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

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為現有商業建築物進行第二次能源審核效益卓著

Conducting Second Energy Audit for Existing Commercial Buildings Brings Significant Benefits

香港邁向碳中和 Carbon Neutral@HK

機電工程署 EMSD

根據《建築物能源效益條例》為現有商業建築物及綜合用途建築物的商業部分進行第二次能源審核促進能源效益 共同實現碳中和

Conducting Second Energy Audit for Existing Commercial Buildings and the Commercial Portions of Composite Buildings under the Buildings Energy Efficiency Ordinance Brings Significant Benefits in a Bid to Achieve Carbon Neutrality

邁向碳中和

香港邁向碳中和 Carbon Neutral@HK

應對氣候變化是全球共同面對的重要課題，國家主席習近平較早時在聯合國發言，表明中國會努力爭取在2030年碳排放量達峰，並於2060年前實現碳中和。這是國家應對氣候變化的重要承諾，深受各地政府和國際環保組織歡迎。

在《2020年施政報告》中，行政長官林鄭月娥闡述政府為實現碳中和、推動綠色運輸和改善能源效益所推出多項新政策措施，以提升香港市民的生活質素。

香港的能源消耗

我們正按着《香港氣候行動藍圖2030+》，邁向2030年的目標，務求碳強度相比2005年基準年減少65%至70%。事實上，香港的碳排放量已在2014年達峰，人均碳排放峰值為6.2公噸，2018年人均碳排放降至5.4公噸，相較2005基準年下降約36%。社會上有普遍期望香港應進一步深度減碳。

香港政府發布的《香港都市節能藍圖2015~2025+》設定了以2005年為基準年，於2025年之前達致香港能源強度減少40%的目標。根據最新的《香港能源最終用途數據》，在2005年至2018年間，香港的能源強度已減少32.8%。取得這初步成績，全賴市民和社會各界過去共同努力。展望未來，我們必需繼續努力，以達至長遠的節能目標。

根據最新的《香港能源最終用途數據》，在本港每年的能源最終使用總量中，有一半以上為用電形式，而商業建築物則佔總用電量的60%以上。為應對氣候變化，我們必須減少商業建築物的用電量。

Striving towards Carbon Neutrality

Combating climate change is an important issue across the globe. In his speech delivered to the United Nations earlier on, President Xi Jinping made it clear that China would endeavour to achieve the peak of carbon emissions in 2030 and carbon neutrality before 2060. This is an important commitment made by our country in combating climate change and is well-received by governments and international environmental groups around the world.

The Chief Executive, Mrs Carrie Lam, in the Policy Address 2020, set out the Government's strategies and proposals to achieve carbon neutrality and promote green transport and energy efficiency, which will enhance the quality of life across Hong Kong.

Energy Consumption in Hong Kong

Working according to the Hong Kong's Climate Action Plan 2030+, we are moving towards the 2030 target of reducing carbon intensity by 65% to 70% as compared with that in the baseline year of 2005. In fact, Hong Kong's carbon emissions reached its peak in 2014, at a per capita carbon emission of 6.2 tonnes. It was reduced to 5.4 tonnes in 2018, which is about 36% lower than that in the baseline year of 2005. The community in general expect Hong Kong to go further in deep decarbonisation.

The "Energy Saving Plan for Hong Kong's Built Environment 2015~2025+" issued by the Government sets the target to reduce Hong Kong's energy intensity by 40% by 2025 with 2005 as the base year. According to the latest Hong Kong Energy End-use Data (HKEEUD), Hong Kong's energy intensity has decreased by 32.8% from 2005 to 2018. This initial achievement was the result of the joint efforts of the public and different sectors. Looking forward, we have to continue our efforts to achieve the long-term energy saving targets.

According to the latest HKEEUD, more than half of Hong Kong's total annual energy end-use was in the form of electricity consumption, and commercial buildings accounted for more than 60% of our total electricity

《建築物能源效益條例》（《條例》）於2012年9月21日起全面實施，為大幅提高建築物的節能效能、降低能源需求以及減少溫室氣體排放，訂下法律基礎。《條例》設立了建築物的能效標準，並就建築物在操作階段的能效性能建立了審核方法。在屋宇設備裝置的設計方面，《建築物能源效益守則》（《能源效益守則》）就屋宇設備裝置的能效標準作出規範，至於屋宇設備裝置的操作階段方面，《建築物能源審核守則》（《能源審核守則》）載列了對中央屋宇設備裝置進行能源審核的技術指引。為與時並進，機電工程署（機電署）會諮詢各主要持份者，包括專業機構、業界、學術界和相關政府部門等的意見，並檢視相關技術及國際能效標準的最新發展，每三年檢討相關守則一次。最新的《能源效益守則》（2018年版）全面提升各屋宇裝備裝置包括空調、電力、照明及升降機和自動梯裝置的能源效益要求，整體而言較2012年發出的第一版提升超過百分之十八的節能效果。

consumption. To combat climate change, it is imperative to reduce the use of electricity in commercial buildings.

The Buildings Energy Efficiency Ordinance (BEEO) was enacted on 21 September 2012. The BEEO and its relevant Codes provide a legal basis to substantially enhance the energy saving performance of buildings and reduce energy demand and greenhouse gas emissions. The BEEO established both the energy efficiency standards of buildings and the means to evaluate energy efficiency performance during the buildings' operation. In terms of the design of building services installation, the Building Energy Codes (BEC) regulates the energy efficiency standards of building services installations, whereas the Code of Practice for Building Energy Audit (EAC) sets out the technical guides in conducting energy audit of central building services installations (CBSIs) during the operation stage. To keep abreast of the times, the Electrical and Mechanical Services Department (EMSD) will consult relevant major stakeholders, including professional institutions, trade associations, the academia and relevant Government departments, and look into the latest technological advancements and development of international energy efficiency standards, with a view to reviewing the BEC and EAC every three years. The latest edition of the BEC (2018 edition) strengthened the energy efficiency requirements of various building services installations, including air conditioning, electrical, lighting, and lift and escalator installations. Its energy saving effect is 18% higher as compared with the first edition of the BEC published in 2012.

對商業建築物實施第二次能源審核

在《條例》全面實施後，現有商業建築物及綜合用途建築物的商業部分已順利完成首次能源審核。這些建築物的第二次能源審核即將展開。

根據《條例》，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（評核人）按照《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。相關規定簡介如下：

Implementation of Second Energy Audit to the Commercial Sector

After the full implementation of the BEEO, the first energy audits for existing commercial buildings and the commercial portions of composite buildings have been successfully completed. The second energy audits for these buildings will soon commence.

Under the BEEO, owners of commercial buildings and the commercial portions of composite buildings are required to engage a registered energy assessor (REA) to conduct energy audit for the CBSIs of their buildings once every 10 years in accordance with the requirements of the EAC. Brief introduction of the relevant requirements are as follows:

甲. 能源審核的目的和好處

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

乙. 能源審核表格及能源審核報告

當評該人完成能源審核後，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，表示該建築物的中央屋宇設備裝置的能源消耗。其後，建築物擁有人須在建築物主要入口的當眼處展示能源審核表格的副本。

丙. 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，以找出能源管理機會。能源管理機會指達致能源效益和節約能源的方法，可為建築物帶來節能效果，建築物擁有人在評估各種因素（包括資源、投資回本期和對運作的影響）後，可以考慮實施適當的相關能源管理措施。一般而言，能源管理機會分為以下三類。建築物擁有人可按各自需要，就能源管理機會採取合適的措施。

a. Objectives and Benefits of Energy Audit

Energy audit involves systematic review of the energy consuming equipment/systems in buildings to identify energy management opportunities (EMOs), in order to provide useful information for the building owners to formulate and implement energy saving measures for environmental protection and economic benefits.

b. Energy Audit Form and Energy Audit Report

Upon completion of an energy audit by a REA, the building owners shall obtain an Energy Audit Form and an Energy Audit Report from the REA. The Energy Audit Form shows the Energy Utilisation Index of a building, which indicates the energy consumption of the CBSIs of that building. Subsequently, the building owners shall display a copy of the Energy Audit Form in a conspicuous position at the main entrance of the building.

c. Energy Management Opportunities (EMOs)

Under the BEEO, building owners are required to carry out energy audit for their buildings in order to identify EMOs, which are the ways to achieve energy efficiency and conservation, and will bring about energy savings for the buildings. Upon evaluation of various factors, including the resources, cost recovery period and influences to operation, the building owners may consider implementing measures regarding the relevant EMOs. In general, EMOs are classified into the following three categories. Building owners may implement measures with regard to the appropriate EMOs to address their specific 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 Involves housekeeping measures which are improvements with no cost investment and no disruption to building operation	無人使用房間時，關掉冷氣機和電燈；調高室內溫度等 Switch off the air conditioners or lights when the room is not in use; adjust the air-conditioning temperature set-points to raise the room temperature, etc.
第二類 Category II	涉及更改操作方法，投資成本相對較低 Involves changes in operation measures with relative low cost investment	安裝時間掣以關掉設備、將T8螢光燈管更換為T5燈管等 Install timers to switch off equipment, replace 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 Involves relatively higher capital cost investment to achieve 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 Install variable speed drives, install power factor correction equipment, replace chillers, etc.

政府提供以下各種支援，以便建築物擁有人實施上述各種有關能源管理機會的措施。
The Government provides the following support to facilitate building owners' implementation of measures regarding the above EMOs.

甲. 技術支援

為了讓公眾了解《條例》和《能源審核守則》的法例規定和技術要求，機電署制定了《能源審核守則2018年版技術指引》，並把有關指引上載至《條例》的專題網站(www.beeo.emsd.gov.hk)供公眾參考。

乙. 財政支援

建築物擁有人可考慮利用能源管理機會，在建築物的屋宇裝備裝置實施所需措施，以達致把建築物能源消耗指標降低的目的。建築物擁有人可考慮向本地兩間電力公司(即中華電力有限公司（https://www.clp.com.hk/zh/community-and-environment/community-funds/eco-building-fund)和香港電燈有限公司（https://www.hkelectric.com/zh/customer-services/smart-power-services/smart-power-building-fund）所提供的基金申請財政資助，以便進行節能改善工程（包括更換裝置工程)。

其他改善現有建築物能源效益的措施

除了促進建築物擁有人利用能源管理機會實施相關措施外，機電署亦鼓勵建築物擁有人考慮採取下列節能措施改善現有建築物的能源效益。

甲. 可再生能源裝置

建築物擁有人可考慮在建築物安裝可再生能源裝置以控制能源需求增長。有關可再生能源裝置的技術指引及詳情，請瀏覽以下網頁：https://re.emsd.gov.hk/tc_chi/gen/overview/over_intro.html

a. Technical support

In order to explain to the public the statutory requirements and technical requirements, the EMSD has formulated the Technical Guidelines on Energy Audit Code 2018 Edition and uploaded it to the dedicated website of the BEEO (www.beeo.emsd.gov.hk) for public reference.

b. Financial support

Building owners may consider implementing the necessary measures in building services installations with regard to the EMOs so as to achieve reduction in the Energy Utilisation Indexes. Building owners may consider applying for financial support provided by the funds of the two local power supply companies (including CLP Power Hong Kong Limited (CLP) (https://www.clp.com.hk/en/community-and-environment/community-funds/eco-building-fund#eligibility) and Hongkong Electric Company Limited (HEC) (https://www.hkelectric.com/en/smart-power-services/smart-power-building-fund)) for implementing energy-saving improvement works (including installation replacement works).

Other Initiatives to Improve the Energy Performance of Existing Buildings

Apart from facilitating building owners' implementation of the necessary measures with regard to the EMOs, the EMSD also encourages building owners to consider taking the following measures to improve the energy efficiency of existing buildings.

a. Renewable Energy (RE) Installations

Building owners may consider installing renewable energy installations in buildings to restrain the rise in energy demand. For the technical guidelines and details of renewable energy installations, please visit the following webpage: https://re.emsd.gov.hk/english/gen/overview/over_intro.html.

b. Retro-commissioning

The performance of building services installations in buildings gradually weakens over time. As building services installations are closely inter-related, a small problem or deviation greatly affects the overall performance of the system. Building owners may consider performing regular retro-commissioning (RCx) for building services installations to check their operation and improve the energy efficiency performance. For details of the RCx (e.g. technical guidelines, successful cases, etc.), please visit the following webpage: https://www.rcxrc.emsd.gov.hk/en/

乙. **重新校驗**

經過時日變遷，樓宇的屋宇裝備裝置的效能會逐漸減弱。由於屋宇裝備裝置環環相扣，一個細小的問題或偏差亦會大大影響系統的整體表現。建築物擁有人可考慮為現有屋宇裝備裝置定期進行重新校驗以檢查其運作，從而改善有關裝置的能源效益表現。有關重新校驗的詳情(例如技術指引、成功例子等)，請瀏覽以下網頁：https://www.rcxrc.emsd.gov.hk/tc/

丙. **使用更多具能源效益的器具**

建築物擁有人可考慮在建築物使用更多獲得1級能源標籤的電器產品，以減少電力消耗。有關電器能源標籤的詳情，請瀏覽以下網頁：https://www.emsd.gov.hk/energylabel/tc/about/background2.html

丁. **低碳綠色科研基金資助的減碳技術和綠色科技的研發及應用**

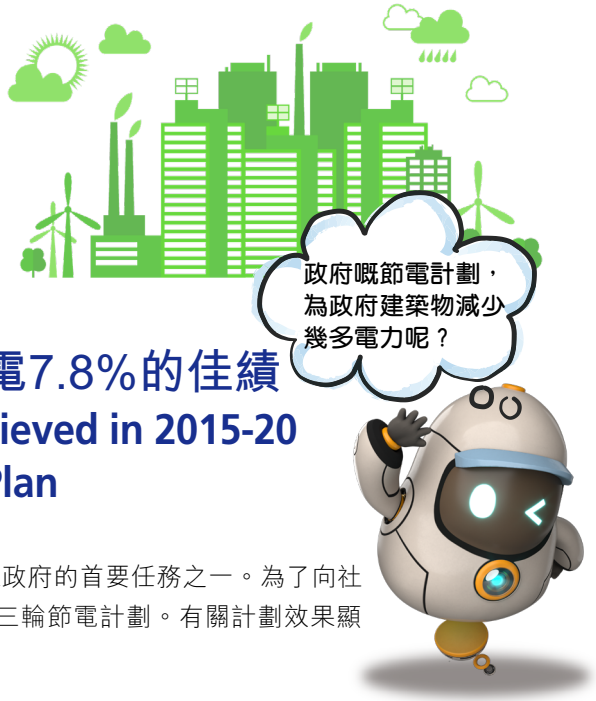
政府在2020-21年度的《財政預算案》宣布撥款港幣2億元成立新的低碳綠色科研基金，提供更充裕、對焦和切合研發項目所需的資助，以推動減碳技術和綠色科技的研發及應用，加速香港低碳轉型和加強環保。能源效益與節約項目屬優先研究主題範疇之一。有關低碳綠色科研基金的詳情，請瀏覽以下網頁：https://www.gtf.gov.hk/tc/index.html

c. **Using More Energy Efficient Appliances**

Building owners may consider using more electrical appliances with Grade 1 Energy Label in their buildings to reduce electricity consumption. For details of energy labels of electrical appliances, please visit the following webpage: https://www.emsd.gov.hk/energylabel/en/about/background2.html

d. **Research, Development and Application of Decarbonisation and Green Technologies Funded by the Green Tech Fund**

The Government announced in the 2020-21 Budget that HK$200 million would be allocated for setting up the new Green Tech Fund (GTF) to provide better and more focused funding support for the R&D and application of decarbonisation and green technologies, so as to expedite low-carbon transformation and enhance environmental protection in Hong Kong. Energy efficiency and conservation projects are under one of the priority themes and are accorded priority. Detail of GTF may refer to https://www.gtf.gov.hk/en/index.html.



政府節電計劃在2015-20年度取得省電7.8%的佳績

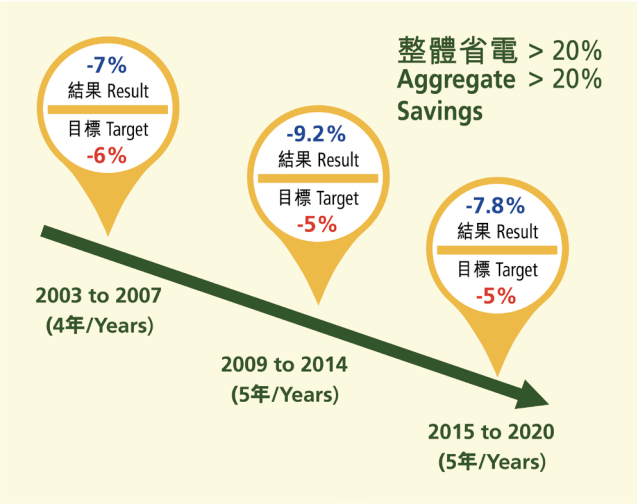
Remarkable Electricity Saving of 7.8% Achieved in 2015-20 under the Government Electricity Saving Plan

在香港，電力佔總能源消耗量超過一半。提高能源效益和節約能源是政府的首要任務之一。為了向社會樹立良好榜樣，政府在過去20年以身作則，為政府建築物推行了三輪節電計劃。有關計劃效果顯著，整體電力使用節省超過20%。

In Hong Kong, electricity accounts for more than half of the total energy consumption. Enhancing energy efficiency and conservation is one of the priority tasks of the Government. To set a good example for the community, the Government has been taking the lead by implementing three rounds of electricity saving plans for Government buildings over the past two decades. The result of the plan is remarkable, achieving an aggregate saving of over 20%.

在上一輪節能計劃中，政府就2015-16至2019-20年度為政府建築物定下了節電5%的目標。在決策局/部門的共同努力下，政府已提前一年在2018-19年度達成有關目標，並且在2019-20年度取得節電7.8%的成績，相當於一年節省1.11億度電（即減少77,700噸碳排放）。更令人高興的是有逾90%的決策局/部門的節電高於目標，其百分比是三輪計劃中最高的。

In the last round of saving plans, a target of 5% electricity saving in government buildings was set for 2015-16 to 2019-20. With the concerted efforts of bureaux/departments, the target was achieved one year ahead of schedule in 2018-19, and the actual saving in 2019-20 was 7.8%, which is equivalent to an annual saving of 111 million kilowatt-hour (kWh) (which means a reduction of 77,700 tonnes of carbon emissions). What is more gratifying is that over 90% of bureaux/departments recorded savings over the target, which is the highest percentage ever amongst the three plans.



政府再接再厲，為2020-21年度至2024-25年度定下6%的「綠色能源目標」。新目標不單包括政府建築物，更涵蓋基建設施，除了節省電力以外，還須減少使用和其他能源（例如煤氣、液化石油氣等）。此外，有關目標還首次涵蓋可再生能源的生產量。

Building on its previous success, the Government sets a "Green Energy Target" of 6% for 2020-21 to 2024-25. The new target covers not only Government buildings but also its infrastructure, and saving is required in the consumption of electricity as well as other forms of energy (e.g. town gas, liquefied petroleum gas, etc.). Besides, the target also covers the generation capacity of renewable energy for the first time.

在《2020年施政報告》中，行政長官宣布香港特別行政區將致力爭取於2050年前實現碳中和。政府過往的節能表現已相當不俗，而在此成績上再進一步是一項新挑戰。

In the 2020 Policy Address, the Chief Executive announced that the HKSAR would strive to achieve carbon neutrality before 2050. The Government has performed remarkably in respect of energy saving, and further improvement riding on the achievements is another challenge.

然而，機電署同事竭誠投入，努力不懈工作，通過實施能源審計、重新校驗、節能、綠色管理、可再生能源系統、創新技術等方面的措施，機電署有信心各決策局/ 部門定能在2024-25年實現「綠色能源目標」。

However, with the unwavering commitment and relentless efforts of the EMSD's colleagues, and by adopting measures in respect of energy audit, retro-commissioning, energy saving, green housekeeping, renewable energy systems, innovative technologies, etc., the EMSD is confident that various bureaux/departments will achieve the "Green Energy Target" by 2024-25.

作為各決策局/部門在節能方面的長期緊密合作伙伴，機電署一直樂於為能源審計、重新校驗、節能項目和措施、能源數據報告等方面提供技術協助。如有需要，歡迎各決策局/部門與機電署聯絡。

As a long-term and close partner on energy savings with various bureaux/departments, the EMSD is always happy to provide technical assistance on energy audit, retro-commissioning, energy saving projects/measures, energy data reports, etc. Bureaux/departments are welcome to contact us when assistance is needed.

為協助各決策局/部門在新目標下提交能源數據，政府已在內聯網數碼政府合署發布新版本《能源消耗標準化指南》，以供參考。

To provide assistance to bureaux/departments on the submission of energy data under the new target, the Governmenthas issued a new edition of the Guide to Applying Normalisation in Energy Consumption on the intranet of the Central Cyber Government Office for reference.

此外，機電署現正籌備在2021年年中舉行節能簡報會，並會邀請各決策局/部門代表參加。

Besides, the EMSD is now organising energy saving briefings to be held in mid-2021 and will invite representatives from bureaux/departments to attend.

立法會通過東涌(東)及古洞北區域供冷系統建造工程
The Legislative Council Approved the Construction of District Cooling Systems for Tung Chung East and Kwu Tung North

行政長官在《2020年施政報告》中表示，政府會研究各種減低碳排放量的方法和措施，致力爭取於2050年前實現碳中和。以此大前提下，環境局及機電署牽頭推動在新發展區包括東涌新市鎮擴展（東）及古洞北新發展區，興建區域供冷系統。

東涌新市鎮擴展（東）區域供冷系統的估計製冷量約為123兆瓦，可服務的總空調樓面面積約為700,000平方米，而古洞北新發展區區域供冷系統的估計製冷量約為190兆瓦，可服務的總空調樓面面積約為1,100,000平方米，以滿足新發展區建築物將來對供冷量的需求。

立法會財務委員會已於2021年2月批准有關區域供冷系統工程計劃的撥款建議。東涌新市鎮擴展（東）區域供冷系統的估計費用為39億1,820萬元，而古洞北新發展區區域供冷系統的估計費用為57億8,770萬元。有關工程計劃範圍均包括區域供冷系統管道鋪設、區域供冷站設計、建造及營運，以及在用戶建築物提供接駁設施。有關區域供冷系統預計於2025年至2026年開始提供供冷服務，以配合新發展區的發展時間表。

區域供冷系統是一個大型空調系統，在中央供冷站製造冷凍水，並透過地下喉管網絡輸送至用戶建築物作空調之用。由於區域供冷系統能充分利用規模經濟效益及不同建築物對冷氣需求的差異而達致節省更多能源，因此比傳統氣冷式空調系統和使用獨立冷卻塔的水冷式空調系統更具能源效益。區域供冷系統項目亦能創造綠色就業機會和帶來顯著環保效益，例如減少區內熱島效應和提供更靈活的空調系統方案。此外，由於區域供冷系統亦能配合不同的空調需求及改變，因此個別建築物無須進行大型改建或加裝工程。

As mentioned by the Chief Executive in the 2020 Policy Address, the Government will explore various methods and measures to reduce carbon emissions, striving to achieve carbon neutrality before 2050. Against this background, the Environment Bureau and EMSD have been spearheading the construction of the District Cooling System (DCS) in new development areas, including Tung Chung New Town Extension (East) (TCNTE) and Kwu Tung North New Development Area (KTN NDA).

The estimated refrigeration cooling capacity of the DCS at TCNTE is about 123 megawatt (MW), which can serve a total of about 700,000 square metres of air-conditioned gross floor area, while the estimated refrigeration cooling capacity of the DCS at KTN NDA is about 190 MW, which can serve a total of about 1,100,000 square metres of air-conditioned gross floor area, with a view to meeting the future cooling demand of buildings in the new development areas.

The Finance Committee of the Legislative Council approved the funding proposals for the works projects of the DCSs in February 2021. The estimated cost for the DCS at TCNTE is 3,918.2 million, while the estimated cost for the DCS at KTN NDA is 5,787.7 million. The scope of both works projects comprises DCS pipe laying, the design, construction and operation of DCS plants, and provision of connection facilities at user buildings. It is expected that the DCSs will start to provide cooling services from 2025 to 2026 to tie in with the development schedule of the New Development Areas.

The DCS is a large-scale air-conditioning system which produces chilled water at the central chiller plants and distributes the chilled water to user buildings through an underground water piping network for air-conditioning purpose. As the DCS can achieve more energy saving by taking advantage of the economy of scale and the diversity of cooling demand of different buildings, it is more energy efficient than the traditional air-cooled air-conditioning systems and water-cooled air-conditioning systems using individual cooling towers. The DCS projects will also create green job opportunities and bring about significant environmental benefits, e.g. reducing the heat island effect and providing more flexible air-conditioning system solutions. Besides, as the DCS can tie in with different air-conditioning demands and changes, there is no need for individual buildings to undergo extensive modification or retrofitting works.

啟德區域供冷系統標誌兩大里程碑
District Cooling System at Kai Tak Development Marked Two Significant Milestones

啟德區域供冷系統是香港首個同類型的大型節能基建設施。工程早於2011年展開，項目分階段完成並已投入服務。經過十載的建造工程，系統的環形冷凍水管道網絡最近終告合龍，此後系統可因應情況由不同方向輸送冷凍水到區內相關建築物，大大提高了系統的可靠性。機電工程署會繼續致力向用戶提供穩妥、優質的區域供冷服務。

為配合《2017年施政報告》公布提升啟德發展區的發展密度，機電工程署在環境局的支持下，開展了新增區域供冷系統項目。除現有啟德區域供冷系統北廠和南廠提供的284兆瓦供冷量外，新增系統可額外提供178兆瓦供冷量，估計在全面投入服務後，每年可節省約5,300萬度電，相當於每年減少排放37,000公噸二氧化碳。

上述發展標誌着啟德區域供冷系統的兩大里程碑。就此，機電工程署聯同顧問公司及承建商於2021年4月19日舉辦了兩個慶祝典禮，即新增區域供冷系統建造啟動典禮和環形冷凍水管道合龍典禮，以加強宣傳區域供冷系統作為推廣能源效益及可持續發展的基建設施。

環境局局長黃錦星（前排左四）、機電工程署署長彭耀雄先生（前排左三）、工程師學會會長源柏樑教授（前排左五）、民政事務局體育專員楊德強先生（前排左六） 與一眾嘉賓於 2021 年 4 月 19 日出席啟德新增區域供冷系統建造啟動典禮

Secretary for the Environment, Mr Wong Kam-sing (front row, 4th from left), Director of Electrical and Mechanical Services, Mr Pang Yiu-hung (front row, 3rd from left), President of the Hong Kong Institution of Engineers, Prof. Yuen Pak-leung (front row, 5th from left), Commissioner for Sports of the Home Affairs Bureau, Mr Yeung Tak-keung (front row, 6th from left) and other guests attended the Works Commencement Completion Ceremony for the additional District Cooling System at the Kai Tak Development on 19 April 2021

The District Cooling System (DCS) at the Kai Tak Development is a large-scale energy-efficient infrastructure, which is the first of its kind in Hong Kong. Construction works commenced in 2011 and the DCS has been completed and commissioned in phases. After ten years of construction, the ring circuit of the chilled water pipework, has recently been completed. Upon its commissioning, chilled water can be distributed to user buildings from different directions having regard to the situation, thereby enhancing the reliability of the DCS. The EMSD will continue to strive to provide users with excellent and reliable district cooling services.

To meet the initiative to increase the development density of the Kai Tak Development as announced in the 2017 Policy Address, the EMSD commenced the additional DCS project with the support of the Environment Bureau. On top of the refrigeration cooling capacity of 284 MW provided by the existing North and South DCS plants, the additional DCS will provide an additional refrigeration cooling capacity of 178 MW. It is estimated that the additional DCS, upon full commissioning, will bring about a saving of about 53 million kWh of electricity a year, representing an annual reduction of about 37,000 tonnes of carbon dioxide emissions.

The above marked two significant milestones of the development of the DCS at the Kai Tak Development. The EMSD, together with the consultants and the contractors, organised two ceremonies (i.e. Works Commencement Ceremony for the Additional District Cooling System and Chilled Water Pipework Ring Circuit Completion Ceremony) on 19 April 2021 to further promote the DCS as an infrastructure for energy efficiency and sustainable development.

環境局局長黃錦星（左八）、機電工程署署長彭耀雄先生（左六）、工程師學會會長源柏樑教授（左九）、聖公會聖十架小學學生代表趙靜欣同學（左七）與一眾嘉賓於2021年4月19日出席啟德區域供冷系統環形冷凍水管道合龍典禮。

Secretary for the Environment, Mr Wong Kam-sing (8th from left), Director of Electrical and Mechanical Services, Mr Pang Yiu-hung (6th from left), President of the Hong Kong Institution of Engineers, Prof. P L Yuen (9th from left), student representative of S.K.H. Holy Cross Primary School, Chiu Ching-yan (7th from left) and other guests attended the ceremony for completion of the chilled water pipework ring circuit of the Kai Tak District Cooling System on 19 April 2021.

「全民節能 2021」運動 — 《節能約章》及《4T 約章》
Energy Saving for All 2021 Campaign – Energy Saving Charter and 4Ts Charter

為應對氣候變化，政府致力推動香港低碳轉型，並積極採取多管齊下的措施減排節能，以期在2050年或之前達至淨零碳排放。香港的總耗電量超過440億度電，其中建築物佔全港用電量約九成，而逾六成碳排放量來自與建築物耗能相關的電力生產。有鑑於此，政府正着力推動提升建築物的能源效益，以減少碳排放。在節能工作上，社會大眾的參與至為重要。因此，機電署在2012年首次推出《節能約章》，旨在為業界和社區機構建立更緊密的伙伴關係，並開展以界別為本的節約能源運動，推動各界攜手節約能源，應對氣候變化。

節能約章

《節能約章》最初集中邀請建築及物業管理界別，承諾在盛夏期間減少空調的耗電量，把旗下物業的室內溫度維持在攝氏24至26度之間。由2016年開始，《節能約章》的範圍得到擴展。2020年簽署《節能約章》的機構超過3,600間，包括商場、辦公室/商業/工業大樓、住宅大廈及屋苑、辦公室、商舖/餐廳、非政府機構轄下場所/社區設施、幼稚園/小學/中學/專上教育學院、酒店、醫院及其他團體。簽署機構除了承諾在物業維持適當室內溫度外，還承諾關掉不需要使用的電器，以及選購具能源效益的產品，攜手減少香港整體的耗電量及碳排放。此外，成功招募大量商舖和辦公室簽署《節能約章》的機構，可獲頒發嘉許獎狀，以期進一步推動商舖和辦公室參與約章計劃，鼓勵建築及物業管理界、租戶、住戶及員工共同實踐節約能源措施。

《節能約章》和《4T約章》的參與證書

Energy Saving Charter and 4T Charter Participation Certificate

In response to climate change, the Government is committed to promoting low-carbon transformation in Hong Kong and is proactively taking multi-pronged measures to reduce emissions and conserve energy, with a view to achieving net zero carbon emissions by 2050. Hong Kong's total electricity consumption is over 44 billion kWh, with our buildings accounting for about 90% of the city's electricity usage and over 60% of the total carbon emissions arising from the electricity production related to energy consumption of buildings. Hence, we are striving to improving energy efficiency in buildings in a bid to reduce carbon emissions. Community involvement is of vital importance to energy conservation. In 2012, the EMSD launched the Energy Saving Charter for the first time, with an aim to fostering closer partnership between the trade and community organisations as well as launching a sector-based campaign to promote energy saving in all sectors in order to combat climate change.

Energy Saving Charter

The Energy Saving Charter scheme initially focused on inviting the building and property management sectors to pledge to reduce electricity consumption on air-conditioning during the summer months by maintaining the indoor temperature at their premises between 24°C and 26°C. Starting from 2016, the scope of the Energy Saving Charter has been expanded to cover more sectors. In 2020, over 3,600 organisations signed up to the Energy Saving Charter, including shopping malls, office/commercial/industrial buildings, residential buildings and housing estates, offices, shops/restaurants, premises of non-governmental organisations or community facilities, kindergartens/primary schools/secondary schools/post-secondary education institutions, hotels, hospitals and other organisations. They pledged not only to maintain the appropriate indoor temperature at their premises, but also to switch off appliances when not in use and procure energy-efficient appliances. Besides, an appreciation certificate will be presented to the organisation that successfully recruits a significant number of shops or offices to sign up to the Charter, with a view to further promoting participation of shops and offices in the Charter and encouraging building and property management sectors, tenants, occupants and staff to adopt energy saving practices together.

4T 約章

為了讓各界切實及具體執行《巴黎協定》，我們在2017年訂立了一個精簡的「4T」框架，以提升現有建築物的節能表現。在《4T約章》計劃下，我們鼓勵參與機構，包括商界、非牟利機構等持份者，訂立目標（target）、制定時間表（timeline）、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。

為何推行約章計劃？

- 香港的溫室氣體排放超過六成由用電產生，「約章」旨在鼓勵各界節約能源及應對氣候變化。
- 政府與非政府機構和商界緊密合作，推廣全民節能，同為環保作出承擔。

參與約章計劃的裨益

- 推動環保，有助地球可持續發展
- 建立綠色和低碳形象，提升參與機構在環保和可持續發展的形象
- 為承擔社會企業責任樹立榜樣
- 減少用電，節省開支

多年來，《節能約章》取得了豐碩的成果，簽署機構的數目由2012年約100個躍升至2020年的3,600多個。儘管取得了矚目的成績，但作為地球村的一分子，我們期望藉着社會各界繼續積極參與節能減排，為香港締造一個健康、宜居及可持續發展的環境。有關《節能約章2021》及《4T約章》計劃的更多資訊，可瀏覽專題網頁：https://www.energysaving.gov.hk/esc2021/tc/charter/index.html

2019年《節能約章》和《4T約章》啟動禮的團體照
Group photo at the launching ceremony of Energy Saving Charter & 4Ts Charter 2019

■ *全民節能 — 節能約章短片*

Video on Energy Saving for All – Energy Saving Charter

《節能約章2021》和《4T約章》宣傳單張
Leaflet on Energy Saving Charter 2021 and 4Ts Charter

4Ts Charter

To enable practical and concrete implementation of the Paris Agreement, we have established a streamlined 4T partnership framework, namely target, timeline, transparency and together, in 2017 to enhance the energy efficiency performance of existing buildings. Under the 4Ts Charter, participating organisations, including such stakeholders as commercial entities or non-profit organisations, are encouraged to set their targets, draw up timelines, ensure transparency on energy saving results, and encourage all sectors to work together on the above energy saving targets.

Reasons for Implementation of the Charters

- Conserve energy and combat climate change in a city setting like Hong Kong, where electricity consumption accounts for more than 60% of the greenhouse gas emissions.
- Foster close cooperation among the Government, non-governmental organisations and business sector for a community-wide campaign to save energy.

Benefits of Joining the Charters

- Promote environmental protection and contribute to the sustainability of the Earth.
- Establish a green and low-carbon image and raise the profile of the participating organisations in environmental protection and sustainable development.
- Set a role model for fulfilling corporate social responsibility.
- Reduce electricity consumption and expenditure.

Over the years, the Energy Saving Charter has come to fruition, with the number of signatories jumping from about 100 in 2012 to over 3,600 in 2020. Despite the impressive results, as a member of the global village, we hope that all sectors in the community will continue to actively participate in energy conservation and carbon emission reduction, thus promoting a healthy, livable and sustainable environment for Hong Kong. For details of the Energy Saving Charter 2021 and the 4Ts Charter, please visit the thematic website: https://www.energysaving.gov.hk/esc2021/en/charter/index.html