

智能 EnergyWits



45

二零二六年九月 September 2026

節能 慶中秋



《節能約章及4T約章2026》啟動儀式
Launching Ceremony for Energy Saving
Charter and 4T Charter 2026

啟德區域供冷系統三號廠房-
綠色科技與可持續教育之典範
Kai Tak District Cooling Plant No.3 -
A Model of Green Technology and
Sustainability Education

區域供冷系統項目：助力碳中和，
榮獲重要獎項彰顯卓越表現
District Cooling System Project:
Driving Carbon Neutrality,
Award-Winning Excellence in Action

亞太區經濟合作組織區域供冷供熱系統技
術交流會在香港圓滿舉行
APEC Practical Training on District Cooling
and Heating Systems Successfully Held in
Hong Kong

機電工程署聯同港台製作穿越短劇
《節能秘錄》推廣節能減碳
EMSD and RTHK Jointly Produced the
Time-travel Mini-series "Energy-Saving
Secrets" to Promote Energy Saving and
Carbon Reduction

《建築物能源效益條例》修訂已於2026年
9月20日正式實施
Buildings Energy Efficiency (Amendment)
Ordinance Officially Implemented on 20
September 2026

新一代高密度運算的冷卻挑戰：
直達芯片液冷在香港數據中心的應用
Cooling the Next Generation of Computing:
Direct-to-Chip Liquid Cooling in Hong Kong
Data Centres

SCAN ME



立即
下載

WhatsApp祝福貼圖包



《節能約章及4T約章2026》啟動儀式 Launching Ceremony for Energy Saving Charter and 4T Charter 2026

環境及生態局（環境局）和機電工程署（機電署）於2026年6月23日舉行《節能約章及4T約章2026》啟動儀式，推動各界攜手節能減碳，加快低碳轉型。

The Environment and Ecology Bureau (EEB) and the Electrical and Mechanical Services Department (EMSD) held the Launching Ceremony for Energy Saving Charter and 4T Charter 2026 on 23 June 2026 to encourage the community to save energy, reduce carbon emissions and accelerate low-carbon transformation.



■ 業界及公眾人士踴躍參與《節能約章及4T約章2026》，全力支持節約能源。

The trade and public enthusiastically participated in the EEnergy Saving Charter and 4T Charter 2026, and they fully supported the energy conservation.

《節能約章及4T約章2026》

業界和機構可通過簽署約章，承諾節約能源。截至2026年6月23日，已分別有超過3500個場所及超過870個場所簽署《節能約章及4T約章2026》。

有關《節能約章及4T約章2026》詳情，可透過以下二維碼了解：



■ 環境局副局長黃淑嫻女士（右二）及機電署副署長（規管服務）李學賢先生（左二）與「慳神」及機電署吉祥物「機智啤啤」主持《節能約章及4T約章2026》的啟動禮。

Miss Diane Wong, the Under Secretary for Environment and Ecology (2nd right) and Mr LEE Hok-yin, Arthur, the Deputy Director/ Regulatory Services of Electrical and Mechanical Services (2nd left) kicked off the EEnergy Saving Charter and 4T Charter 2026 together with Hanson and Witty Bear, the mascot of the EMSD.

Energy Saving Charter and 4T Charter 2026

Through signing the Energy Saving Charter, industry practitioners and organisations pledged to practise energy conservation. As at 23 Jun 2026, over 3500 premises and over 870 premises have signed the Energy Saving Charter and 4T Charter 2026 respectively.

Details regarding Energy Saving Charter and 4T Charter 2026 can refer to the following QR code:



■ 環境局副局長黃淑嫻女士（前排右八）及機電署副署長（規管服務）李學賢先生（前排左八）和《節能約章》代表於啟動禮合照留念。

Group photo of Miss Diane Wong, the Under Secretary for Environment and Ecology (front row, 8th right) and Mr LEE Hok-yin, Arthur, the Deputy Director/ Regulatory Services of Electrical and Mechanical Services (front row, 8th left) with representatives of Energy Saving Charter at the Launching Ceremony.

啟德區域供冷系統三號廠房 — 綠色科技與可持續教育之典範 Kai Tak District Cooling Plant No.3 – A Model of Green Technology and Sustainability Education

啟德區域供冷系統三號廠房是可持續基礎設施的其中一個典範，通過減少電力消耗和二氧化碳排放，為香港氣候行動作出了重要貢獻。三號廠房通過中央供冷系統取代傳統獨立建築製冷設備，提升能源效率，並降低了啟德區的碳足跡。自2024年8月投入營運以來，三號廠房一直為啟德區的用戶提供可靠的供冷服務，並支持啟德體育園成功舉辦了多項世界級體育、娛樂及休閒活動，包括2025的中華人民共和國第十五屆全國運動會、全國第十二屆殘疾人運動會暨第九屆特殊奧林匹克運動會。

除了中央製冷機房外，設於三號廠房三樓的教育中心，作為展示可持續發展設計和推廣市民認識環保節能的中心。該中心吸引本地和海外專業人士、公眾人士及年青社群參觀廠房，培育他們可持續發展和環境保護的文化。自2024年以來，三號廠房已接待超過二十場參觀活動，迎來來自不同界別的多元群體。藉著參觀活動彼此分享了技術知識，鼓勵可持續發展的理念，並鞏固了全球各界對綠色未來的承諾。



■ 機電工程署助理署長/電力及能源效益江茂誠先生（前排右六）及總工程師/能源效益B 關偉明先生（前排右四）於參觀活動與專業團體合照

Group photo of Mr. KONG Mau-shing Marsden, Assistant Director/ Electricity and Energy Efficiency (front sixth from right) and Mr. KWAN Wai-ming Laurence, Chief Engineer/ Energy Efficiency B (front forth from right) with professional organisations during the visit

Kai Tak District Cooling Plant No. 3 (KTDCS-P3) serves as one of the leading examples of sustainable infrastructure, playing a crucial role in achieving Hong Kong's climate goals by cutting down electricity use and carbon emissions. By substituting traditional individual building cooling systems with a centralised solution, KTDCS-P3 boosts energy efficiency and reduces the carbon footprint of the Kai Tak District. Since its operation in August 2024, it has reliably provided District Cooling Services to consumers in Kai Tak and has successfully supported Kai Tak Sports Park in organizing numerous world-class sports, entertainment and leisure events, including the 15th National Games of the People's Republic of China, the 12th National Games for Persons with Disabilities and the 9th National Special Olympic Games in 2025.

Alongside its central chiller plant, the Education Centre at 3/F of KTDCS-P3, which serves as a hub for demonstrating sustainable development design and fostering awareness about environment friendly and energy efficiency. This Centre engages professionals, the public, and the youth, cultivating a culture of sustainability and environmental stewardship. Since its establishment in 2024, it has welcomed over 20 educational tours, attracting diverse groups from various fields. These tours share technical knowledge, encouraging sustainable ideas and reinforcing commitments to a greener future globally.



■ 學生在教育中心內積極學習節約能源和區域供冷系統的知識

Students eagerly learned about the knowledge of energy saving and District Cooling System in Education Centre

這些活動還啟發年輕一代為實現碳中和目標做出貢獻。通過主動推廣區域供冷系統的環保效益，展示了其永續基礎設施的關鍵地位。通過跨行業和跨界別的合作，區域供冷系統將實現碳中和的承諾轉化為具體行動，推進可持續發展的願景。它不僅是一個先進的技術設施，也是一個重要的永續發展教育平台，為永續的未來奠定了堅實的基礎。

隨着三號廠房落成後正式啟用，機電工程署在教育中心舉辦多項參觀活動外，更成功於去年舉辦「區域供冷STEM-AI能源效益設計比賽」。該比賽不僅推廣了區域供冷系統及人工智能在能源效益方面的知識，更為中學生提供了一個展示創意與技術的平台。透過賽前工作坊及資料搜集等活動，學生們得以活用所學知識，提交的參賽作品充分展現了他們如何以創新思維提升綠色建築的效益。未來，機電工程署將繼續透過多元化的方式，包括舉辦更多參觀活動及類似比賽，為公眾持續推廣環保節能的理念。



The events also inspire the next generation to play a role in achieving carbon neutrality goals. By actively promoting the environmental benefits of District Cooling Systems (DCS) through various initiatives, KTDCS-P3 demonstrates its status as a key sustainable infrastructure. Through collaboration across sectors and disciplines, KTDCS-P3 transforms the commitment to carbon neutrality into actionable steps, advancing the sustainable vision. It stands not only as an advanced technological facility but also as a vital platform for sustainability education, laying a solid foundation for a sustainable future.

With the completion and operation commencement of KTDCS-P3, EMSD has hosted numerous guided tours at the Education Centre. Additionally, EMSD successfully organized the "District Cooling STEM-AI Energy Efficiency Design Competition" last year. This competition aimed to promote knowledge of district cooling systems and artificial intelligence driven energy efficiency, also serving as platform for secondary school students to showcase their creativity and technical skills. Through pre-competition workshops and research, students applied their knowledge to their submitted projects, fully demonstrated how they utilized innovative thinking to enhance the efficiency of green buildings. Looking ahead, EMSD will continue promoting environmental protection and energy conservation through diverse activities, including organising more visits and similar competitions to enhance public awareness.

得獎學生向嘉賓介紹其獲獎作品

Award-winning students presenting their winning entry to the guests



時任立法會工程界功能界別盧偉國議員工程師（上排左三）、機電工程署署長潘國英先生（上排左四）、時任副署長/規管服務陳柏祥先生（上排右四）、環境及生態局首席助理秘書長(能源)周健聰先生（上排右五）、助理署長/電力及能源效益江茂誠先生（上排左一）及總工程師/能源效益B關偉明先生（上排右一）與一眾比賽得獎者合照

Ir Dr Hon LO Wai-kwok, then Engineering Functional Constituency of the Legislative Council (third left in upper row), Mr. POON Kwok-ying Raymond, Director of the Electrical and Mechanical Services (forth left in upper row), Mr. CHAN Pak-cheung, Deputy Director/ Regulatory Services (forth right in upper row), Mr. CHOW Kin-chung Derrick, Principal Assistant Secretary for Environment and Ecology (Energy) of Environment and Ecology Bureau (fifth right in upper row), Mr. KONG Mau-shing Marsden, Assistant Director/ Electricity and Energy Efficiency (first left in upper row), and Mr. KWAN Wai-ming Laurence, Chief Engineer/ Energy Efficiency B (first right in upper row) took a group photo with the competition winners.

區域供冷系統項目：助力碳中和，榮獲重要獎項彰顯卓越表現

District Cooling System Project: Driving Carbon Neutrality, Award-Winning Excellence in Action

區域供冷系統持續引進先進技術以提升能源效率，顯著降低碳排放，為香港邁向碳中和願景貢獻良多。憑藉出色的創新設計與卓越表現，項目在多個領域屢獲殊榮，展現出在可持續發展方面的業界領先地位。

啟德區域供冷系統三號廠房的項目團隊憑藉在環境保護與可持續發展上的傑出表現，繼獲香港綠色建築議會頒發的「環保建築大獎2025」新建建築—興建及設計中項目（公用）優異獎後，今年再獲頒被譽為建造業「奧斯卡」的2026年度優質建築大獎—「可持續發展大獎」，展現卓越的綠色工程實力。團隊以創新技術和永續理念為核心，成功克服複雜的地質及施工挑戰。期間採用靜壓式打樁技術，有效降低噪音及震動，並改用鋼板樁設計，減少鋼材用量，提升工程可持續性，結合智慧工程與高效供冷技術，引領香港邁向低碳可持續的未來。此外，團隊更於2024年至2026年間相繼獲得多項業界殊榮，包括：香港顧問工程師協會2024年度大獎、香港項目管理學會的「項目管理成就大獎2025」高度表揚獎，以及香港工程師學會屋宇裝備分部的「卓越建築選舉大獎2026」卓越建築大獎（新建建築項目），充分展現了工程團隊在項目建造、管理和執行方面的卓越表現。



District Cooling Plant No.3 awarded the Sustainable Development Award

■ 啟德區域供冷系統（三號廠房）項目團隊榮獲2026年度優質建築大獎「可持續發展大獎」



The project team of Kai Tak District Cooling Plant No.3 wins the Merit Award at the Green Building Award 2025

■ 啟德區域供冷系統（三號廠房）項目團隊榮獲「環保建築大獎2025」優異獎

The District Cooling System (DCS) project has been continuously dedicated to applying advanced technologies to enhance energy efficiency and significantly reduce carbon emissions, making an important contribution to achieve carbon neutrality of Hong Kong. With its outstanding design and innovative performance, the DCS project has received multiple important awards across various categories, fully demonstrating its leading position in the field of sustainable development.

The project team for Kai Tak District Cooling Plant No. 3 has been honored with the prestigious Sustainable Development Award at the Quality Building Award (QBA) 2026—widely regarded as the "Oscars" of the construction industry. This builds on the project's stellar track record, which also includes the Merit Award in the New Buildings Category – Projects Under Construction and/or Design (Institutional) at the Green Building Awards 2025, organized by the Hong Kong Green Building Council. The project places innovation and sustainability concept at its core, successfully overcame complex geological and construction challenges. The engineering team employed silent piling technology to effectively reduce noise and vibration, and adopted sheet pile design to reduce steel consumption and significantly enhanced the project sustainability, showcases how innovation and sustainable district cooling technologies lead Hong Kong toward a greener, low-carbon future. Furthermore, between 2024 and 2026, the team garnered multiple industry accolades, including ACEHK Annual Award 2024 by the Association of Consulting Engineers of Hong Kong, the High Commendation at the Project Management Achievement Awards 2025 by the Hong Kong Institute of Project Management, and the Grand Award (New Building) at the Excellent Building Award 2026 organized by the HKIE Building Services Division. These accolades fully underscore the team's outstanding performance in project construction, management and execution.



The project team of Kai Tak District Cooling Plant No.3 awarded Project Management Achievement Awards 2025

■ 啟德區域供冷系統（三號廠房）項目團隊榮獲「項目管理成就大獎2025」

除了新落成的啟德區域供冷系統三號廠房項目屢獲殊榮，就連建設中的東涌東區域供冷系統項目也有卓越表現。項目於英國倫敦舉行的2025年度新工程合約「Martin Barnes」獎項頒獎典禮上，榮獲「氣候變化舉措」類別高度讚揚獎，彰顯該項目對可持續基礎設施以應對氣候變化的傑出貢獻。而另一建設中的古洞北區域供冷系統項目亦於2025年贏得了由建造業議會舉辦的「組裝合成」建築法/「機電裝備合成法」成就獎當中的傑出「機電裝備合成法」項目，將現場安裝所需的時間大大縮短50%並減少80%的廢料產生，從而顯著降低施工期間的碳排放，全面提升區域供冷系統項目整個生命週期的可持續發展表現。

另外，機電工程署近年引入人工智能、綠色科技和創新思維，進一步提升運作中的區域供冷系統的能源效益表現。啟德區域供冷系統首次引入的「全球導航衛星系統（GNSS）」和「人工智能與光纖技術在區域供冷/供暖系統的應用」分別於2024年和2025年日內瓦國際發明展中獲得銀獎和評審團嘉許金獎。而當中創新應用的人工智能控制系統以及新建成的啟德區域供冷系統三號廠房項目更加獲得由美國採暖、製冷與空調工程師學會香港分會頒發的「科技大獎2026」，以及第十三區區域性「科技大獎2026」，以表揚其在提升系統效率及創新應用方面的傑出表現。



東涌東區域供冷系統項目團隊榮獲「氣候變化舉措」類別高度讚揚獎

The project team of Tung Chung East DCS awarded the highly commended project in the category of Climate Change Initiatives of the prestigious Awards 2025



啟德區域供冷系統（一及二號廠房）項目團隊榮獲「科技大獎2026」

The team of Kai Tak DCS Plant No. 1 & 2 awarded Technology Award 2026

Not only the newly constructed Kai Tak District Cooling Plant No.3 garnered numerous awards, the Tung Chung East DCS, which is currently under construction, has also demonstrated outstanding performance. The project has been awarded the highly commended project in the category of Climate Change Initiatives of the prestigious Awards 2025 in London, United Kingdom, recognizing its' outstanding contribution to sustainable infrastructures combating the climate change. Another under construction DCS at Kwu Tung North also won the MiC / MiMEP Achievement Award 2025 by the Construction Industry Council. The project significantly reduced on-site installation time by 50% and decreased waste generation by 80%, thereby substantially lowering carbon emissions during the construction stage and comprehensively enhancing the sustainability of DCS throughout its life cycle.

In addition, EMSD has recently introduced artificial intelligence, green technology, and innovative thinking to improve infrastructure projects effectiveness and enhance the energy efficiency of DCS. The Kai Tak DCS first application of "Global Navigation Satellite System (GNSS)" and "Integration of AI and Optical Fiber Technology for district cooling/heating system plants" won Silver and Gold Medals with the congratulations of jury respectively at the International Exhibition of Inventions of Geneva in 2024 and 2025. Furthermore, the projects of AI Plant Control and Kai Tak District Cooling Plant No.3 even won the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Hong Kong Chapter Technology Award 2026, and ASHRAE Region XIII Technology Award 2026 in recognition of outstanding performance in enhancing system efficiency and innovative applications of DCS.



古洞北區域供冷系統項目團隊榮獲傑出「機電裝備合成法」項目

The project team of Kwu Tung North DCS awarded Outstanding MiMEP Project



啟德區域供冷系統（三號廠房）項目團隊榮獲「科技大獎2026」

The project team of Kai Tak DCS Plant No.3 awarded Technology Award 2026

亞太區經濟合作組織區域供冷供熱系統技術交流會在香港圓滿舉行 APEC Practical Training on District Cooling and Heating Systems Successfully Held in Hong Kong

亞太區經濟合作組織（亞太經合組織）區域供冷供熱系統技術交流會已於2026年3月2日至3日在香港成功舉行。是次交流會匯聚超過40位來自7個亞太經合組織成員經濟體的專家與代表，就區域供冷供熱系統從技術細節到實際應用的各個關鍵環節，進行了深入的專業交流與實務分享，充分展現亞太地區攜手推動綠色能源轉型的共同決心。

環境及生態局局長謝展寰先生透過視像致歡迎辭中指出，香港碳排放量較2014年高峰已減少約四分之一，人均年碳排放量低於4.5噸。特區政府已承諾在2035年或之前將不再使用煤作日常發電，僅保留作後備發電用途，並逐步增加使用零碳能源發電。同時積極加強區域合作，增加零碳能源供應。此外，特區政府將於2026年內推出優化計劃，支持非政府機構建設小規模的區域供冷系統或集中式多建築供冷系統。

機電工程署署長潘國英先生在交流會上分享香港在區域冷卻的工作成果與進展。目前特區政府正在兩個新發展區興建區域供冷系統，而位於北部都會區亦計劃由特區政府興建第四個區域供冷系統。機電工程署（機電署）正積極擬定區域供冷系統機電裝備合成法模組的標準化設計，協助業界採用創新的建築方法來提升施工效率，並編製《區域供冷系統應用機電裝備合成法技術指引》，為業界提供清晰可行的技術框架。



■ 環境及生態局局長謝展寰先生發表視頻致辭

Secretary for Environment and Ecology, Mr. TSE Chin-wan delivered his pre-recorded welcoming address

Asia-Pacific Economic Cooperation (APEC) Practical Training on District Cooling and Heating System was successfully held in Hong Kong on 2 and 3 March 2026. Over 40 experts and delegates from 7 APEC member economies gathered for lively on-site exchanges and rich, insightful presentations, covering every key aspect from the technicalities of district cooling and heating systems to their on-the-ground implementation, fully demonstrating the collective commitment of the Asia-Pacific region to jointly advance the green energy transition.

Delivering a welcoming address by video, the Secretary for Environment and Ecology, Mr Tse Chin-wan, mentioned that Hong Kong's carbon emissions have decreased by about a quarter from the peak in 2014, with per capita annual emissions now below 4.5 tonnes. The HKSAR Government has committed to ceasing the use of coal for daily electricity generation by 2035, retaining it only for backup support, and will gradually increase the use of zero-carbon energy for power generation. It will also actively strengthen regional cooperation to increase the supply of zero-carbon energy. Meanwhile, an enhancement scheme will be rolled out by the HKSAR Government within 2026 to encourage non-government entities in commissioning of small-scale district cooling systems or centralized multi-building cooling systems.

The Director of Electrical and Mechanical Services, Mr. Poon Kwok-ying, Raymond shared Hong Kong's achievements and progress in district cooling system development. Currently, the HKSAR Government is constructing district cooling systems (DCS) in two New Development Areas, and a fourth DCS is also planned for the Northern Metropolis to be built by the HKSAR Government. In addition, the Electrical and Mechanical Services Department (EMSD) is actively working on the standardisation design of Multi-trade Integrated Mechanical, Electrical and Plumbing (MiMEP) modules for district cooling systems, to assist the industry in adopting innovative construction methods to enhance construction productivity and efficiency. The EMSD is also preparing the "Guidance Notes on Adoption of MiMEP in DCS", aiming to provide the industry with a clear and feasible technical framework.



交流會圍繞五大核心主題展開，包括政策架構、技術基礎、設計與建造、先進系統運作及效率、運作及維護最佳實踐，並邀請業界專家分享實戰經驗，從多角度剖析技術要點。與會專家團亦實地考察了啟德區域供冷系統（三號廠房）及商業區的區域供冷系統用戶支站。作為香港區域供冷的重點項目，啟德區域供冷系統截至2026年5月已累積節省超過1億度電力，服務約21座非住宅建築，是亞太地區區域供冷技術應用的典範。

區域供冷供熱系統已正式納入香港金融管理局發布的第2A階段《香港可持續金融分類目錄》，被認為對綠色及可持續發展有貢獻的經濟活動。這項認可有助降低項目投資成本，吸引更多非政府機構參與技術應用，為區域供冷供熱技術普及注入強勁動力。

本次交流會是長遠合作歷程的起點。機電署將延續此良好勢頭，持續透過亞太經合組織地區內的協作交流、夥伴關係、先導計劃、政策及項目交流，深化各方合作。秉持亞太經合組織能源工作組構建創新協同的亞太能源共同體之願景，期望更多區域供冷供熱系統項目能在各經濟體落地生根，助力成員經濟體實現碳中和及可持續發展目標。



機電工程署署長潘國英先生致開幕辭

The Director of Electrical and Mechanical Services, Mr. Poon Kwok-ying, Raymond delivered his opening remarks

The practical training focused on five core themes: policy frameworks, technical fundamentals of district cooling and heating systems, design and construction, advanced system operation and efficiency, and O&M best practices. Industry experts from member economies were invited to share their hands-on experience, offering a comprehensive breakdown of technical know-how from multiple angles. During the site visit, the expert delegation toured the Kai Tak DCS Plant No.3 and a DCS consumer substation under the commercial area of Kai Tak. As a flagship district cooling project in Hong Kong, the Kai Tak DCS has accumulated electricity savings of over 100 million KWh by May 2026, serving about 21 non-residential buildings – a model of district cooling technology application in the Asia-Pacific region.

District cooling and heating systems have been officially included in the “Hong Kong Taxonomy for Sustainable Finance Phase 2A” by the Hong Kong Monetary Authority, being recognised as economic activities that contribute to green and sustainable development. This recognition will help lower project financing cost, encourage more non-governmental entities to adopt this technology, and provide strong impetus for the wider deployment of this technology.

This practical training was only the beginning of a longer journey. EMSD will sustain the momentum through continued collaboration, research partnerships, pilot initiatives, policy and project exchanges across the APEC region. Aligning with the APEC Energy Working Group’s vision of building an innovative and synergistic Asia-Pacific energy community, we look forward to more district cooling and heating systems projects taking root in member economies, supporting their carbon neutrality and sustainable development goals.



亞太經合組織區域供冷供熱系統技術交流會與會者合照

Group Photo of the APEC Practical Training on District Cooling and Heating Systems



專家和代表參觀啟德商業區內的區域供冷系統用戶建築物

The experts and delegates visited the DCS consumer building



專家和代表參觀啟德區域供冷系統三號廠房

The expert and delegates visited the Kai Tak DCS Plant No. 3

機電工程署聯同港台製作穿越短劇《節能秘錄》 推廣節能減碳 EMSD and RTHK Jointly Produced the Time-travel Mini-series "Energy-Saving Secrets" to Promote Energy Saving and Carbon Reduction

2026年初，全香港最熱門的話題是什麼？絕對非以穿越橋段創作的港產電影莫屬！當全城都在談論該電影時，機電工程署能源效益事務處聯同香港電台精心打造了一套三集的古裝穿越節能短劇——《節能秘錄》，向大眾宣傳推廣節能減碳的訊息。

《節能秘錄》由當年歷史穿越小說改編的電視劇內為人熟悉的面孔——實力派演員黃文標與陳榮峻，再次披上古裝粉墨登場，搭檔鬼馬幽默的Harry哥哥，三人扮演身負重任、尋找節能秘笈的古代大臣，穿越時空碰上現代「智能綠色科技」。



第一集：順天惜物，善用自然之能

秦朝使者來到機電署總部天台，親身體驗由超過2,200塊發電組件組成的太陽能發電系統，透過認識先進的聚光光伏器、太陽能水耕系統及太陽能樹等前沿低碳科技，導出「善用自然之力」作可持續發展的理念。



What was Hong Kong's hottest topic in early 2026? It had to be the successful adaptation of classic time-travel for a Hong Kong-produced movie. While the whole city was talking about the film, the Energy Efficiency Office of the Electrical and Mechanical Services Department (EMSD), in collaboration with Radio Television Hong Kong (RTHK), produced a three-episode costume time-travel mini-series entitled Energy-Saving Secrets to promote energy saving and carbon reduction to the public.

Energy-Saving Secrets brings together two familiar faces from the television version of the historical time-travel novel adaptation, veteran actors Wong Man-piu, and Chan Wing-chun. Putting on their period costumes once again, they join the witty and humorous Harry Gor-gor to portray three ancient court officials entrusted with an important mission to find the secrets of energy saving.

Episode One: Follow Nature, Cherish Resources and Harness Natural Energy

The Qin Dynasty envoy arrives at the rooftop of the EMSD Headquarters, where he experiences first-hand a solar power generation system comprising more than 2,200 photovoltaic modules. By learning about cutting-edge low-carbon technologies, including advanced concentrated photovoltaics, solar hydroponic planting system and photovoltaic trees, the envoy discovers how the power of nature can be effectively harnessed to promote sustainable development.



第二集：格物致知，杜絕隱形浪費

透過秦王將「待機模式」誤解為「閒置臣子」的幽默橋段，帶出「備用狀態能耗」的概念，即當電器連接電源、不在執行它們的主要功能，而是處於準備運作狀態（待機狀態）下的電能消耗，鼓勵公眾在使用電器後或出門遠行前，把電氣產品的電源關掉及拔離插座，減少電器在備用狀態中的耗能。



第三集：戒奢從簡，認準能源效益

秦朝大臣到機電工程署學習「能源效益標籤」制度，獲傳授了選購電器的實用指引，例如如何解讀不同能源標籤上的資訊、挑選電器時應購買獲得1級能源標籤的型號，購買洗衣機時可比較「每年耗電量」、「耗水量」與「洗衣量」，以及利用「發光效率」挑選照明燈具等。

《建築物能源效益條例》修訂已於2026年9月20日正式實施 Buildings Energy Efficiency (Amendment) Ordinance Officially Implemented on 20 September 2026

提升建築物能源效益，不單可以減少整體用電量和發電需求，從而降低碳排放，亦可以減少日後所需新增零碳電力供應的規模，令轉用潔淨能源的整體成本更低。《建築物能源效益（修訂）條例》已於2026年9月20日全面實施。本次修訂擴大能源效益規管範圍至更多類別的建築物，旨在加強本港建築物的節能表現，主要修訂內容包括：

1. 把數據中心全面納入建築物能源效益標準的規管範圍；
2. 要求更多類別的建築物定期進行能源審核（總樓面面積少於7,000平方米且非數據中心的建築物除外）；

Episode Two: Pursue Knowledge and Eliminate Hidden Energy Waste

Through a humorous scene in which the Qin Emperor mistakes “standby mode” for “idle court officials”, the episode introduces the concept of standby power consumption. It explains that electrical energy is still consumed by an appliance even when it is not performing its primary functions but plugged into a power source standing ready to be used. The public is therefore encouraged that after using the appliances or before going abroad for a long period of time, switch off the appliances and unplug them from the power outlets to reduce their standby power consumption.

Episode Three: Avoid Extravagance, Embrace Simplicity and Choose Energy-efficient Products

A Qin Dynasty official visits the EMSD to learn about the Energy Efficiency Labelling Scheme. He receives practical guidance on choosing electrical appliances, including how to interpret the information shown on different energy labels and why consumers should select models carrying a Grade 1 energy label. When purchasing a washing machine, for example, consumers can compare its annual energy consumption, water consumption and washing capacity. They can also refer to luminous efficacy when choosing lighting products.

Improving building energy efficiency reduces overall electricity use and the demand for power generation. This helps cut carbon emissions and also means less new zero-carbon electricity supply is needed in the future, making the transition to clean energy more affordable. The Buildings Energy Efficiency (Amendment) Ordinance came into full effect on 20 September 2026. This amendment expands the regulatory scope of energy efficiency standards to more building categories, aiming to boost the energy-saving performance of buildings across Hong Kong. The key amendments include:

1. Regulate the energy efficiency standards of building services installations for all data centres;
2. Require more building types to conduct regular energy audits (excluding non-data centre buildings with a total gross floor area of less than 7,000 square meters);

3. 縮短能源審核週期：由現行的每10年一次大幅縮短至每5年一次；及
4. 公開能源審核報告中的技術資料。

針對新增強制能源審核的建築物如數據中心、機場客運大樓、鐵路車站、政府建築物、醫療用途建築物、市政用途建築物、教育用途及社區用途建築物，其首次審核期限規定如下：

3. Shorten the interval of energy audits from current 10 years to five years; and
4. Disclose technical data in energy audit reports.

For newly added regulated buildings for energy audit such as data centre, airport passenger terminal, railway station, government building, healthcare building, municipal building, education building, and community building, the first energy audits shall be caused as follows:

2012年實施《條例》前建造並且沒有遵行規定登記證明書的建築物 Buildings constructed before the Ordinance took effect in 2012 (Without a Certificate of Compliance Registration)	發出佔用准許的日期 Date of Occupation Permit	進行首次能源審核的限期 Deadline for First Energy Audit
	1988 年或之後 1988 or after	2027年9月20日前 (生效後 12 個月內) Before September 20, 2027 (Within 12 months of implementation)
	1978 年至1987 年 1978 to 1987	2028年9月20日前 (生效後 24 個月內) Before September 20, 2028 (Within 24 months of implementation)
	1970 年至1977 年 1970 to 1977	2029年9月20日前 (生效後 36 個月內) Before September 20, 2029 (Within 36 months of implementation)
	1969 年或之前 1969 or before	2030年9月20日前 (生效後 48 個月內) Before September 20, 2030 (Within 48 months of implementation)

持有遵行規定登記證明書的建築物 Buildings with a Certificate of Compliance Registration (COCR)	首次獲發證明書 Date of First COCR	進行首次能源審核的限期 Deadline for First Energy Audit
	2026年9月20日前獲發 COCR issued BEFORE 20 Sep 2026	以下兩者較遲為準 (a) 在證明書發出後 10 年內；或 (b) 2027年9月20日前 (生效後 12 個月內) Whichever is later: (a) Within 10 years of COCR issuance OR (b) before Sept 20, 2027
	2026年9月20日或之後獲發 COCR issued ON or AFTER 20 Sep 2026	在證明書發出後5年內 Within 5 years of COCR issuance

工業建築物內主要作數據中心用途的部分 Portion of Industrial Building occupied principally as Data Centre	數據中心開始營運日期 Date on the Data Centre starts operation	進行首次能源審核的限期 First Energy Audit must be carried out
	在2026年9月20日前 Falls before 20 Sep 2026	2027年9月20日前 (生效後 12 個月內) Before September 20, 2027 (Within 12 months of implementation)
	在2026年9月20日或之後 Falls on or after 20 Sep 2026	數據中心開始營運日期之後的 5 年內 5 years after the Data Centre starts operation

請各業主及管理公司盡早規劃，確保按時符合最新法規要求，共同推動綠色建築發展。

Building owners and management companies are strongly advised to plan ahead to ensure timely compliance with these latest statutory requirements, contributing together to the advancement of green building development.



新一代高密度運算的冷卻挑戰： 直達芯片液冷在香港數據中心的應用

Cooling the Next Generation of Computing: Direct-to-Chip Liquid Cooling in Hong Kong Data Centres

數據中心面臨的散熱新挑戰

隨著人工智能、雲端服務及高效能運算需求的持續增長，數據中心在香港的重要性不斷提升，其電力需求亦相應增加。根據《香港能源最終用途數據2025》，數據中心於2023年的全年用電量為19.65億千瓦小時，較2018年的用電量增加約76%，反映運算密度及能源需求同步上升的趨勢。

相於電力供應容量，數據中心內部的散熱需求同樣關鍵，卻較少受到關注。隨著伺服器運算能力不斷提升，冷卻系統已不再是單純的輔助設施，而逐漸成為影響能源效率與運作穩定性的核心要素。

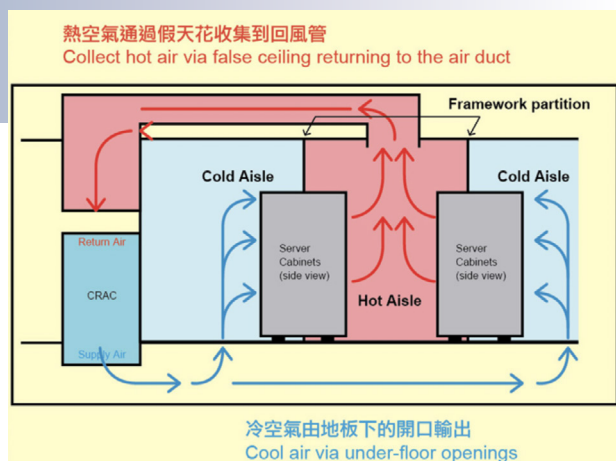
傳統風冷系統的壓力

多年來，風冷系統一直是數據中心的主流冷卻方案，包括熱通道及冷通道配置、升高地台送風系統，以及電腦機房空調系統（圖1）。

然而，隨著運算工作負載的不斷演變，其熱特性亦出現明顯轉變。

- 傳統機櫃功率：約5-10kW
- AI/超算機櫃功率：可達50kW或更高

當機櫃功率密度大幅提升，傳統風冷系統逐漸顯露其局限性。為了有效散熱，需要更強的氣流，導致風扇能耗增加，且氣流難以精準控制，局部過熱風險上升。單純增加送風量已無法同時兼顧能源效率和系統穩定性。



■ 圖1: 傳統數據中心的制冷系統

Fig 1: Cooling system of conventional data centre

New Cooling Challenges Facing Data Centres

With the continued growth of artificial intelligence, cloud services and high-performance computing, data centres have become increasingly important in Hong Kong, accompanied by a corresponding rise in electricity demand. According to the Hong Kong Energy End-use Data 2025, the total annual electricity consumption of data centres in 2023 was 1 965 million kilowatt hours which increased by 76% compare with the consumption in 2018, reflecting the parallel growth in computing density and energy demand.

In comparison with power supply capacity, internal cooling demand within data centres is equally critical but has received relatively less attention. As server computing capability continues to increase, cooling systems are no longer merely auxiliary facilities, but have gradually become a core factor influencing energy efficiency and operational stability.

Pressure on Conventional Air-Cooling Systems

For many years, air-based cooling systems have been the dominant cooling approach in data centres. Common configurations include hot-aisle and cold-aisle arrangements, raised-floor air distribution systems, and computer room air-conditioning handling units, (Figure 1).

As computing workloads evolve, their thermal characteristics have changed significantly.

- Conventional server rack power density: 5-10kW
- AI / supercomputing server rack power density: reach 50 kW or higher

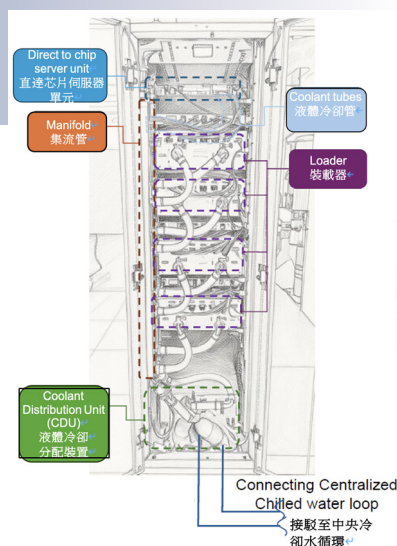
Under such high-density conditions, conventional air-cooling systems increasingly face physical and practical limitations. Effective heat removal requires large volumes of airflow, leading to higher fan energy consumption, greater difficulty in controlling airflow distribution, and increased risks of localised overheating. Simply increasing airflow is no longer sufficient to achieve both energy efficiency and system stability.

冷卻理念的轉型：香港數據中心實例

隨著高密度運算逐漸成為常態，如何有效散熱從設計考量變為實際營運挑戰。這一轉變，已在香港的數據中心中獲得具體印證。

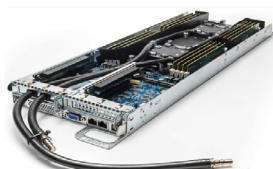
Equinix在能源管理及設施營運方面一向表現良好，並於2024年榮獲由機電工程署參與舉辦的「建築物優良操作和維修作業大獎」中的「優良作業大獎」，其實踐經驗具備一定示範價值，並以其數據中心為例，面對AI和高效能運算帶來的高功率密度需求，傳統風冷設計已接近極限。於2025年，Equinix在既有設施中試點導入「直達芯片液冷技術」，配置功率達50kW的液冷機櫃（圖2）。

這種技術不再依賴空氣對流散熱，而是直接在處理器等發熱源頭使用冷卻液帶走熱量。此種設計思維不僅是冷卻能力的提升，更是將熱管理從機房空間層面，轉移至運算元件本身，標誌著冷卻理念的重要轉變。



■ 圖2: 液冷機櫃背面圖

Fig 2: Liquid-cooled Rack Rear View



■ 圖3: 直達芯片伺服器單元

Fig 3: Direct to Chip Server Unit

從技術應用到示範效應

液冷系統利用液體較高的熱容和導熱性能，能更有效率地移除熱量。這種設計思維的轉變在於將散熱重點從「機房空間」轉移到「運算元件本身」，實現更精準的熱管理。

相關試點顯示，在引入「直達芯片液冷技術」後，數據中心的能源使用效率可提升至PUE約1.2或更低，顯著優於傳統以風冷為主的機房配置。更重要的是，該類改裝方案顯示，既有數據中心亦可透過局部引入液冷技術，釋放節能潛力。以單一設施計算，相關升級可帶來每年超過2,000 MWh的節能效益，同時降低營運成本及碳排放，為業界提供了具體而可參考的示範路徑。

Transformation of Cooling Concepts: A Case Study from a Hong Kong Data Centre

As high-density computing becomes the norm, the ability of cooling systems to manage thermal loads has shifted from a design-stage consideration to a challenge that must be addressed in daily operations. This transition has already been demonstrated in Hong Kong data centres.

Equinix has demonstrated consistently strong performance in energy management and facility operations, and was awarded the “Good Practices Award” under the Building Excellent Operation and Maintenance Practices Awards Scheme, organised by the Electrical and Mechanical Services Department, in 2024. Its operational practices therefore provide a meaningful reference for the industry. Taking its data centre in Hong Kong as an example, the high power density associated with AI and high-performance computing workloads has pushed conventional air-cooled design towards their practical limits. In 2025, Equinix introduced a pilot implementation of direct-to-chip liquid cooling in its existing facility, deploying liquid-cooled racks rated at up to 50kW (Figure 2).

This approach no longer relies primarily on air convection for heat removal. Instead, coolant is delivered directly to heat-generating components such as processors, where heat is removed at the source. The design concept represents not only an enhancement in cooling capability, but also shifts in thermal management, from data hall level to computing components themselves. This makes an important change in cooling philosophy.

From Technical Application to Demonstration Effect

This shift in design thinking places the focus of heat removal not on the data hall environment, but directly on the computing components themselves, enabling more precise and targeted thermal management.

Pilot implementations indicate that, following the introduction of direct-to-chip liquid cooling, data centres can achieve a power usage effectiveness (PUE) of around 1.2 or lower, representing a significant improvement over conventional facilities that rely primarily on air-based cooling. More importantly, such retrofit approaches demonstrate that existing data centres can unlock substantial energy-saving potential through the selective deployment of liquid cooling technologies. For a single facility, these upgrades can deliver annual energy savings exceeding 2,000 MWh, while reducing operating costs and carbon emissions, providing the industry with a concrete and replicable reference pathway.

展望未來

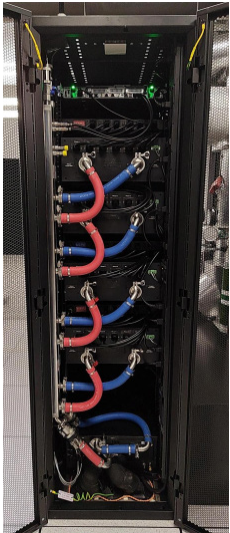
隨着數據中心所承載的人工智能及超算等高效能運算應用日益普及，機櫃功率密度及熱負荷持續上升，冷卻系統在能源效益及營運風險管理中的重要性愈趨明顯。面對高熱負載應用需求，「直達芯片液冷技術」透過在熱源位置直接移除熱量，為高密度運算提供更穩定及可預期的熱管理表現，並成為支援相關應用的重要冷卻方案之一。



Looking Ahead

As data centres increasingly support artificial intelligence, supercomputing and other high-performance computing applications, rack power density and thermal loads will continue to rise. Cooling systems will therefore play an increasingly critical role in energy efficiency and operational risk management. In response to high-heat-load applications, direct-to-chip liquid cooling, by removing heat directly at the source, offers more stable and predictable thermal performance for high-density computing and is emerging as an important cooling solution for supporting such applications.

表1：Equinix 案例分享
Table 1: Equinix's Show Case

直達芯片機櫃內設冷卻分配裝置 Direct-to-chip in rack CDU		VS	傳統機櫃設風冷冷通道配置 Conventional air-cooled cold-aisle arrangement	
	標準600x1200機櫃 可裝載最多 100kW設備 Typical 600x1200 rack space could serve for IT equipment up to 100kW	👍 空間配置 Space Provision 可慳20+倍 機櫃空間 20+ times of rack space reduced	標準600x1200機櫃 最多只可安裝 3-5kW伺服器 Standard 600x1200 rack space installs the server units up to 3-5kW	
	每部新一代伺服器可 容納3-5kW圖形 處理器 (GPU) 或 高性能芯片 New generation of server equipment with adoption of GPU or high performance chip could run for 3-5kW per server	👍 伺服器 Server/ 資訊科技設備 IT equipment 可提供超過 100千瓦 電源機櫃 Cater 100kW+ power rack	每部伺服器可容納 100-300W 中央處理器 (CPU) Conventional CPU running server cater 100 to 300W per unit	
	機架內的冷卻 分配裝置可處理 超過100kW制冷量 In-rack CDU could serve total cooling capacity of 100kW+	👍 制冷量 Cooling Capacity 制冷量超過 傳統機櫃的 20倍 Serve 20+ times higher cooling capacity per rack	冷通道配置的 每個地板送風口 可處理5kW機櫃的 散熱量 Conventional underfloor grilles cold aisle supply could serve the rack up to 5kW per floor grilles	
	採用液體 冷卻劑 (PG25) 作冷卻媒介可有效 提升能源使用效率 至1.2或以下 Cooling supply by liquid medium-coolant (PG25) provided high efficient heat transfer obtained PUE of 1.2 or lower	👍 耗電量 Energy 可慳風機 耗電量80%; 每套機櫃可 節省能源超過70MWh Air-side fan energy reduced by 80%; over 70MWh energy saving per rack	利用風冷冷凍機組並 升高地台合作供應冷風的 整體能源使用效率為1.7 Space cooling by cooling medium of air supplied by raised floor using air-cooled chiller plant with overall PUE of 1.7	

傳統機櫃設風冷
冷通道配置
Conventional air-cooled
cold-aisle arrangement