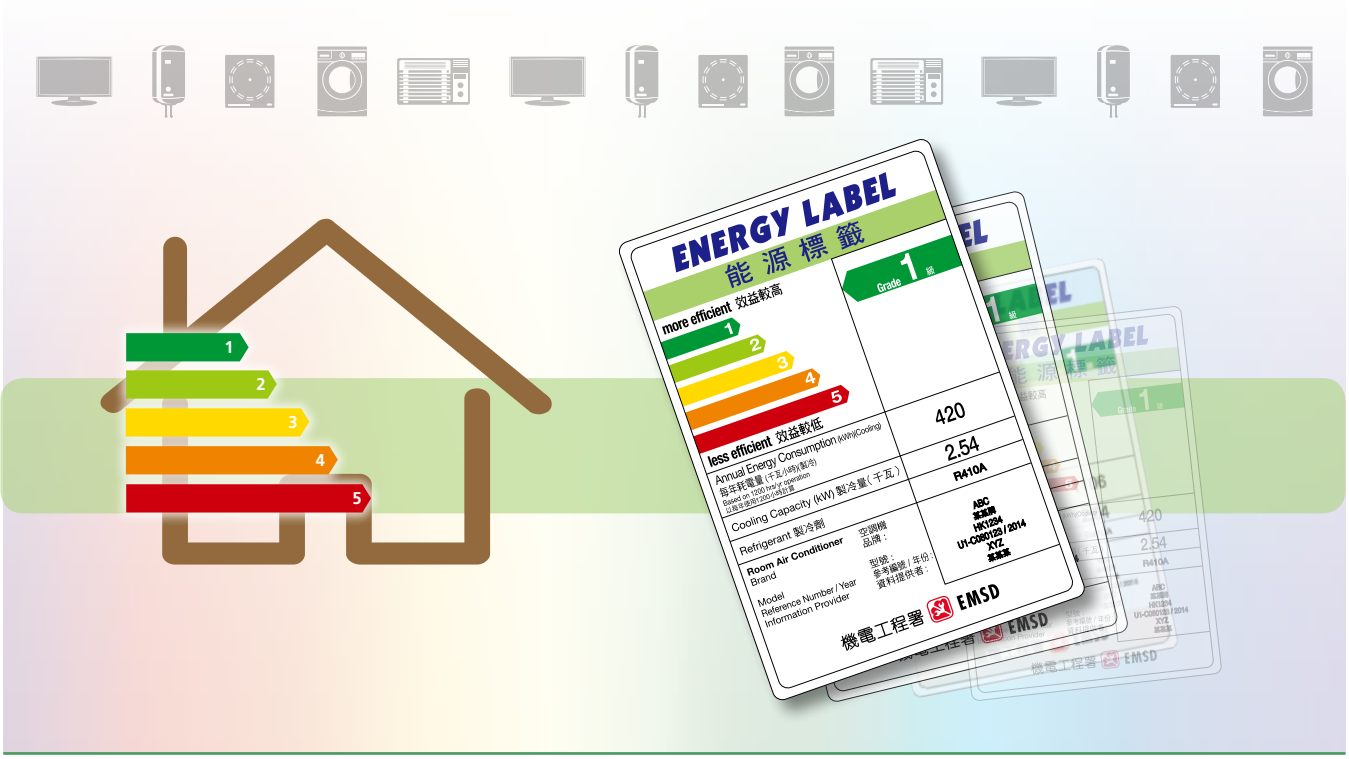
強制性能源效益標籤計劃第三階段建議的主要規定與現行做法相若，進口商和本地製造商必須先向機電署遞交產品資料（包括測試報告）以獲取編配參考編號和記錄，並須在產品貼上指定格式的能源標籤，才可向本港市場供應產品。

環境局已於2017年5月2日將強制性能源效益標籤計劃第三階段建議的相關修例文件提交立法會審議。其中加入電視機、儲水式電熱水器及電磁爐為新訂明產品的建議已獲批准。至於新訂明產品的涵蓋範圍以及洗衣機及逆轉循環型空調機所擴展的新範圍、能源標籤規定及其他細則之相關修定亦已依程序向立法會提交。當所有有關修訂通過後，機電署會與業界講解強制性能源效益標籤計劃第三階段的推行細節及過渡安排，例如《產品能源標籤實務守則》中的新修訂內容、為強制性能源效益標籤計劃第三階段所設立的18個月寬限期、及已登記為自願性能源效益標籤計劃的產品型號過渡至強制性標籤計劃的安排等等。

The five products proposed for inclusion into the third phase are estimated to account for about 15% of the annual electricity consumption in the residential sector. It is estimated that the potential annual energy saving due to the third phase of MEELS is around 150 million kWh, which is equivalent to annual reduction of carbon dioxide emissions of 105,000 tonnes.

Similar to the current practice under MEELS, the proposed third phase of MEELS requires importers and local manufacturers to submit the product information (including test reports) to EMSD for assignment of reference number and record; and to affix Energy Label in prescribed format on these products before supplying them to the local market.

The Environmental Bureau submitted the document of the relevant legislative amendments to the Legislative Council on 2 May 2017 for approval of the proposed third phase of MEELS, in which the proposal to include Televisions, Storage Type Electric Water Heaters and Induction Cookers as new prescribed products has already gained the approval. The Government had tabled another legislative amendment on scopes of new prescribed products, and expanded scopes of Washing Machines and Reverse Cycle Type Room Air Conditioners, the specifications of new energy labels and other regulations in the Legislative Council accordingly. After all the associated legislative amendments are approved, EMSD will promulgate to the trade on the implementation details and transitional arrangements of the proposal such as the revised and new content of the Code of Practice on Energy Labelling of Products; granting of 18-month grace period; and transition of product models registered under the Voluntary Energy Efficiency Labelling Scheme to MEELS, and etc.



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