機電工程署二零二三至二四年年報
Electrical and Mechanical Services Department
Annual Report 2023/24

智慧發展 利民為本
BUILDING A SMART CITY FOR THE BENEFIT OF ALL

機電工程署
EMSD

部門簡介及架構
ORGANISATIONAL PROFILE AND STRUCTURE

規管服務
REGULATORY SERVICES

- 能源效益 Energy Efficiency
- 電力法例 Electricity Legislation
- 氣體標準 Gas Standards
- 一般法例 General Legislation
- 鐵路 Railways
- 行政 Departmental Administration

營運服務
TRADING SERVICES

- 邊境及運輸工程 Boundary Crossing Facilities and Transport
- 綜合工程 General Engineering
- 衞生工程 Health Sector
- 市政工程 Municipal Sector
- 保安及車輛工程 Security and Vehicle
- 企業服務 Corporate Services
- 數碼科技 Digitalisation and Technology
- 財政 Finance

機電工程署
ELECTRICAL AND MECHANICAL SERVICES DEPARTMENT

機電工程署(機電署)是中華人民共和國香港特別行政區政府轄下的部門，主要負責提供機電工程服務。機電署設有兩個主要功能機構，包括規管服務和營運服務，後者又稱為機電工程營運基金(營運基金)。我們以提升安全和市民的生活質素為使命，為政府部門和公營機構提供專業、全面且具成本效益的機電工程服務，並執法規管機電設施的安全運作，推動公眾教育。

規管服務專責守護香港的機電安全和推廣能源效益。團隊由多個專業部別組成，透過規管工作和公眾教育活動，監察機電系統、氣體和鐵路的安全。此外，規管團隊還負責監察電力公司的技術表現和發展計劃，以確保電力公司按照《管制計劃協議》運作。我們除了就安全和環境倡議方面為政府提供專業建議和技術指導外，也推動如家電及設備的能源效益標籤計劃等倡議。

營運服務(又稱營運基金)為約80個政府部門及公營機構提供專業、全面和優質的多元化機電工程服務。我們服務範圍廣泛，涵蓋醫院、學校、紀律部隊設施、交通基建設施、公路、港口及海港、機場、政府合署、法院大樓及公眾文娛康樂設施等。我們為機電系統、屋宇裝備及電子系統提供全面的支援，包括機電設施的操作、維修保養、工程策劃及顧問服務。

The Electrical and Mechanical Services Department (EMSD) is a department of the Government of the Hong Kong Special Administrative Region of the People's Republic of China, dedicated to providing essential electrical and mechanical (E&M) services. The EMSD consists of two primary functional units: Regulatory Services (RS) and Trading Services (TS). The latter also refers to the Electrical and Mechanical Services Trading Fund (EMSTF). Our mission is to enhance safety and improve the quality of life in society by delivering professional, comprehensive and cost-effective E&M engineering services to government departments and public organisations, while enforcing relevant laws and regulations to ensure E&M safe operations and promote public education.

The RS team is responsible for safeguarding E&M safety and promoting energy efficiency throughout Hong Kong. This team is composed of specialised divisions that oversee the safety of E&M systems, gas and railways through regulatory functions and public outreach initiatives. Additionally, the team monitors the technical performance and development plans of power companies in accordance with the Scheme of Control Agreements. Meanwhile, the RS unit also provides professional advice and technical expertise to the Government on various safety and environmental initiatives. Besides, we lead initiatives like the energy efficiency labelling scheme for appliances and equipment.

The TS team, known as the EMSTF, provides a wide range of professional, comprehensive and high-quality E&M engineering services to approximately 80 government departments and public organisations. Our services extend across various facilities, including hospitals, schools, disciplined services facilities, transport infrastructures, highways, ports and harbours, airport, government offices, court buildings and public recreational and leisure facilities. We offer comprehensive support for E&M systems, building services and electronic systems, including operation, maintenance, project management and consultancy for E&M facilities.

目錄
CONTENTS

署長的話
MESSAGE FROM THE DIRECTOR

潘國英太平紳士
Mr Poon Kwok-ying, Raymond, JP

機電工程署署長
機電工程營運基金總經理
Director of Electrical and Mechanical Services
General Manager, Electrical and Mechanical Services Trading Fund

2023/24年度，機電工程署(機電署)在規管服務和營運服務兩大範疇都有出色表現。年內，機電事故數目維持在低水平，能源效益和新能源工作亦見可喜的進展；機電工程營運基金(營運基金)則秉持以客為本的優質服務文化，繼續為客戶和社會創造價值。我們努力追趕因疫情而受阻的工作進度，同時放眼未來，為部門制訂未來十年以至三十年的中長期發展規劃。

The Electrical and Mechanical Services Department (EMSD) delivered an outstanding performance in both Regulatory Services and Trading Services in 2023/24. During the year, the number of electrical and mechanical (E&M) incidents remained at a low level, and the progress in energy efficiency and new energy work was gratifying. The Electrical and Mechanical Services Trading Fund (EMSTF), committed to a customer-oriented culture of service excellence, continued to create value for clients and society. We strove to catch up on the work progress hampered by the epidemic, and meanwhile looked to the future by formulating for the Department the medium and long-term development plans in the next ten to thirty years.

我們欣然報告，年內營運基金總收入達到92.81億港元，有4.2%的穩健增長；收入回報率則稍降至1.5%，部分原因是我們為客戶提供多種增值服務，而回報率也符合我們收回成本的營運原則。此外，2023年員工滿意度調查顯示，員工滿意度和回覆率皆創歷史新高，相信營運基金今年稍後進行的新一輪客戶意見調查，也會續有佳績。

We are pleased to report that the total revenue of the EMSTF reached HK$9,281 million during the year, representing a steady growth of 4.2%, while the return on revenue dropped slightly to 1.5%. The decreased return, partly due to our offering of value-added services to clients, was consistent with our operating principle of cost recovery. Furthermore, our 2023 Staff Satisfaction Survey reports record highs in both staff satisfaction rating and response rate. We believe that the next Customer Opinion Survey of the EMSTF, scheduled for later this year, will also continue to achieve high ratings.

年內，部門同事竭誠為公，表現超越己任。儘管我們已克盡厥職、不遺餘力，而市民期望亦很高，部門必須繼續進步，才能不負眾望。我們會持續運用創新科技(創科)，以達到「零事故」的目標、為客戶提供優質服務，以及促進智慧城市發展和邁向碳中和，令香港成為更高效、更環保的活力城市，讓市民倍感幸福。

During the year, the colleagues of the Department served the public wholeheartedly and performed above standard. Although we have fully discharged our duty and spared no effort, given that public expectations are very high, the Department must make continuous progress to live up to their expectations. We shall continue to leverage innovation and technology (I&T) to achieve the "zero incident" goal, provide enhanced quality services for clients, and foster Hong Kong's smart city development and carbon neutrality efforts, thus making Hong Kong a more efficient, eco-friendly and dynamic city for a caring community.

年內亮點：為經濟與民生獻力

HIGHLIGHTS: SUPPORTING THE ECONOMY AND PEOPLE'S LIVELIHOODS

機電署年內不少工作，都呼應《行政長官2023年施政報告》「拼經濟謀發展，惠民生添幸福」的主題。

Much of the EMSD's work during the year echoed the Chief Executive's 2023 Policy Address entitled "A Vibrant Economy for a Caring Community".

新能源產業可為香港創造就業機會，推動綠色經濟及多元發展。我們很高興能參與推動氫能發展的工作。特區政府於2022年成立了氫能源跨部門工作小組(工作小組)，統籌各政策局和部門準備本地採用氫燃料的工作，並透過試驗項目推動氫能在本地的應用。機電署一直積極參與工作小組的相關工作，透過提供技術及安全方面的專業支援，以及進行相關顧問研究，協助工作小組審視有意在本地開展氫燃料技術試驗項目的申請，並為在香港使用氫能制訂安全運作框架。工作小組已審視並原則上同意14個氫能源試驗項目申請，包括氫燃料電池雙層巴士、氫燃料電池洗

The new energy industry can create jobs for Hong Kong, foster green economy and diversify development. We are delighted to engage in the initiatives for promoting the development of hydrogen energy. To support the development of hydrogen energy in Hong Kong, the Government set up an Inter-departmental Working Group on Using Hydrogen as Fuel (Working Group) in 2022 to coordinate preparatory work of various bureaux and departments for using hydrogen as fuel locally, as well as to promote the local application of hydrogen energy through trial projects. The EMSD has been actively participated in the Working Group, providing professional support in terms of technical and safety expertise and conducting relevant consultancy studies, to assist the Working Group in examining applications for trial projects on hydrogen fuel technology intended to be taken forward locally and to establish an operational safety framework for the use of hydrogen energy in

署長的話
MESSAGE FROM THE DIRECTOR

街車、氫能源有軌電車，以及加氫設施等。機電署在審批過程中，就技術和安全層面提供專業意見，並跟進項目的實施。

Hong Kong. The Working Group has examined and given agreement-in-principle to 14 applications of trial projects on using hydrogen as fuel, including hydrogen fuel cell double-decker buses, hydrogen fuel cell street washing vehicles, hydrogen fuelled light rail vehicles and hydrogen refuelling facilities. The EMSD provided professional advice on technical and safety aspects during the review process, and followed up on the implementation of these projects.

為配合氫燃料在本港的使用和管控各種潛在風險，我們進行了全球氫能發展和技術應用的深入研究。在參考了國內外相關法規和標準，諮詢專業團體、業界及持份者，並充分考慮香港實際情況後，制定了三份技術指引，作為適用於氫能試驗項目的暫行標準，協助業界共同確保氫燃料的安全。我們會繼續因應氫能科技的發展情況以及氫燃料技術試驗項目的實施經驗，持續更新有關指引，與時並進。

To cope with the use of hydrogen fuel in Hong Kong and to manage various potential risk, we have conducted an in-depth study of global hydrogen development and application of technologies. After reviewing national and international regulations and standards, consulting professional organisations, the trade and stakeholders, and thoroughly considering local situations, we formulated three technical guidelines to serve as interim standards for trial projects of hydrogen energy and support the industry to jointly ensure the safe use of hydrogen fuel. We will continue to update the guidelines having regard to the development of hydrogen energy technology and the experience gained from implementing trial projects on hydrogen fuel technology, in order to keep pace with the times.

此外，為配合香港氫燃料在生產、儲存、運送、供應和使用等領域的發展，我們亦已展開了《氣體安全條例》修訂的準備工作，以涵蓋氫燃料的安全規管，包括車輛的氫燃料系統、加氫站的氫燃料設備、氫燃料供應鏈及氫燃料車輛維修人員及工場的安全。

Furthermore, to cope with Hong Kong's hydrogen development in different areas including manufacture, storage, transport, supply and use, we have commenced the preparation work for the amendment of the Gas Safety Ordinance to cover the regulation of hydrogen fuel safety, including the hydrogen fuel systems of vehicles, hydrogen fuel facilities at hydrogen refuelling stations, hydrogen fuel supply chain, and safety of hydrogen vehicle mechanics and maintenance workshops.

2023/24年度是營運基金第三個五年策略計劃的首年，計劃目標是實現「機電3.0－智能機電」。營運基金近年積極為客戶進行資產數碼轉型，並運用創科技術如人工智能等，為客戶提升機電系統的操作及能效表現，有關項目屢獲獎項。年內亮點之一是營運基金團隊自行開發的ChillStream®方案，該方案運用人工智能分析我們的區域數碼控制中心收集所得的實時數據，以優化客戶製冷機組的能效表現。ChillStream®已分別於衞生署及醫院管理局(醫管局)轄下場地成功試用，並達至理想的節能表現；長遠更可完全自動監察和控制製冷機組的操作，釋放人力資源從事其他工作，以提高生產力。

2023/24 was the first year of the EMSTF's third Five-year Strategic Plan, which is aimed at achieving "E&M 3.0 – Intelligent E&M". In recent years, the EMSTF has proactively implemented digital transformation of assets for clients and applied I&T, such as artificial intelligence (AI), to optimise the operation and energy performance of clients' E&M systems, winning awards along the way. One of the highlights of the year was our in-house-developed ChillStream® solution, which uses AI to analyse real-time data collected at our Regional Digital Control Centre to optimise the energy performance of clients' chillers. Successful trials of ChillStream® were carried out at venues of the Department of Health and the Hospital Authority (HA) respectively, achieving ideal energy-saving performance. In the long run, the solution will also enable fully automated remote monitoring and control of chiller operation, freeing up manpower for other tasks to raise productivity.

利民惠民、以人為本是我們的宗旨。年內，機電署應對多宗突發事故，例如2023年9月初，在超強颱風「蘇拉」和隨後的大暴雨連環襲港後，團隊迅速復修百多組受損的交通燈，並協助嚴重水浸的社區善後。我們更為疫後提振經濟和改善民生的活動提供支援，例如在2023年9月底為於灣仔海濱舉行的「海濱藝遊坊」，以及其他地區「香港夜繽紛」的類似活動提供機電專業支援。2024年2月，我們又為全港多個農曆年宵市場安排臨時供電及人流監察和人羣管控系統，以便市民盡情享受活動。

Building people-oriented society with citizens' wellbeing in mind remains our goal. During the year, the EMSD responded to many emergencies. For instance, our team promptly repaired over 100 damaged traffic lights and assisted in the recovery of seriously flooded areas after the passage of Super Typhoon Saola and the subsequent severe rainstorm in early September 2023. Likewise, we supported various activities to boost the post-epidemic economy and improve people's livelihoods, which included providing E&M professional support for the Waterfront Carnival held at Wan Chai harbourfront in late September 2023, as well as similar events under the Night Vibes Hong Kong campaign in other districts. We also provided temporary electricity supply, and footfall monitoring and crowd control systems for the Lunar New Year fairs across the city in February 2024, so that the public could enjoy the events to the fullest.

供電穩定是民生和經濟發展的必要條件。針對兩家電力公司近年發生的重大事故，我們於年內加強對電力公司的規管，並敦促電力公司推行一系列的改善措施；例如加強對電纜橋等基礎設施及測試校驗工作進行風險評估，以防止同類事件再次發生。所有主要改善措施已於2023年年底前實施。此外，我們鼓勵電力公司多運用創科，實時監察系統的運作情況，以提升應變能力。

A stable power supply is a prerequisite for people's livelihoods and economic development. With regard to the major incidents of the two power companies in recent years, we strengthened our supervision of both power companies during the year and urged them to implement a series of improvement measures, such as enhancing risk assessments of cable bridges and other infrastructures as well as commissioning work, in order to prevent recurrence of similar incidents. All major improvement measures had been implemented by the end of 2023. We also encouraged the power companies to use more I&T for monitoring the operation of their systems in real time to enhance their adaptability.

升降機安全是機電署另一工作重點。我們和市區重建局自2018年推出「優化升降機資助計劃」，協助有需要的私人樓宇業主進行優化升降機工程。截至2024年3月，全港已有約800部升降機完成優化工程，另有約4 300部升降機的優化工程正在進行。我們也為受工程影響的有需要住戶提供外展社會服務，減少因升降機服務暫停而引起的各種不便，此舉獲不少市民讚賞。

Lift safety is another focus of the EMSD. Since 2018, we have collaborated with the Urban Renewal Authority to implement the Lift Modernisation Subsidy Scheme, helping private building owners in need to carry out lift modernisation works. As at March 2024, around 800 lifts have their modernisation works completed, while modernisation works of around 4 300 lifts were in progress. We also provided outreach social services for needy residents affected by the works, so as to reduce the inconvenience caused by suspension of lift service. This move was appreciated by many members of the public.

創科的機遇與挑戰

機電署多年前已率先把創科方案應用於內部運作、客戶機電資產管理，以及操作和維修保養，並鼓勵受規管機構與機電業界更多採用創科，以提升安全、效率及能效表現。儘管這些工作已略見成效，而且我們自行研發及與其他機構合作的創科項目亦贏得不少獎項，但許多受規管機構和客戶仍未充分應用創科方案。因此，加快創科「落地」，是我們未來工作的重點之一。

I&T OPPORTUNITIES AND CHALLENGES

The EMSD has taken the lead many years ago in applying I&T solutions to our internal operations, clients' E&M asset management, as well as operation and maintenance (O&M) work. We have also encouraged regulated organisations and the E&M trade to use more I&T to improve safety, efficiency and energy performance. Though the efforts have yielded some results, and our in-house-developed solutions and joint projects with other organisations have won numerous awards, many regulated organisations and clients have yet to fully deploy I&T solutions in their operations. Therefore, accelerating I&T implementation will be one of the key focuses in our future work.

年內，我們與受規管機構加強創科合作，以提升安全。例如，我們本年度完成研發「氣體管道健康智能預測模型」，運用大數據及人工智能分析技術，評估和預測建築物氣體立管的健康狀況，從而找出有潛在安全風險的管段。我們還與香港中華煤氣有限公司簽署協議，授權他們利用該模型監察氣體立管的健康狀況，為管道制定預測性維修計劃。

During the year, we stepped up I&T collaboration with regulated organisations to enhance safety. For example, we completed the development of the Gas Pipe Health AI Prediction Model this year. The model utilises big data and AI analysis technology to analyse and predict the health condition of gas risers in buildings, thereby identifying the sections with potential safety risks. We also signed an agreement with the Hong Kong and China Gas Company Limited, authorising them to use this model for monitoring the health condition of gas risers and drawing up predictive maintenance plans for the pipelines.

另一個例子是我們與香港鐵路有限公司(港鐵公司)的合作。港鐵公司更換信號系統須進行大量測試，但每天只能運用凌晨非行車時間的「黃金兩小時」進行測試，時間相當緊迫。為此，機電署正與港鐵公司和一家創科公司合作，研發「通用人工智能互動自動化情境測試工具」，預計

Another example is our collaboration with the MTR Corporation Limited (MTRCL). The MTRCL's replacement of its signalling system requires massive amount of testing, but they can only utilise the "two-hour golden window" of non-traffic hours overnight for conducting the tests every day, so the time is very tight. In this connection, the EMSD has been working with the MTRCL and an I&T company to jointly develop the Universal AI Interacted Automated

於2027年啟用。該工具可自動產生數十萬個測試情境，識別信號系統可能出現的問題或漏洞，從而大幅縮短測試時間，使鐵路服務更穩健可靠。我們希望把該工具奉為國際測試的圭臬，為推動鐵路安全作出貢獻。

Scenario Tester (AI-AST), which is expected to be launched in 2027. The AI-AST can automatically generate hundreds of thousands of testing scenarios for identifying potential issues or loopholes in the signalling system, thereby significantly shortening testing time and making railway services more robust and reliable. We aspire to establish the AI-AST as an international testing standard, contributing to the promotion of railway safety.

此外，我們為港珠澳大橋香港口岸推出多個創科項目，運用人工智能和影像分析等技術，支援智能過境、智能資產管理、碳中和及「港車北上、粵車南下」等措施。2023年下半年，我們推出部門的《人工智能行動綱領》和《機電裝備合成法行動綱領》，為部門在人工智能和「機電裝備合成法」的推廣和廣泛應用方面提出策略和行動路線圖，奠下重要的里程碑。此外，為促進粵港澳大灣區（大灣區）的人工智能發展，團隊已着手與廣東省建築科學研究院集團股份有限公司合作，為大灣區機電業界制訂一套《機電設備人工智能數據標準化指南》。

Besides, we launched multiple I&T projects for the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port, using AI and image analytics technologies to support smart crossing, intelligent asset management, carbon neutrality, and Northbound/Southbound Travel for Hong Kong, Mainland and Macao Vehicles. We launched our departmental AI Master Action Plan and Multi-trade integrated Mechanical, Electrical and Plumbing (MiMEP) Master Action Plan in the second half of 2023. Both are milestone documents setting out the EMSD's strategies and action roadmap to promote and facilitate the wider use of AI and MiMEP technologies. Furthermore, to facilitate AI development in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), our team has started working with the Guangdong Provincial Academy of Building Research Group Co., Ltd. to draft an E&M AI Data Standardisation Guideline for the E&M trade in the GBA.

為進一步推動創科產業化，我們除了透過深受歡迎的「機電創科網上平台」為用戶配對創科方案，還在2024年2月初步推出「機電創科彙集」新互動平台。這全新互動平台目前展示逾50個成功項目，方便客戶根據其特定需要迅速找到實證有效的創科方案。

In addition to the E&M InnoPortal which is our highly popular online I&T solution matching platform, we also soft launched the E&M InnoCatalogue in February 2024 to further foster the development of I&T as an industry. It is a new interactive platform which currently showcases over 50 successful projects to help our clients quickly find proven I&T solutions according to their specific needs.

目前人工智能發展迅速，運算力愈發強勁，配合日益普及的物聯網技術和傳感器，可完全自動監察和控制各種機電系統，優化系統的效率。然而，這亦可能會帶來新挑戰：各行各業由人類進行的初級人手工作，會否被人工智能取代？機電署的工作方式會受到什麼衝擊？我們的客戶和業界面對此等挑戰，應如何及早綢繆？就此，我已要求本署人員成立「科技雷達」，並委託兩位分別來自規管服務和營運服務的助理署長，領導「科技雷達」的工作，持續監察人工智能及其他高新科技的發展，以及對部門運作及社會的影響；重點之一是網絡安全，確保人工智能的開發和使用，符合安全和道德原則，包括按照相關法規保障個人資料安全和私隱。此外，地緣政治或會窒礙有關創科工作的採購安排，我已要求團隊一併考慮相關因素，以制訂相應的計劃。

As AI develops rapidly and computing power becomes ever stronger, they can be readily combined with the increasingly popular Internet of Things technology and sensors to comprehensively monitor and fully automate E&M systems for optimising their efficiency. However, these developments may give rise to new challenges. Will AI replace the preliminary manual tasks conducted by human beings across different trades and professions? How will the EMSD's operations be affected? How should our clients and the trade plan early to meet those challenges? In this respect, I have asked our staff to set up a Technology Radar and commissioned two Assistant Directors, one from Regulatory Services and one from Trading Services, to lead the initiative of continuously monitoring AI and other high-tech development as well as its impact on the Department and society. A key aspect will be cybersecurity, ensuring that the development and use of AI comply with safety and ethical principles, including the protection of personal data and privacy of individuals under the relevant laws and regulations. In addition, as geopolitics is likely to hamper the sourcing aspects of our I&T work, I have asked the team to consider these factors together in order to formulate plans accordingly.

建立預防事故的文化

為進一步培育防患於未然的文化，我們積極優化有關的機制，並提高員工的意識。然而，這是一項長期工作，必須持之以恆，才能透過「治未病」實現零事故的目標。

BUILDING AN INCIDENT PREVENTION CULTURE

To further cultivate our incident prevention culture, we have actively improved the relevant mechanisms and raised staff awareness. Nevertheless, this is a long-term effort. It will take time and perseverance to attain our goal of zero incident via "preventive treatment of disease".

近年，家用冷氣機供應商增加採用R32輕度易燃雪種，以減慢全球暖化的速度，但此舉也會帶來安全風險。因此，我們在2023年5月推出「家用冷氣機輕度易燃雪種處理工程人員自願註冊計劃」，以提升工程人員處理這類雪種的安全意識和相關技術；現有約1 400名工程人員在計劃下完成註冊。

In recent years, suppliers of household air-conditioners have increased the use of R32 mildly flammable refrigerants to slow down global warming, but this also poses safety risks. Therefore, we launched in May 2023 the Voluntary Registration Scheme for Technicians Handling Mildly Flammable Refrigerant of Household Air-conditioners to raise the safety awareness of technicians handling this type of refrigerants and hone their skills. About 1 400 technicians have already registered under the scheme.

為減少氣體安全隱患，我們會加強巡查食肆，打擊違法使用沒有「GU」標誌的卡式石油氣爐，並加強監管本地零售商戶和網上電商平台，嚴禁進口與供應沒有「GU」標誌的卡式石油氣爐和其他未經批准的氣體用具。

To reduce potential gas safety hazards, we will step up inspections of restaurants to combat illegal use of cassette cookers without GU marks, and strengthen the supervision of local retail merchants and online e-commerce platforms to strictly prohibit the import and supply of cassette cookers without GU marks and other non-approved gas appliances.

此外，我們重視以創科方案，包括人工智能、影像和大數據分析等技術，識別和杜絕安全隱患。年內發生數宗因電壓驟降導致屋苑升降機服務暫停的事故，對居民造成不便。就此，我們指示電力公司制定措施，預防類似事故再次發生，例如透過影像監察系統和各種狀態監察技術，收集數據以對供電設備進行事故預測。

We also attach great importance to identifying and eliminating safety hazards through I&T solutions, including AI, image and big data analytics technologies. During the year, there were a number of voltage dip incidents causing suspension of lift service in housing estates and inconvenience to residents. In this connection, we instructed the power companies to develop measures to prevent recurrence of similar incidents, such as using image monitoring systems and various condition monitoring technologies to collect data for incident prediction on power supply equipment.

部門層面的中央數碼監控中心將於2024/25年度啟用，我們的團隊正進行最後的籌備工作。在中心投入服務後，我們可運用來自300多幢主要政府建築物的大數據，以進行更全面的預測性維修保養。

Final preparations are underway for the launch of the EMSD's Departmental Digital Control Centre scheduled for 2024/25. Once the centre comes into operation, we can utilise the big data collected from over 300 major government buildings for more comprehensive predictive maintenance.

另外值得一提的是，機電署應醫管局邀請，協助調查2023年年初發生的數宗事故，即使營運基金並沒有為涉事醫院提供操作和維修保養服務。我們也獲邀向醫管局因應事故而成立的「檢視醫療儀器及設施保養維修事宜委員會」分享醫療儀器維修保養方面的經驗和專業知識。我們的衞生工程團隊透過分享在公立醫院的機電操作和維修範疇累積的豐富經驗，加強了客戶追求「治未病」的意識，以及在資產管理和維修保養方面預防事故的能力。

It must be mentioned that the EMSD was invited by the HA to assist in investigating several incidents occurred in early 2023, even though the EMSTF did not provide O&M services to the hospitals involved. We were also invited to share our experience and professional knowledge of medical equipment maintenance with the Review Committee on Medical Equipment and Facility Maintenance set up by the HA in response to the incidents. Our health sector team's sharing of rich experience accumulated in E&M O&M at public hospitals has enhanced the client's awareness in pursuing "preventive treatment of disease" and capabilities in incident prevention in its asset management and maintenance work.

以新思維善用人才

面對人力問題，可從兩方面着手：一是吸引年輕新血加入機電行業，二是設法利用有限的人力資源處理更多工作。

近年我們與機電業界合作，吸引年輕人入行，包括每年參與各個職業博覽會、與本港主要機電組織合辦見習技術員的迎新活動，以及舉辦多項學校和青年活動，提高新一代對機電業的認識和興

ADOPTING A NEW MINDSET IN TALENT DEPLOYMENT

There are two aspects to the manpower issue: firstly, attracting young talent to join the E&M industry; and secondly, finding ways to do more with limited human resources.

In recent years, we have been working with the E&M trade to attract young people to join the industry, including participating every year in career expos, holding joint orientation events for Technician Trainees (TTs) with major E&M organisations in Hong Kong, and conducting various school and youth activities

署長的話
MESSAGE FROM THE DIRECTOR

趣。為吸引年輕人，我們必須傳達兩個訊息：機電工作與科技息息相關，並對社會與民生有重要貢獻。

to raise the youth's awareness of and interest in the E&M industry. To attract young people, we must convey two messages: E&M work is about technology, and it makes a meaningful contribution to society and people's livelihoods.

機電署一直不遺餘力推動公眾教育和青年發展。我們在2023年7月成立機電青年發展委員會，協助機電署年青員工作多元發展；同時通過擴大現有「機電青少年大使計劃」的範圍，進一步促進青年人對機電安全、能源效益、創科和機電業的知識，讓他們發揮潛能，實踐理想。

The EMSD has been sparing no effort in promoting public education and youth development. The EMSD established the E&M Youth Development Committee in July 2023 to equip our young staff members to pursue diversified development. At the same time, the EMSD has expanded the scope of the existing E&M Young Ambassador Programme to further promote the knowledge of E&M safety, energy efficiency, I&T and E&M industry among young people, enabling them to unleash their potential and achieve their goals.

隨着電動車和其他新能源車輛日漸普及，對車輛維修技術人才的需求不斷增加。為了讓資深技工可憑藉工作經驗取得資歷認可，機電署聯同資歷架構秘書處、車輛維修技術諮詢委員會和職業訓練局，引入「過往資歷認可」機制。由2023年7月3日起，「車輛維修技工的自願註冊計劃」接納以汽車業「過往資歷認可」機制獲取的「職業資歷階梯」第三級資歷作為註冊條件，讓經驗豐富的技工獲取認證並取得註冊車輛維修技工的資格。截至2024年3月底，已有356名註冊車輛維修技工經此途徑取得第三級資歷。

As electric vehicles and other new energy vehicles become increasingly popular, the demand for vehicle maintenance mechanics is on the rise. To allow seasoned mechanics to obtain qualification recognition based on their work experience, the EMSD collaborated with the Qualifications Framework Secretariat, the Vehicle Maintenance Technical Advisory Committee and the Vocational Training Council to introduce the Recognition of Prior Learning (RPL) mechanism. Starting from 3 July 2023, the Voluntary Registration Scheme for Vehicle Mechanics accepts Level 3 qualifications acquired via the RPL mechanism of the automotive industry as registration requirements, thus enabling experienced mechanics to obtain certification and qualify as registered vehicle mechanics. As at the end of March 2024, 356 registered vehicle mechanics had obtained Level 3 qualifications via this route.

至於利用有限的人力資源處理更多工作，我們必須摒棄以往「要有額外資源以應付新工作」的心態，並改以新思維尋找解決方法，善用科技提高生產力，務求運用有限的人力資源取得更多成果。其中一個好例子是我們於2022年為醫管局試用醫療儀器維修表格電子平台，以簡化維修保養工作流程，真正實現無紙化工作流程，節省人手和提升效率。

As for doing more with limited human resources, we must abandon the past mentality of "asking for additional resources to cope with new work", and instead adopt the new mindset of finding ways to make the best use of technology for productivity improvement, so that more can be achieved with limited human resources. A good example is the trial of the Biomedical Engineering Services e-form platform that we initiated for the HA in 2022 with the aim of streamlining the maintenance workflow, thus making the process truly paperless and more efficient while saving manpower.

年內，我們為員工舉辦多個機電技術培訓課程，並與廣東省多間培訓機構進行技術交流活動，包括接待廣州市機電技師學院和廣州市工貿技師學院的代表團參觀機電署總部，與代表團就創科發展交流經驗。我們還與廣州市技師學院、廣州市機電技師學院、廣州市工貿技師學院和廣州市交通技師學院合辦培訓課程，內容涵蓋空調製冷、電氣、電動車及屋宇裝備等範疇。

During the year, we organised a variety of E&M technical training courses for staff and held technical exchange activities with training institutions in Guangdong Province. These included experience exchange on I&T development with delegations from the Guangzhou Electromechanical Technician College and the Guangzhou Industry and Trade Technician College during their visit to the EMSD Headquarters. We also collaborated with the Guangzhou Technician College, the Guangzhou Electromechanical Technician College, the Guangzhou Industry and Trade Technician College, and the Guangzhou Communications Technician Institute to organise training courses in air-conditioning and refrigeration, electrical work, electric vehicles, and building services.

另外，我們很高興再次派出兩位見習技術員參與世界級賽事。機電署兩名選手分別於「空調製冷」和「電氣安裝」項目獲選為香港代表，參加於今年9月在法國里昂舉行的「第47屆世界技能大賽」，以精湛技術說好香港故事，並以賽促學。

Moreover, we are delighted to send two TTs to compete in world-class events once again. Two candidates from the EMSD have qualified to represent Hong Kong in the Refrigeration and Air-conditioning as well as Electrical Installations trades and will enter the 47th WorldSkills Competition taking place in Lyon, France this September. They will tell the good stories of Hong Kong with their outstanding technical skills, and enhance their skills through competitions.

多元合作見成果

機電署近年與本港、內地和海外機構簽訂多份合作備忘錄和協議，並取得實質成果。在2023年，我們與內地機構簽訂了兩份新的合作備忘錄，包括與深圳市科學技術協會簽訂合作備忘錄，建立新的策略伙伴關係；以及與廣東省建築科學研究院集團股份有限公司和廣東省建設科技與標準化協會簽訂合作備忘錄，共同推動綠色建築機電系統技術和人工智能標準的發展。

WIDE-RANGING CO-OPERATION YIELDS RESULTS

The EMSD has signed in recent years a number of memoranda of co-operation (MoC) and agreements with organisations in Hong Kong, the Mainland and overseas, which have yielded concrete results. In 2023, we signed two new MoC with the Mainland institutions, one with the Shenzhen Association for Science and Technology to establish a new strategic partnership, and another with the Guangdong Provincial Academy of Building Research Group Co., Ltd. and the Guangdong Province Construction Technology and Standardisation Association to jointly foster the development of green building E&M systems technology and AI standards.

在與內地協作方面，機電署與國家海關總署的合作已踏入二十周年。我們舉辦了《機電產品安全及能源效益合作安排》簽署二十周年慶典和回顧展覽，展示雙方的合作歷程、成就和未來展望。

Regarding the collaboration with the Mainland, this year marks the 20th anniversary of the cooperation between the EMSD and the General Administration of Customs of the People's Republic of China. We organised a ceremony and a retrospective exhibition to celebrate the 20th anniversary of the signing of the Cooperation Arrangement on Electrical and Mechanical Products Safety and Energy Efficiency and showcase the journey, achievements and future outlook of our collaboration.

此外，我們與國家市場監督管理總局建立新的伙伴合作，加強共同推動氫能發展（包括綠氫認證）、燃氣安全、機械裝置安全和產品能源效益等範疇的合作與交流。我們很高興「灣區標準」和「灣區認證」工作將會納入2024年簽署的合作備忘錄，長遠有助我們建立其他範疇的標準，甚至為制訂國家標準作出貢獻。

Furthermore, we established a new partnership with the State Administration for Market Regulation to enhance our joint efforts in promoting cooperation and exchanges in the areas of hydrogen energy development (including green hydrogen certification), gas safety, machinery safety and energy efficiency of products, etc. We are delighted that Greater Bay Area (GBA) Standards and certification work will be included in the MoC signed in 2024, which will be conducive to our establishment of standards in other areas in the long run and even making contribution to the formulation of national standards.

我們亦積極推廣在大灣區應用重新校驗。在2024年3月，我們與廣東省建築科學研究院集團股份有限公司共同發布了《粵港澳大灣區既有建築機電系統再調適技術導則》，為大灣區的相關從業員提供操作指引，以期提升現有建築物的能效表現。

We have also been actively promoting the application of retro-commissioning in the GBA. In March 2024, the EMSD and the Guangdong Provincial Academy of Building Research Group Co., Ltd. jointly issued the Technical Guide on Retro-commissioning of Buildings in Greater Bay Area, providing operational guidance for practitioners in the GBA, with a view to enhancing the energy performance of existing buildings.

近年來，廣州市工貿技師學院等內地機構，一直為本署參加世界技能大賽的見習技術員提供高水平培訓，並與我們合作進行創科研發項目，推動技術突破。其中一個獲獎項目，是我們與廣東省科學院和香港機場管理局合作研發的機場跑道助航燈自動維護機械人。該機械人可自動偵測和清除飛機降落時輪胎留下在機場跑道燈的膠漬。項目現正在廣州廠房進行試驗，日後有機會與運載車輛一同發展為無人駕駛的全自動機械人。

Mainland institutions, such as the Guangzhou Industry and Trade Technician College, have been providing high-standard training for our TTs competing in the WorldSkills Competition in recent years. These institutions have also been working with us on joint I&T development projects to drive technological breakthroughs. One of the award-winning projects is the Autonomous Airfield Ground Lighting Cleaning and Inspection Robot, a joint project with the Guangdong Academy of Sciences and the Airport Authority Hong Kong. The robot can automatically detect and remove rubber deposits left on airfield ground lights by aircraft wheels during landing, with trials being held at a Guangzhou workshop. The robot, as well as transportation vehicles, has the exciting potential to become driverless and fully automated in the future.

我們的另一新猷是與清華大學經濟管理學院合作，於2024年6月在深圳舉辦為期三天的首長級

In another new initiative, we collaborated with the Tsinghua University's School of Economics and Management to organise a three-day management training

署長的話
MESSAGE FROM THE DIRECTOR

人員管理培訓課程。課程內容豐富，涵蓋最新的技術發展和管理策略等課題，讓參加者更深入了解內地和大灣區的發展。我們的人員亦分享了香港在邁向碳中和與推動創科的經驗。除了機電署外，發展局和其他工務部門的首長級人員也應邀參加課程，最終共有45人參與是次培訓。課程將於本年12月在深圳再次舉行。

programme for directorate officers, which was held in Shenzhen in June 2024. Rich in content, the programme covered topics such as the latest developments in technology and management strategies, and provided participants with a deeper understanding of developments in the Mainland and the GBA. Our staff members also shared Hong Kong's experience in working towards carbon neutrality and promoting I&T. Apart from the EMSD, directorate officers from the Development Bureau and other works departments were also invited to join the programme, resulting in a total of 45 participants. The programme will be held again in Shenzhen this December.

在區域合作方面，我們在2023年9月首次主辦第71屆國際纜車監管機構會議，會議匯聚來自13個司法管轄區的監管人員、專家、專業人士和學術界人士，就架空纜車和地面纜車系統安全的行政管理和規管方式進行交流。此外，本署兩位資深人員在亞太區經濟合作組織能源工作組繼續擔任領導工作，積極探討能源效益和新能源事宜，並加強與其他成員經濟體和國際組織的合作。另外，我們將聯同國家鐵路局和港鐵公司，在2025年在香港舉辦國際鐵路安全議會年度會議，邀請200多位來自世界各地的鐵路專家來港，就鐵路安全、規管及技術等事宜進行交流。

Regarding regional cooperation, we hosted the 71st International Meeting of Technical Authorities for Cableways (ITTAB) for the first time in September 2023. The meeting brought together regulators, experts, professionals and academia from 13 jurisdictions to exchange views on the administration and regulatory control of the safety of aerial ropeways and funicular systems. Furthermore, our two veteran officers have continued the leadership work in the Energy Working Group of the Asia-Pacific Economic Cooperation (APEC), actively exploring energy efficiency and new energy matters while enhancing collaboration with other member economies and international organisations. In addition, in collaboration with the National Railway Administration and the MTRCL, we will host the annual conference of the International Railway Safety Council in Hong Kong in 2025. More than 200 railway experts from around the world will be invited to come to Hong Kong to exchange views on matters relating to railway safety, regulation and technical developments.

2035-2050 年願景研究

STUDY OF THE 2035-2050 VISION

最後，我想談談機電署2035-2050年願景研究，有關研究會探討部門的中長期願景展望，並制訂相應的策略和行動綱領。這項研究源自特區政府力爭在2050年前實現碳中和的承諾，本署作為負責推動本港能源效益和創科發展的政府部門，有責任為達成減碳目標作前瞻性規劃，因此我們擬進行研究以更穩妥地履行這項責任。考慮到香港以至全球各地都受眾多宏觀環境變化影響，例如科技發展和地緣政治，所以我們會把這項研究的範圍擴大。現時，這項研究旨在探討和分析未來五年、十年、甚至三十年可能出現的宏觀環境變化、機遇與挑戰，以及制訂相應的短、中、長期策略和行動措施。

Lastly, I would like to talk about our study of the EMSD 2035-2050 Vision that explores the medium and long-term vision and prospects of the Department and formulate corresponding strategies and actions. Originally an initiative related to the Government's commitment to achieving carbon neutrality before 2050, the study was conceived as part of our responsibilities as the government department responsible for driving energy efficiency and I&T development in Hong Kong, to make forward-looking plans to help achieve the decarbonisation goals more securely. In view of myriad macro changes impacting Hong Kong and the world, such as technology development and geopolitics, the scope of this study will be therefore broadened. Now the study is aimed at exploring and analysing changes in the macro environment as well as opportunities and challenges likely to arise in the next five, ten and even thirty years; and devise corresponding short, medium and long-term strategies and actions.

我們會先邀請部門人員以小組形式研究個別題目，例如氣候變化、創科發展、融入國家發展、地緣政治、部門服務的未來演變、本港新發展區所帶來的機遇，以及機電設備的生命周期管理等。我們會就這些議題的宏觀環境進行客觀分析，檢視和分析機電署的優勢，制定短、中、長期的發展情境假設，並就不同階段訂定願景和目標。接着，我們會以逆向工作方法，探討由現在起與2035年至2050年間應採用什麼策略和具體行動，以實現這些願景和目標。

We will first ask our staff members to work in small teams to study individual topics, such as climate change, I&T development, integration into national development, geopolitics, future evolution of the Department's services, opportunities arising from Hong Kong's new development areas, and the life cycle management of E&M equipment, etc. We will conduct an objective analysis of the macro environment in relation to these topics, review and analyse the EMSD's strengths, develop short, medium and long-term development scenarios, and formulate our vision and goals for these time horizons. Next, we will work backwards to identify the strategies and actions to be taken between now and 2035-2050 to attain the vision and goals.

雖然現階段的研究尚未得出結論，但挑戰是顯而易見的。人工智能和科技迅速發展，加上機電設備日趨模組化，一方面可提高我們的工作效率，另一方面迫使我們重新定位操作和維修保養服務，或轉向更高增值的工作。這些變化會對部門未來的工作環境和培訓產生根本性的影響，因此必須及早作詳細研究和策略規劃。此外，地緣政治亦會影響本港機電系統以至整個社會的暢順運作，因此也必須制訂應變計劃。這項2035-2050年願景研究對機電署的未來發展至關重要，我們會適時報告進展。

Though the study at this stage is far from being conclusive, the challenges are obvious. The rapid development of AI and technology, along with the increasing modularisation of E&M equipment, will on the one hand improve our work efficiency, and might on the other hand require us to reposition our O&M services or migrate to higher value-added work. These changes will have a fundamental impact on the department's future work settings and training, and require thorough deliberation and strategic planning well in advance. Another challenge is geopolitics, which will have an impact on the smooth operation of our E&M systems and even that of our society. Hence, contingency plans are essential. The study of the 2035-2050 Vision is crucial to the EMSD's future development, and we will report on the progress in due course.

誠摯感謝

GRATITUDE AND APPRECIATION

過去一年，承蒙客戶、機電業界、專業團體、學術界、培訓和研究機構鼎力支持，以及內地和海外合作伙伴的協作和襄助，機電署才能取得佳績，我們深表謝意。我們也衷心感謝各政策局的指導和其他部門的支持，以及全體員工的巧思創意與不懈努力。此外，有賴立法會議員、傳媒、意見領袖和市民等持份者辛勤監察我們的表現，並提出寶貴建議，部門才能不斷反思和改進，謹致由衷謝忱。

The EMSD would not have achieved so much in the past year without the strong support from our clients, the E&M trade, professional bodies, academics, and training and research institutions, as well as the collaboration and assistance of our Mainland and overseas co-operation partners; and for which we are deeply grateful. Our heartfelt gratitude also goes to the policy bureaux for their guidance and to other government departments for their support, and we sincerely thank all our colleagues for their ingenuity and hard work. Furthermore, our continuous reflection and improvement would not have been possible without the vigilance and feedback from stakeholders, such as Legislative Council members, the media, opinion leaders and the public. We owe them all a big thank you.

我們希望來年再創佳績，為香港經濟和民生作出貢獻。

We look forward to achieving excellence again next year in support of our economy and our people.

潘國英
機電工程署署長
機電工程營運基金總經理

Poon Kwok-ying, Raymond
Director of Electrical and Mechanical Services
General Manager, Electrical and Mechanical Services Trading Fund

我們的管理層
OUR MANAGEMENT

01 署長 DIRECTOR

潘國英太平紳士
Mr Poon Kwok-ying, Raymond, JP
機電工程署署長
Director of Electrical and Mechanical Services

02 陳柏祥先生
Mr Chan Pak-cheung
副署長 / 規管服務
Deputy Director/Regulatory Services

03 陳志偉太平紳士
Mr Chan Chi-wai, Richard, JP
副署長 / 營運服務
Deputy Director/Trading Services

04 陳秋發太平紳士
Mr Chan Chau-fat, JP
助理署長 / 鐵路
Assistant Director/Railways

05 姚德泰先生
Mr Yiu Tak-tai, Boris
助理署長 / 電力及能源效益
Assistant Director/Electricity and Energy Efficiency

06 周厚強太平紳士
Mr Chow Hau-keung, Vincent, JP
助理署長 / 氣體及一般法例
Assistant Director/Gas and General Legislation

07 李志良先生
Mr Lee Chi-leung, Eric
助理署長 /1
Assistant Director/1

08 楊秀權先生
Mr Yeung Sau-kuen, Sammy
助理署長 /2
Assistant Director/2

09 李學賢先生
Mr Lee Hok-yin, Arthur
助理署長 /3
Assistant Director/3

10 黃妍旻女士
Ms Wong Yin-man, Yammy
總庫務會計師 / 財政管理
Chief Treasury Accountant/ Financial Management

11 鍾蔚欣女士
Miss Chung Wai-yan
高級庫務會計師 / 會計服務
Senior Treasury Accountant/ Financial Services

12 劉志偉先生
Mr Lau Chi-wai, Wilfred
員工關係主任
Staff Relations Officer

13 韋美珠女士
Ms Wai Mei-chu, Jenny
主任秘書
Departmental Secretary

14 王瑩瑩女士
Ms Wong Ying-ying, Regina
高級機電工程師 / 技術服務
Senior Engineer/Technical Services

* 彭耀雄太平紳士出任機電工程署署長至2024年3月30日
Mr Pang Yiu-hung, JP was Director of Electrical and Mechanical Services up to 30 March 2024
* 潘國英太平紳士出任機電工程署副署長/規管服務至2024年3月30日
Mr Poon Kwok-ying, Raymond, JP was Deputy Director/Regulatory Services, EMSD up to 30 March 2024
* 陳嘉聰先生出任機電工程署助理署長/1至2023年9月30日
Mr Chan Ka-chung was Assistant Director/1, EMSD up to 30 September 2023
* 朱祺明先生出任機電工程署助理署長/電力及能源效益至2023年10月8日
Mr Chu Kei-ming, Barry was Assistant Director/Electricity and Energy Efficiency, EMSD up to 8 October 2023
* 李慧儀女士出任機電工程署總庫務會計師/財政管理至2023年12月12日
Ms Lee Wai-yee was Chief Treasury Accountant/Financial Management EMSD up to 12 December 2023
* 朱雅琦女士出任機電工程署高級庫務會計師/會計服務至2024年5月7日
Ms Chu Nga-ki was Senior Treasury Accountant/Financial Services, EMSD up to 7 May 2024

規管服務業務概覽
REGULATORY SERVICES ACHIEVEMENTS OVERVIEW

抱負 VISION

促使香港在機電安全及善用能源方面，達到國際首要都會級水平。

To make Hong Kong a top-ranking world city in the electrical and mechanical (E&M) safety and efficient use of energy.

使命 MISSION

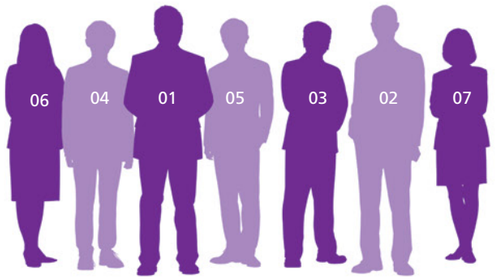
充分發揮專業及創新精神，致力確保機電及能源科技以安全、可靠、經濟及環保的方式得以善用，藉此促進社會安全及提升生活質素。

To enhance the safety and quality of life of our community through our professionalism and innovation to ensure that E&M and energy technologies are harnessed in a safe, reliable, economical and environment-friendly manner.

信念 VALUES

專業才能 EXPERTISE
誠信 INTEGRITY
可靠 RELIABILITY
承擔 COMMITMENT
靈活創新 INNOVATION

高層管理人員
SENIOR MANAGEMENT



01
潘國英太平紳士
Mr Poon Kwok-ying, Raymond, JP
機電工程署署長
Director of Electrical and Mechanical Services

02
陳柏祥先生
Mr Chan Pak-cheung
副署長 / 規管服務
Deputy Director/Regulatory Services

03
陳秋發太平紳士
Mr Chan Chau-fat, JP
助理署長 / 鐵路
Assistant Director/Railways

04
姚德泰先生
Mr Yiu Tak-tai, Boris
助理署長 / 電力及能源效益
Assistant Director/Electricity and Energy Efficiency

05
周厚強太平紳士
Mr Chow Hau-keung, Vincent, JP
助理署長 / 氣體及一般法例
Assistant Director/Gas and General Legislation

06
鍾蔚欣女士
Miss Chung Wai-yan
高級庫務會計師 / 會計服務
Senior Treasury Accountant/Financial Services

07
韋美珠女士
Ms Wai Mei-chu, Jenny
主任秘書
Departmental Secretary

* 彭耀雄太平紳士出任機電工程署署長至2024年3月30日
Mr Pang Yiu-hung, JP was Director of Electrical and Mechanical Services up to 30 March 2024

* 潘國英太平紳士出任機電工程署副署長/規管服務至2024年3月30日
Mr Poon Kwok-ying, Raymond, JP was Deputy Director/Regulatory Services, EMSD up to 30 March 2024

* 朱祺明先生出任機電工程署助理署長/電力及能源效益至2023年10月8日
Mr Chu Kei-ming, Barry was Assistant Director/Electricity and Energy Efficiency, EMSD up to 8 October 2023

* 朱雅琦女士出任機電工程署高級庫務會計師/會計服務至2024年5月7日
Ms CHU Nga Ki was Senior Treasury Accountant/Financial Services, EMSD up to 7 May 2024

服務回顧
OPERATIONS REVIEW

陳柏祥先生
Mr Chan Pak-cheung

副署長/
規管服務
Deputy Director/
Regulatory Services

一直以來，規管服務秉持「利民為本」的專業精神和敢於創新的態度，全力以赴把香港建設為安全可靠的智慧都市，為市民營造方便快捷的幸福生活。憑藉本署人員堅持不懈的努力，我們在2023/24年度堅守崗位，繼續保障香港的機電安全，並為能源效益方面持續躍進發展奠下基礎，帶領各界別的持份者共同力爭實現碳中和，盡心盡力造福社羣。

Upholding a professional spirit of "benefiting the people" and a bold attitude towards innovation, the Regulatory Services have ever been going all out to build Hong Kong into a safe and reliable smart city, and to create a convenient and fulfilling life for the public. Thanks to the persistent efforts of our officers, we stuck to our post and continued to safeguard electrical and mechanical (E&M) safety in Hong Kong in 2023/24. In addition, we laid a foundation for ongoing leaps in energy efficiency, leading stakeholders from all walks of life towards achieving carbon neutrality together. Striving with full devotion, we exert our best to benefit the community.

全賴社會各界同心協力，2019冠狀病毒病疫情於2023年年初逐漸平息。隨着社會重回正軌，努力拼經濟、謀發展，我們於年內配合社會發展大勢，積極尋求突破。除了強化跨境及國際合作外，我們更大力推動創科發展，積極提升服務質素和效率以鞏固機電安全，並且穩步落實《香港智慧城市藍圖》，讓社會邁向更美好的未來。

With the concerted effort of various sectors of society, the COVID-19 epidemic gradually subsided in early 2023. As society got back on track, endeavouring to build a vibrant economy and strive for development, we actively sought breakthroughs in line with the general trends of social developments during the year. Apart from strengthening cross-border and international cooperation, we have vigorously promoted the development of innovation and technology (I&T), actively enhancing the quality and efficiency of our services to reinforce E&M safety. We have also been steadily implementing the "Smart City Blueprint for Hong Kong", building a brighter future for society.

克盡己任防範意外
誠心為民謀求福祉

非止排難於變切，亦將防患於未然。作為香港機電安全的把關者，機電署必須確保機電業界有效執行安全作業指引，從而建立抵禦風險的能力。

穩定可靠的電力供應對香港市民的生活，以及各層面的經濟活動都十分重要。2022年6月和2023年4月，中電和港燈分別發生電纜橋事故和供電事故。為免同類事件再次發生，機電署已於年內加強對電力公司的規管，大幅上調巡查次數，並敦促兩家電力公司推行一系列的改善措施，例如加強對電纜橋等基礎設施及調試工作的風險評估。在我們密切監察其改善進度下，所有主要改善措施已於2023年年底前實施。

此外，為了減輕極端天氣對供電穩定的影響，我們定期與電力公司檢討供電設施抵禦極端天氣的能力，並跟進相應的改善措施。同時，我們鼓勵電力公司探討利用各種創新科技；例如本年度中電引入智能管理系統，全天候實時監察變電站和架空電纜的狀況，以掌握系統運行情況，提升應變能力。另外，電壓驟降或會影

FULFILLING OUR DUTIES TO PREVENT ACCIDENTS AND BENEFIT THE PUBLIC

Not only must we meet challenges as they arise, but we must also take proactive measures to prevent issues before they occur. As the gatekeeper of E&M safety in Hong Kong, the Electrical and Mechanical Services Department (EMSD) must ensure that the E&M trade effectively implements guidelines on operational safety, thereby building the capacity to resist risks.

A stable and reliable power supply is crucial to the daily lives of Hong Kong citizens and economic activities at all levels. In June 2022 and April 2023, the CLP Power Hong Kong Limited (CLP Power) and the Hongkong Electric Company Limited (HK Electric) experienced a cable bridge incident and a power supply incident respectively. To prevent recurrence of similar incidents, the EMSD has strengthened its regulation of the power companies during the year, significantly increasing the frequency of inspections, and urging the two power companies to implement a series of improvement measures, such as enhancing risk assessments of cable bridges and other infrastructures as well as commissioning work. Under our close monitoring of their improvement progress, all major improvement measures had been implemented by the end of 2023.

Besides, in order to mitigate the impact of extreme weather on the stability of power supply, we regularly reviewed the resilience of power supply facilities against extreme weather with the power companies and followed up on corresponding improvement measures. At the same time, we encouraged the power companies to explore the use of various innovations and technologies. For instance, CLP Power introduced a smart management system this year to monitor the condition of substations and overhead lines in real time and round the clock, so as to better

響升降機服務，我們因此與升降機業界建立溝通機制，遇事時通知各註冊升降機承辦商靈活調動人手，盡快恢復受影響地區升降機的運作，以減低對市民的不便。

極端天氣對機電設施構成威脅，設施老化亦會令意外頻生。因此，機電署要求業界加強管理旗下資產，定期維修老化的設施，並適時引入合適的創新科技；其中包括收集大數據進行分析，以及利用更堅固的材料和可靠的技術，確保設施與服務達至穩健的水平，從而提升管理效率。

鐵路方面，在2024年年中，機電署鐵路科聯同多個政府部門，監察港鐵公司在油麻地站隧道路段進行的大型資產更新工程，確保工程在安全合規的情況下按時完成，全方位保障鐵路安全。該次工程是香港鐵路網絡歷史上別具意義的一次資產更新工程，事前評估施工時間長達28小時，涉及近千名工作人員。在安全方面，港鐵應用智慧工地系統監察隧道內工程人員的情況，以提升工地安全。除了規劃周全有效，本署人員在問題發生前亦積極找出潛在弊病，實踐「治未病」的精神，體現了他們的專業精神。至於升降機安全，近年來，我們和市區重建局一直攜手推行「優化升降機資助計劃」。隨着社會疫後復常，截至2024年3月，約5 100部升降機的優化工程已展開籌劃或正進行施工，其中約800部升降機已經完工。我們會繼續推行有關計劃，提升升降機安全。

展望未來，機電署會繼續做好規管者的本分，懷着底線思維，為最壞的狀況作好打算；我們會嚴謹督促機電業所有持份者切實執行所有安全作業指引，盡力排除潛在風險。此外，機電署會擔當促進跨界技術交流的角色。我們相信，他山之石，可以攻玉。單一持份者防範意外的成功經驗，亦可以啟發整個業界。我們會積極分享不同經驗，與業界攜手邁向「零意外」。

understand the system operation for enhancing response capabilities. Besides, sudden voltage dips may affect lift service, so we have established a communication mechanism with the lift trade to notify registered lift contractors in case of incidents for mobilising manpower flexibly to swiftly restore lift operations in affected areas as soon as possible, so as to reduce the inconvenience to the public.

Extreme weather poses a threat to E&M facilities, while aging facilities can lead to frequent accidents. Therefore, the EMSD requires the industry to enhance the management of its assets by carrying out regular maintenance of aging facilities and timely introducing appropriate innovative technologies. These include collecting big data for analysis and utilising more robust materials and reliable techniques to ensure that facilities and services achieve a stable level of performance, thereby improving management efficiency.

On railway, in mid-2024, the Railways Branch of the EMSD, in collaboration with various government departments, monitored a massive asset renewal project undertaken by the MTR Corporation Limited (MTRCL) at the tunnel section of Yau Ma Tei Station, to make sure that the project was completed on time and in compliance with safety regulations, thus holistically ensuring railway safety. This project is a significant asset renewal initiative in the history of the railway network of Hong Kong, with a pre-assessment of construction time lasting 28 hours and involving nearly a thousand working personnel. In terms of safety, the MTRCL used a Smart Site Safety System (4S) to monitor the condition of workers within the tunnel for improving construction site safety. Not only was the planning thorough and effective, but our officers also proactively identified potential defects before issues arose, demonstrating the prevention strategies and their professionalism. Regarding lift safety, we have collaborated with the Urban Renewal Authority to implement the Lift Modernisation Subsidy Scheme in recent years. As society returns to normalcy after the epidemic, the modernisation works of approximately 5 100 lifts have either commenced planning or are under construction as of March 2024. Among them, the works of around 800 lifts have been completed. We will continue to implement the scheme to enhance lift safety.

Looking ahead, the EMSD will continue to fully discharge its duties as a regulator, and prepare for worst-case scenarios with the bottom-line thinking. We will strictly urge all stakeholders in the E&M industry to earnestly implement all safety operation guidelines and endeavour to eliminate potential risks. Other than that, the EMSD will also play a role in facilitating cross-sector technological exchanges. We believe that lessons learned from other industries can engender success in accident prevention. The successful experiences of individual stakeholders can also inspire the industry. We will actively share diverse experience, working hand in hand with the industry towards "zero accidents".

全力邁向碳中和 積極開拓新能源

為全面配合《香港氣候行動藍圖2050》，機電署在推動節能減碳方面不遺餘力，以力爭在2050年前實現碳中和。為達致目標，我們不單積極開發潔淨能源，亦鼓勵業界採用創科方案減省能源消耗，同時加強節約能源的公眾教育和宣傳，加快減碳步伐。

在綠色運輸方面，機電署在2023/24年度審視有關氫燃料技術試驗項目安全和技術的文件，並向氫能源跨部門工作小組(工作小組)提交建議。工作小組根據此原則上同意14個試驗項目的申請，包括氫燃料電池雙層巴士、氫能源有軌電車、工地氫能發電設備等。當中，全港首個加氫站已於2023年11月30日正式啟用，全港首輛氫燃料電池雙層巴士，也是本港首輛氫能車輛，亦於2024年2月25日投入載客服務。

我們參考國內外相關法規和標準，諮詢專業團體、業界和持份者的意見，以及考慮香港實際情況後，於年內發布了三份技術指引，即《氫燃料車輛及維修工場實務守則》、《加氫站實務守則》和《香港氫氣裝置定量風險評估研究指南》。該等指引作為本地應用氫能的暫行標準，為香港氫能發展奠下堅實的基礎。我們希望有關最新發展能起牽頭作用，推動業界廣泛利用氫能，讓氫能使用在香港日漸普及。

在節能綠建方面，為進一步提升建築物的能源效益，機電署與環境及生態局開展修訂《建築物能源效益條例》的準備工作，並於2023/24年度進行業界諮詢。大多數持份者表示支持建議修訂，為實現《香港氣候行動藍圖2050》的願景共同努力。

政府一直帶頭在不同建築物和設施應用可再生能源，更在機電署總部大樓推出「太陽能發電建築先導計劃」，為大樓提供綠色電力，並探討在其他公私營建築物幕牆應用太陽能發電技術。

要實現碳中和，必需全民參與節能減碳。為提升大眾的環保意識，我們在2023年9月推行「強制性能源效益標籤計劃」第四階段，該計劃共涵蓋11類產品，相關家用器具共佔住宅總能源消耗量約八成。預計在全面實施第四階段後，每年可節省約11億度電，相等於每年減少約72.5萬公噸碳排放。

啟德區域供冷系統亦有新發展，第三座廠房於2020年開展建造工程，預計於2024年分階段

STRIVING FOR CARBON NEUTRALITY AND ACTIVELY DEVELOPING NEW ENERGY

In response to Hong Kong's Climate Action Plan 2050, the EMSD spares no effort in promoting energy saving and carbon emission reduction to strive for carbon neutrality before 2050. To achieve this goal, not only do we actively develop clean energy, but we also encourage the trade to adopt I&T solutions to reduce energy consumption. Meanwhile, we step up public education and promotion of energy conservation to expedite the pace of decarbonisation.

On green transport, the EMSD reviewed the documents related to the safety and technologies of the trial projects on hydrogen fuel technology, and submitted recommendations to the Inter-departmental Working Group on Using Hydrogen as Fuel (the Working Group) in the year 2023/24. Having regard to our suggestion, the Working Group gave agreement-in-principle to a total of 14 applications of trial projects, including hydrogen fuel cell double-deckers, hydrogen fuelled light rail vehicles and hydrogen power generation at construction sites. Amongst these projects, the first hydrogen filling station in Hong Kong was officially launched on 30 November 2023, and the first hydrogen fuel cell double-decker in Hong Kong, also the first local hydrogen vehicle, commenced passenger service on 25 February 2024.

After benchmarking relevant regulations and standards in the Mainland and overseas, consulting the professional bodies, trade and stakeholders, and considering the actual situation of Hong Kong, we published during the year three technical guidelines, i.e. the Code of Practice for Hydrogen Fuelled Vehicles and Maintenance Workshops, the Code of Practice for Hydrogen Filling Stations and the Guidance Note on Quantitative Risk Assessment Study for Hydrogen Installations in Hong Kong. They serve as interim standards for local hydrogen applications, laying a solid foundation for hydrogen development in Hong Kong. We hope that the latest developments will lead the way and inspire the industry to widely adopt hydrogen energy, thereby promoting the popularisation of its use in Hong Kong.

Regarding energy saving and green buildings, to improve the energy efficiency of buildings, the EMSD and the Environment and Ecology Bureau commenced the preparatory work for legislative amendments to the Buildings Energy Efficiency Ordinance (BEEO). In 2023/24, we conducted trade consultation, in which the majority of stakeholders expressed support for the proposed amendments, agreeing to work together to realise the vision outlined in Hong Kong's Climate Action Plan 2050.

The government has taken the lead in applying renewable energy in government buildings and facilities. It will launch a Pilot Scheme on Building-Integrated Photovoltaics at the EMSD headquarters to provide green electricity for the building, and meanwhile explore photovoltaic technology applications on the facades of other public and private buildings.

Achieving carbon neutrality requires the participation of the entire community in energy saving and carbon emission reduction. To enhance public awareness of environmental protection, Phase IV of the Mandatory Energy Efficiency Labelling Scheme (MEELS) was implemented in September 2023. The MEELS covers in total 11 categories of household appliances which account for approximately 80% of total residential energy consumption. It is expected that the full implementation of Phase IV of the MEELS will help save around 1.1 billion kilowatt-hours of electricity annually, equivalent to an annual reduction of approximately 725 000 tonnes of carbon emissions.

There are also new developments in the Kai Tak District Cooling System (DCS). The construction of the Plant No.3 of the DCS commenced in 2020, and it is expected

啟用。預計整個供冷系統全面投入運作後，每年可節省高達1.38億度電，相當於減少排放96 500公噸二氧化碳。展望未來，我們會繼續推動節能環保，與社會一同力爭碳中和。

to be commissioned in phases in 2024. Once the entire DCS is fully operational, it is estimated that 138 million kilowatt-hours of electricity will be saved per year, amounting to an annual reduction of 96 500 tonnes of carbon dioxide emissions. Moving forward, we will continue to promote energy conservation and environmental protection, striving towards carbon neutrality together with the community.

善用創科加強規管 帶領業界敢「創」敢為

機電署銳意推動本港創新科技(創科)發展，除了提升數碼化能力和推動數碼化轉型外，我們亦鼓勵機電業界採用創科解決方案，優化服務，突破界限。我們於2022年11月推出升降機及自動梯數碼工作日誌，以實現工作日誌數碼化，便利各持份者共同監察維修保養工作，提升升降機及自動梯的管理成效。系統自推出以來，獲得升降機及自動梯的負責人和升降機及自動梯業界，以及物業管理業界的廣泛好評，採用率亦穩步上升。

隨着行業逐步數碼化，數碼工作日誌所收集的數據可轉移至機器學習平台，有助大數據分析。這項發展讓我們可以精準投放資源，亦可更快捷和準確地進行分析，找出問題癥結。我們正積極優化數碼工作日誌的功能，包括開發「升降機及自動梯狀況分析系統」。該系統對收集所得的升降機及自動梯主要部件相片進行人工智能影像分析，從而檢視該些部件以至升降機及自動梯的健康狀況，並經由數碼工作日誌平台，發放分析結果予升降機及自動梯的負責人、承辦商和機電署人員作適切的跟進。系統預期會在今年第四季推出。我們亦計劃把有關技術擴展至其他機電系統。

機電署一方面積極應用創科方案，另一方面致力向業界推廣創科應用，並以身作則，鼓勵機電業界研發更多有潛力的創科項目，以提升行業安全。年內，我們透過「機電創科網上平台」收集各政府部門、公營機構以及機電業界的服務願望，並邀請創科界別(包括初創企業和大學)提出相應的創科解決方案以作配對。我們也為成功配對的創科願望和方案進行實地試驗，以促進和推動創科的研發和應用。

此外，我們於本年度完成研發「氣體管道健康智能預測模型」，模型應用大數據和人工智能技術，分析和預測樓宇氣體立管的健康狀況。在2024年1月，我們與香港中華煤氣有限公司簽署授權協議，允許他們利用該模型監察氣體立管的

LEVERAGING I&T TO STRENGTHEN REGULATION AND LEADING THE TRADE TO INNOVATE BOLDLY

The EMSD is committed to promoting the development of I&T in Hong Kong. In addition to enhancing our digital capabilities and spearheading digital transformation, we also encourage the E&M industry to apply I&T solutions to push the boundaries further in optimising their services. We launched the Digital Log-books for Lifts and Escalators in November 2022 to realise the digitalisation of log-books, facilitating joint monitoring of maintenance work by various stakeholders, and thereby enhancing the effectiveness of lift and escalator management. Since its roll-out, the system has received high acclaim from the responsible persons for the lifts/escalators (RPs), the lift/escalator trade, as well as the property management sector, with the adoption rate steadily increasing.

As the industry gradually embraces digitalisation, the data collected from the Digital Log-books can be transferred to machine learning platforms, which will facilitate big data analysis. As such, not only does it enable the precise allocation of resources, but more prompt and accurate analysis can also be carried out to identify the root causes of problems. We are actively enhancing the functions of the Digital Log-books, including the development of the Lift and Escalator Condition Analysis System (LECAS). The LECAS will conduct artificial intelligence analysis on the photos of the main components of lifts and escalators collected, so as to assess the condition of those components, as well as that of the lifts and escalators concerned, and the analysis results will then be disseminated to the RPs, contractors and our officers through the Digital Log-books platform for appropriate follow-up. It is expected to be launched in the fourth quarter of this year, and we are planning to extend the application of the technology to other E&M systems.

The EMSD, on one hand, actively applies I&T solutions, and on the other hand, endeavoured to promote I&T applications to the trade. By setting a good example, we encourage the E&M sector to pursue more promising I&T projects to enhance safety in their respective fields. Throughout the year, our E&M InnoPortal has collected the service wishes of various government departments, public organisations and the E&M industry for which we invited the I&T sector, including start-ups and universities to propose relevant I&T solutions for matching. We also conducted field trials for successfully matched I&T wishes and solutions in a bid to promote and drive the research and development as well as application of innovative technologies.

In addition, we completed the development of the "Gas Pipe Health AI Prediction Model" this year. Using big data and AI technologies, the model can analyse and predict the health condition of gas risers of buildings. In January 2024, we signed a licensing agreement with The Hong Kong and China Gas Company Limited, allowing them to use this model for monitoring

健康狀況，並制定預測性維修計劃，以提升氣體安全。

the health condition of gas risers and drawing up predictive maintenance plans to enhance gas safety.

未來，機電署會繼續在推廣創科方面擔當核心角色。對內我們會積極採用大數據分析和人工智能等技術，以加快工作流程，同時提升規管服務的水平；對外方面，則會繼續與多個界別合作，推動新科技應用，並協助不同持份者物色合適和實證有效的創科方案，敢創敢為，惠澤社會。

Looking ahead, the EMSD will continue to play a central role in promoting I&T. Internally, we will actively use technologies such as big data and AI to expedite the work processes and further enhance the standard of regulatory services. Externally, we will continue to collaborate with various sectors to promote the application of new technologies, and help different stakeholders identify suitable and proven I&T solutions. We will be bold in innovating and make every endeavour to benefit our society.

深化跨境協作　聯動國際業界

機電署年內繼續擔當「超級聯繫人」的角色，積極連繫內地與國際社會，促進規管機電安全和提升能源效益。除了與內地分享規管經驗外，我們亦不斷深化雙方的合作，以達致兩地互聯互通。此外，我們力爭在區域組織中擔當重要角色，向世界展示創科理念。

本年度，機電署在香港舉辦了兩項重要活動，分別是亞太區經濟合作組織(亞太經合組織)能源數據及分析專家小組會議，以及東南亞國家聯盟重新校驗能力培訓工作坊，吸引了多位國家和地區專家出席。會議集中討論亞太經合組織的能源供需概況和目標進展，以及新能源技術的數據收集；而工作坊提供平台，讓參與者就重新校驗分享見解、經驗和技術應用。我們透過這兩項活動與不同經濟體互相交流機電行業發展的資訊，同時展示香港和內地的最新發展，以促進國際協作。

除了上述活動外，今年我們更首次主辦第71屆國際纜車監管機構會議。會議匯聚29名來自13個司法管轄區的國際纜車專家，交流有關纜車系統的最新資訊及發展。此外，我們會聯同國家鐵路局於2025年舉辦新一屆國際鐵路安全議會年度會議，續向世界說好國家和香港的故事。

在與內地協作方面，機電署與國家海關總署(海關總署)的合作在年內已踏入二十周年。我們不但舉辦了《機電產品安全及能源效益合作安排》簽署二十周年慶典，更在典禮現場設置回顧展覽，展示雙方的合作歷程、成就和未來展望。

DEEPENING CROSS-BORDER COOPERATION AND ENGAGING WITH THE INTERNATIONAL INDUSTRY

The EMSD continued to serve as a "super-connector" this year, actively linking the Mainland with the international community to enhance regulation concerning E&M safety and energy efficiency. In addition to sharing regulatory experience with the Mainland, we were deepening our collaboration to achieve mutual access between the two places. Furthermore, we strived to play a significant role in regional organisations to showcase I&T concepts to the world.

This year, the EMSD hosted two significant events in Hong Kong, namely the Meeting of Expert Group on Energy Data and Analysis (EGEDA) of the Asia-Pacific Economic Cooperation (APEC) and the Capacity Building Training on Retro-commissioning (RCx) of the Association of Southeast Asian Nations (ASEAN). Both events attracted numerous national and regional experts. The former focused on discussions regarding an overview of energy supply and demand in APEC, the progress on APEC goals, and data collection of new energy technologies. The latter provided a platform for participants to share insights, experience and technical applications regarding RCx. Through these events, we exchanged information on the development of the E&M trades among various economies and also foster international collaboration by showcasing the latest developments in Hong Kong and the Mainland.

Apart from the above events, we hosted the 71st International Meeting of Technical Authorities for Cableways (ITTAB) for the first time this year. The meeting brought together 29 international cableway experts from 13 jurisdictions to exchange the latest information and developments concerning cableway systems. In addition, in collaboration with the National Railway Administration, we will host the next International Railway Safety Council (IRSC) annual conference in 2025, continuing to tell the world the good stories of our country and Hong Kong.

In terms of collaboration with the Mainland, this year marks the 20th anniversary of the cooperation between the EMSD and the General Administration of Customs of the People's Republic of China (GACC). Not only did we organise a ceremony to celebrate the 20th anniversary of the signing of the Cooperation Arrangement on Electrical and Mechanical Products Safety and Energy Efficiency, but we also set up a retrospective exhibition at the venue of the ceremony to showcase the journey, achievements and future outlook of our collaboration.

另外，我們與國家市場監督管理總局在本年度探討建立新的伙伴合作，加強共同推動氫能發展、燃氣安全、家用電氣產品安全、機械裝置安全、電氣產品安全、產品能源效益、碳足跡、碳標籤、計量、標準對接等範疇的合作與交流，以提高內地與香港在相關設備的質量管制和安全監管的水準。

在海關總署的襄助下，機電署於2023年與內地電商平台達成合作意向，並在年內試行為香港用戶屏蔽不符合香港安全規格的適配接頭和拖板的訂購網頁頁面，以免市民購買不合規格的產品。我們與內地機構和國家機關緊密合作，進一步保障機電安全。

機電行業育人才　多管齊下添新血

機電業是社會的重要支柱，培育機電後進更是香港未來發展不可或缺的一環。為此，機電署不但廣納菁英，還藉着資歷認可和持續進修的制度，確保機電業的專業知識和技能得以傳承，同時提升行業的專業形象。

時代更迭，人工智能技術發展迅速，有人指世界已進入「第四次工業革命」。無論社會如何變遷，機電署依然以培育未來機電人才為己任，我們鼓勵青年人開闊眼界，接受新思維、新方法。對外方面，我們年內舉辦了多場外展活動，一共到訪627所學校，當中包括431所幼稚園、107所小學、84所中學、5所專上學院和培訓機構，並透過機電青少年大使計劃及多項青年推廣計劃，向年青人推廣機電安全、能源效益和機電業發展。另外，繼2022/23學年推出小學STEAM教育套件後，我們與教育局和能源諮詢委員會合作，開發了一套中學STEAM教育套件。該套件在2023/24學年正式納入中學課程，讓學生通過互動學習了解可再生能源，並引發他們對清潔能源和低碳生活實踐的興趣。對內方面，我們為年輕員工提供多元的參觀和交流機會，以裝備他們作更全面的發展。

在業內培訓與註冊方面，由2023年7月3日起，註冊車輛維修技工可透過「過往資歷認可」機制，直接獲發相關服務類別的第三級資歷證明書。此外，車輛維修技工自願註冊計劃亦接納透過汽車業「過往資歷認可」機制取得，並獲「職業資歷階梯」確認的第三級資歷，作為認可註冊資歷。有關舉措有助進一步提高車輛維修技工的專業水平，同時讓經驗豐富但未取得正式資歷的技工進入體制。

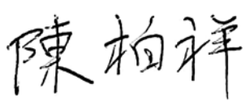
另外，機電署已推出「家用冷氣機輕度易燃雪種處理工程人員自願註冊計劃」，旨在提高輕度易燃雪種家用冷氣機的安裝及維修水平，並提升行業形象。未來，我們會繼續推動業界不斷求進，提升從業員的質素和形象，為公眾和消費者帶來裨益。

來年展望

無論是在疫情期間，還是在疫情過後，機電署依然竭誠謹守崗位，致力提升行業安全和質素、推廣能源效益，以及採用綠色能源方案，務求令各方面的工作盡善盡美。我們深信可靠的機電服務能讓市民安心生活，而推進創科發展可為大眾譜寫幸福的未來。

今年，機電署克服重重挑戰，聯繫各界，與受規管者、業界伙伴、學術界、專業團體、非政府組織、培訓機構和公眾攜手合作，一同謀發展、謀幸福。我們衷心感謝機電署全體員工和所有持份者的鼎力支持。

展望未來，我們會繼續竭盡所能，發展創新科技，並聯同業界和大灣區伙伴戮力以赴防範事故和實現碳中和。我們亦會積極向年輕一代宣揚機電安全和能源效益，以及為行業注入新血，傳承智慧，共創新篇。我們希望來年繼續與大家一同努力，共建更宜居宜業、更有希望的香港。



陳柏祥
機電工程署副署長 / 規管服務

Furthermore, during the year, we explored the establishment of a new partnership with the State Administration for Market Regulation to enhance our joint efforts in promoting cooperation and exchanges in the areas of hydrogen energy development, gas safety, household electrical product safety, machinery safety, electrical product safety, energy efficiency of products, carbon footprint, carbon labelling, metrology and standard alignment, with a view to raising the standard of quality control and safety regulation of the relevant equipment between the Mainland and Hong Kong.

With the support of the GACC, the EMSD reached a consensus on cooperation with e-commerce platforms in the Mainland in 2023 and conducted a trial during the year to block for Hong Kong users the ordering web pages of adaptors and extension units that do not comply with the safety requirements in Hong Kong, so as to prevent citizens from purchasing non-compliant products. Through our close collaboration with Mainland organisations and national agencies, E&M safety can be further safeguarded.

CULTIVATING TALENT IN THE E&M INDUSTRY WITH A MULTIFACETED APPROACH TO INFUSE NEW BLOOD

The E&M industry is a vital pillar of society, and nurturing future E&M professionals is an essential part of the future development of Hong Kong. To this end, the EMSD not only attracts talented individuals, but also, through a system of qualification recognition and continuing professional development, ensures that the professional knowledge and skills in the E&M industry are passed down to the next generation, and at the same time enhances the professional image of the industry.

With the rapid development of artificial intelligence technologies amid the changing times, some say that the world has entered the Fourth Industrial Revolution. Regardless of societal changes, the EMSD remains committed to cultivating future E&M talent. We encourage the youth to broaden their horizons and embrace new ideas and approaches. Externally, by organising multiple outreach activities this year, visiting a total of 627 schools, including 431 kindergartens, 107 primary schools, 84 secondary schools, and 5 post-secondary institutions and training centres, as well as through the E&M Young Ambassador (EMYA) Programme and various youth promotion initiatives, we promote E&M safety, energy efficiency and the development of the E&M industry to young people. In addition, following the introduction of a STEAM educational kit for primary schools in the 2022/23 academic year, we collaborated with the Education Bureau and the Energy Advisory Committee to develop a STEAM education kit for secondary schools. This kit was officially incorporated into the secondary school curriculum of the 2023/24 academic year, enabling students to understand renewable energy through interactive learning and arousing their interest in clean energy and low-carbon living practices. Internally, we provided young employees with diverse opportunities of visits and exchanges to equip them for more holistic development.

In terms of training and registration within the trade, starting from 3 July 2023, registered vehicle mechanics (RVMs) can directly obtain qualification certificates at Level 3 in the relevant service classes through the Recognition of Prior Learning (RPL) mechanism. Moreover, the qualifications at Level 3 acquired under the RPL mechanism of the automotive industry and acknowledged by the Vocational Qualifications Pathway are accepted as recognised qualifications under the Voluntary Registration Scheme for Vehicle Mechanics. This initiative helps further raise the professional standards of RVMs, while allowing experienced mechanics without formal qualifications to enter the system.

In addition, the EMSD launched the Voluntary Registration Scheme for Technicians Handling Mildly Flammable Refrigerant of Household Air-conditioners, aiming to improve the installation and maintenance standards of household air-conditioners using mildly flammable refrigerant and enhance the image of the industry. In the future, we will continue to encourage the industry to strive for continuous improvement to enhance the quality and image of practitioners for the benefit of the public and consumers.

THE YEAR AHEAD

No matter during the COVID-19 epidemic or in the post-epidemic period, the EMSD has remained steadfast in our commitment to enhancing industry safety and quality, promoting energy efficiency, and adopting green energy solutions, with a view to achieving excellence in all aspects of our work. We firmly believe that reliable E&M services enable citizens to live with peace of mind, while advancing I&T development can pave the way for a brighter future for all.

This year, the EMSD rose to numerous challenges by connecting with various sectors, collaborating with regulatees, industry partners, academia, professional bodies, non-governmental organisations, training institutions and the public to pursue development and well-being together. We sincerely thank our colleagues and all stakeholders for their unwavering support.

Looking ahead, we will continue to do our utmost to develop innovative technologies, as well as working alongside the industry and our partners in the Greater Bay Area to diligently prevent accidents and achieve carbon neutrality. We will also actively promote E&M safety and energy efficiency to the younger generation, and inject new talent into the industry, with a view to passing down our wisdom and creating new chapters together. We look forward to continuing our efforts with everyone in the coming year to develop Hong Kong into an enjoyable and hopeful place to live and work.

Chan Pak-cheung
Deputy Director/Regulatory Services, EMSD

年度亮點
HIGHLIGHTS OF THE YEAR

落實「強制性能源效益標籤計劃」第四階段
IMPLEMENTATION OF PHASE IV OF THE MANDATORY ENERGY EFFICIENCY LABELLING SCHEME

為了促進節能減碳和提升大眾的節能意識，「強制性能源效益標籤計劃」第四階段於2023年9月1日正式生效，涵蓋範圍由八類擴展至十一類訂明產品，新增發光二極管燈、氣體煮食爐和即熱式氣體熱水爐，旨在幫助消費者選擇更具能源效益的產品，從日常生活中節約能源，共同實現碳中和。在推行「強制性能源效益標籤計劃」第四階段後，計劃所涵蓋的產品會佔住宅總能源消耗量的80%，消費者每年可額外節省約570太焦耳(約1.6億度電)，相當於減少約75 000公噸的碳排放。

To promote energy savings, reduce carbon emissions and raise public awareness of energy conservation, Phase IV of the Mandatory Energy Efficiency Labelling Scheme (MEELS) officially came into effect on 1 September 2023. Its coverage expanded from eight to eleven prescribed products, with the addition of LED lamps, gas cookers and gas instantaneous water heaters. This initiative aims at assisting consumers in selecting more energy-efficient products, so that they can save energy in daily life and join in to work towards carbon neutrality. After the implementation of Phase IV, the products covered by the MEELS would account for 80% of total residential energy consumption, and consumers can additionally save about 570 terajoules (approximately 160 million kilowatt-hours), equivalent to a reduction of around 75 000 tonnes of carbon emissions annually.

「採電學社」計劃完滿結束
SUCCESSFUL CONCLUSION OF THE SOLAR HARVEST SCHEME

自2019年起，機電署推行為期五年的「採電學社」計劃，為合資格的學校和非政府福利機構設計並安裝小型太陽能發電系統，以便他們參與兩電的上網電價計劃。計劃於年內圓滿結束，幫助500所學校和非政府福利機構安裝超過700套10千瓦的太陽能發電系統，預計每年產生高達640萬千瓦時的電力，相當於約1 950個三人家庭一年的用電量。

Since 2019, the EMSD has implemented the five-year Solar Harvest scheme to design and install small solar energy generation systems for eligible schools and welfare non-governmental organisations (NGOs), so that they could participate in the Feed-in Tariff scheme of the two power companies. This Solar Harvest scheme was successfully concluded during the year, helping to install over 700 sets of 10-kilowatt solar energy generation systems for 500 schools and NGOs. These systems were expected to generate up to 6.4 million kilowatt-hours of electricity, equivalent to the annual electricity consumption of approximately 1 950 three-person households per year.

利用全球衞星導航系統 實時監測區域供冷系統地下管道狀況
USE OF GLOBAL NAVIGATION SATELLITE SYSTEM IN REALTIME MONITORING OF DISTRICT COOLING SYSTEM UNDERGROUND PIPES

機電署在年內成功研發利用「全球衞星導航系統」技術，實時監測啟德區域供冷系統地下管道沉降的方案，並在第49屆日內瓦國際發明展上榮獲銀獎。由於啟德發展區內多個工程項目對地下管道構成潛在風險，我們需要有效地廣泛監測地下管道的沉降情況；為此，我們改進了傳統耗費大量時間和人力的監測方法，成功應用「全球衞星導航系統」技術進行持續監測。該系統能實時監測地下管道的沉降風險，讓能源效益事務處可全天候透過網上平台監察地下管道網絡，並在出現沉降時即時採取行動。未來，我們計劃在新發展區域進一步應用這項技術，令區域供冷系統更加可靠。

During the year, the EMSD successfully developed a solution using the Global Navigation Satellite System (GNSS) technology to monitor in real time the settlement of underground pipes in the Kai Tak District Cooling System. This innovation won a silver medal at the 49th International Exhibition of Inventions of Geneva.

Since several engineering projects in the Kai Tak Development Area posed potential risks to the underground pipes, we needed to effectively and extensively monitor the extent of their settlement. To this end, we have improved the traditional time and manpower-consuming monitoring methods, and successfully applied the GNSS technology to continuously monitor the situation. This system could monitor the settlement risk of underground pipes in real time, allowing the Energy Efficiency Office to monitor the underground pipeline networks through the online platform around the clock and take immediate actions in the event of settlement. In the future, we plan to further apply this technology in new development areas to enhance the reliability of district cooling systems.

推出「智慧升降機及自動梯設計審批系統」
LAUNCH OF THE TYPE APPROVAL PROCESS AND AUTHENTICATION SYSTEM

隨着科技迅速發展，雲端科技、人工智能和光學字符識別等技術日益普及。我們借助數碼科技研發了全新的數碼化系統，以取代傳統的紙本申請流程。經過長時間的籌備，我們計劃於2024年推出「智慧升降機及自動梯設計審批系統」，以大幅縮短申請處理時間。透過這個新的審批系統，承辦商可以輕鬆填寫和上載申請升降機或自動梯「種類許可」所需的文件，而機電署亦能直接審閱和批核申請，節省手動填寫和核對資料的時間。

With the rapid technology advancement, technologies like cloud computing, artificial intelligence and optical character recognition are becoming increasingly popular. We have leveraged digital technologies to develop a brand-new digital system for replacing the traditional paper-bound application process. After a long period of preparation, we plan to launch the Type Approval Process and Authentication System (TAPAS) in 2024, to significantly shorten application processing time. Through the new TAPAS, contractors will be able to easily fill out and upload the necessary documents for lift or escalator "type approval" applications, while the EMSD can directly review and approve applications, saving time on manual data entry and verification of information.

簽署關於共同促進「灣區標準」發展的合作備忘錄
SIGNING A MEMORANDUM OF UNDERSTANDING ON JOINTLY PROMOTING THE DEVELOPMENT OF GBA STANDARDS

工業貿易署與廣東省市場監督管理局在深圳簽署了促進「粵港澳大灣區標準」(「灣區標準」)發展的合作備忘錄，以推進「灣區標準」的發展，其中包括正式發布的《在用電梯安全評價規範—曳引驅動電梯》。我們已根據該標準，對超過100台升降機進行現場風險評估。

由於升降機風險評估對業主和維修承辦商是較新的概念，機電署與職業訓練局於是合作開辦相關培訓課程，供業界人士參與。2024年2月下旬，我們舉辦了兩場先導培訓課程，介紹風險評估的項目和流程，以促進升降機風險評估在香港的應用。未來，我們會積極鼓勵業主和維修承辦商根據該標準進行風險評估，以提高安全意識。

The Trade and Industry Department and the Guangdong Administration for Market Regulation have signed a memorandum of understanding in Shenzhen to promote the development of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) standards, with the aim of advancing GBA standards, including the officially published Specifications for Risk Assessment of Traction Lifts. Based on this standard, we have carried out on-site risk assessment of over 100 lifts.

As lift risk assessment is a relatively new concept for property owners and maintenance contractors, the EMSD has collaborated with the Vocational Training Council to offer relevant training courses for trade members. In late February 2024, we held two pilot training sessions to introduce the items and processes involved in risk assessment, facilitating the application of lift risk assessment in Hong Kong. In the future, we will actively encourage owners and maintenance contractors to carry out risk assessment based on this standard to enhance safety awareness.

年度亮點
HIGHLIGHTS OF THE YEAR

全面預防鐵路安全事故
COMPREHENSIVE PREVENTION OF RAILWAY SAFETY INCIDENTS

年內，超強颱風「蘇拉」和世紀暴雨導致全港多區出現嚴重水浸，港鐵黃大仙站的情況尤為嚴峻。有見及此，機電署積極敦促營運機構針對極端天氣制定預防措施，確保鐵路系統能抵禦極端天氣的衝擊。

在基礎建設方面，我們要求香港鐵路有限公司全面檢視現有車站的防洪能力，並在有較高水浸風險的出入口安裝水位感應器。當水位達到警戒線時，感應器便會發出警報，即時通報車站控制室，以便職員迅速豎設防洪板。截至2024年3月，已有26個港鐵站，合共42個有較高水浸風險的出入口安裝了相關設備，以應對雨季帶來的威脅。

此外，機電署針對極端天氣優化山頂纜車和電車的緊急應變程序。在2024年7月16日，本署聯同山頂纜車公司及相關政府部門在白加道山頂纜車站附近舉行跨部門演習，務求提早做好應對重大事故的部署，以及加強各部門在發生重大事故時的協作和應急處理能力。

This year, Super Typhoon Saola and the once-in-a-century rainstorm caused severe flooding in many districts in Hong Kong, particularly at Wong Tai Sin MTR Station. In this light, the EMSD proactively urged the operator to formulate preventive measures against extreme weather to ensure that the railway system could withstand the impacts of such conditions.

In terms of infrastructure, we required the MTR Corporation Limited to comprehensively review the flood prevention capabilities of existing stations and install water level sensors at entrances and exits that are at higher risk of flooding. When the water level reaches the warning threshold, the sensors will be triggered to sound an alarm and the station control room concerned will be notified immediately, so that staff can promptly erect flood boards. As at March 2024, a total of 42 entrances and exits that are at higher risks of flooding at 26 MTR stations were equipped with these devices to cope with the threats posed by the rainy season.

In addition, the EMSD enhanced the emergency response procedures of the Peak Tram and trams in response to extreme weather. On 16 July 2024, a cross-departmental drill near Barker Road Peak Tram Station was conducted in collaboration with the Peak Tramways Company Limited and relevant government departments, with a view to making early preparations for major incidents and enhancing the collaboration and emergency response capabilities of various departments in the event of major incidents.

推動氣體行業與時並進
DRIVING THE GAS TRADE TO KEEP PACE WITH THE TIMES

為了提升註冊氣體裝置技工的專業水平和安全意識，機電署於2023年1月1日正式推出「註冊氣體裝置技工自願持續專業進修計劃」。計劃設有兩大單元，內容涵蓋法例和安全規定，以及技術知識和最新科技。計劃開始至今，已有逾千人參與機電署和業界開辦的39個培訓課程和講座。註冊技工可透過流動應用程式「機電行業通」獲取計劃的最新消息、直接報名參加機電署舉辦的培訓課程，以及查閱個人進修記錄。

To enhance the professional standards and safety awareness of registered gas installers (RGIs), the EMSD officially launched the Voluntary Continuing Professional Development Scheme for Registered Gas Installers on 1 January 2023. The scheme consists of two modules, covering content on legislative and safety requirements as well as technical knowledge and latest technologies. Since the launch of the scheme, over a thousand participants have attended 39 training courses and seminars organised by the EMSD and the trade. Through the mobile application "E&M Connect", RGIs can access the latest information about the scheme, directly enrol on training courses organised by the EMSD, and view their personal training records.

《機電產品安全及能源效益合作安排》昂然踏入20周年
COOPERATION ARRANGEMENT ON ELECTRICAL AND MECHANICAL PRODUCTS SAFETY AND ENERGY EFFICIENCY PROUDLY ENTERED ITS 20TH ANNIVERSARY

自機電署與國家海關總署(海關總署)於2003年簽署《機電產品安全及能源效益合作安排》(《合作安排》)後，雙方在過去20年來一直保持緊密合作，致力提升兩地機電產品的安全及能源效益。

2023年11月23日和27日，機電署與海關總署於機電署總部分別舉行第19次《合作安排》年度會議和《合作安排》簽署20周年慶典。典禮現場設置回顧展覽，展示雙方合作的歷程、成就和未來展望。此次活動不僅慶祝機電署與海關總署合作20周年，也標誌着《合作安排》邁進第三個十年，展現雙方對未來合作的共同承諾。

Since the signing of the Cooperation Arrangement on Electrical and Mechanical Products Safety and Energy Efficiency (Cooperation Arrangement) by the EMSD and the General Administration of Customs of the People's Republic of China (GACC) in 2003, both parties have maintained close cooperation over the past 20 years, dedicated to enhancing the safety and energy efficiency of electrical and mechanical products in both regions.

On 23 and 27 November 2023, the EMSD and the GACC held the 19th annual meeting on the Cooperation Arrangement and a ceremony to celebrate the 20th anniversary of the signing of the Cooperation Arrangement respectively at the EMSD Headquarters. A retrospective exhibition was set up at the venue of the ceremony to showcase the history, accomplishments and future prospects of our collaboration. This event not only celebrated 20 years of cooperation between the EMSD and the GACC, but also marked the beginning of the third decade of the Cooperation Arrangement, reflecting a shared commitment to future collaboration.

全面推動氫能發展
FULLY PROMOTING THE DEVELOPMENT OF HYDROGEN ENERGY

機電署對全球氫能發展和應用進行了深入研究，審視國際上新興的氫能技術及相關法規，並依此制定符合香港需要的技術指引，以管理氫燃料的相關安全風險，全力支持政府的新能源發展策略。

我們在參考內地與海外相關法規和標準，諮詢專業團體、業界及持份者，並且充分考慮香港的實際情況後，於年內發布了三份技術指引，作為本地使用氫燃料的暫行標準，包括《氫燃料車輛及維修工場實務守則》、《加氫站實務守則》和《香港氫氣裝置定量風險評估研究指南》，為香港的氫能技術發展奠下堅實基礎。

The EMSD conducted an in-depth study on the development and application of hydrogen energy worldwide, as well as examining emerging hydrogen technologies and relevant regulations internationally. We accordingly formulated technical guidelines that meet the needs of Hong Kong, so as to manage the safety risks associated with hydrogen fuel, and fully support the Government's new energy development strategy.

After reviewing relevant Mainland and overseas regulations and standards, consulting professional bodies, the trade and stakeholders, and carefully considering the practical circumstances in Hong Kong, we published three technical guidelines this year as interim standards for the local use of hydrogen fuel, including the Code of Practice for Hydrogen Fuelled Vehicles and Maintenance Workshops, the Code of Practice for Hydrogen Filling Stations and the Guidance Note on Quantitative Risk Assessment Study for Hydrogen Installations in Hong Kong, laying a solid foundation for the development of hydrogen technologies in Hong Kong.

重要數字
KEY FIGURES

電業工程人員 ELECTRICAL WORKERS

註冊電業工程人員
REGISTERED ELECTRICAL WORKERS

83 506 名 NOS. 2022/23

84 718 名 NOS. 2023/24
（截至2024年3月31日 As at 31 March 2024）

電業承辦商 ELECTRICAL CONTRACTORS

註冊電業承辦商
REGISTERED ELECTRICAL CONTRACTORS

15 380 間 NOS. 2022/23

15 340 間 NOS. 2023/24
（截至2024年3月31日 As at 31 March 2024）

升降機及自動梯 LIFTS AND ESCALATORS

升降機
LIFTS

72 442 部 NOS. 2022/23

73 325 部 NOS. 2023/24

自動梯
ESCALATORS

10 512 部 NOS. 2022/23

10 691 部 NOS. 2023/24

燃氣供應 GAS SUPPLY

氣體喉管網絡總長
TOTAL LENGTH OF GAS PIPE NETWORK

3 723 公里 KM 2022/23

3 729 公里 KM 2023/24

車輛維修技工 VEHICLE MECHANICS

註冊車輛維修技工
REGISTERED VEHICLE MECHANICS

8 139 名 NOS. 2022/23

7 953 名 NOS. 2023/24

車輛維修工場 VEHICLE MAINTENANCE WORKSHOPS

註冊車輛維修工場
REGISTERED VEHICLE MAINTENANCE WORKSHOPS

2 005 間 NOS. 2022/23

1 976 間 NOS. 2023/24

鐵路 RAILWAY

鐵路年度載客量
RAILWAY ANNUAL PATRONAGE

1 650 百萬 MILLION 2022/23

1 857 百萬 MILLION 2023/24

保障公眾安全
PROTECTING PUBLIC SAFETY

電力安全

加強規管電力公司以防範嚴重事故

穩定可靠的電力供應對香港市民的日常生活，以及各層面的經濟活動都十分重要。過去兩年，兩家電力公司都曾發生嚴重事故，分別為2022年6月中華電力有限公司(中電)的電纜橋起火事故，以及2023年4月香港電燈有限公司的電力供應中斷事故。機電署非常關注該兩宗嚴重事故，一直密切跟進事態發展，深入調查事故原因，並監察兩電的善後工作。

為確保電力安全，機電署已加強監管，並敦促兩家電力公司制定一系列改善措施，例如改良電纜橋的防火系統，以及制定有關更新現場標籤和電路圖的指引。機電署亦聯同獨立第三方專家，仔細評估電力公司提出的改善措施是否適切，以防類似事故再次發生。為使電力供應更加安全可靠，我們已指示兩家電力公司實施額外的改善措施，例如加強對電纜橋等基礎設施及調試工作進行風險評估；檢視系統內類似的供電設施和設備，並採取相應的預防措施。此外，我們也大幅增加對電力公司的巡查次數。在機電署的密切監督下，所有改善措施已於2023年年底前落實。

ELECTRICAL SAFETY

Strengthening Regulation of Power Companies to Prevent Serious Incidents

A stable and reliable electricity supply is crucial to the daily lives of Hong Kong citizens and economic activities at all levels. In the past two years, the two power companies have both had a serious incident, namely the cable bridge fire incident of the CLP Power Hong Kong Limited (the CLP Power) in June 2022 and the power interruption incident of the Hongkong Electric Company Limited in April 2023 respectively. The EMSD was very concerned about these two serious incidents and has been closely following up on the developments, conducting in-depth investigations into the causes of the incidents and overseeing the remedial actions taken by both power companies.

To ensure electrical safety, the EMSD has strengthened enforcement and urged both power companies to develop a series of improvement measures, such as improving fire protection system for cable bridges and establishing guidelines on updating on-site labels and circuit diagrams. The EMSD also collaborated with independent third-party experts to carefully assess whether the improvement measures proposed by the power companies were adequate to prevent similar incidents from occurring again. To make electricity supply safer and more reliable, we have instructed both power companies to implement additional improvement measures, such as strengthening risk assessments of infrastructure like cable bridges and commissioning work, reviewing similar power supply facilities and equipment in the system and taking preventive measures accordingly. Moreover, we have significantly increased the frequency of inspections of the power companies. Under the close supervision of the EMSD, all improvement measures have been implemented by the end of 2023.

機電署加強規管兩家電力公司，大幅增加對電力公司的巡查次數，以確保電力安全。

The EMSD has strengthened regulation of both power companies and significantly increased the frequency of inspections of the power companies to ensure electrical safety.

積極減低電力事故風險

隨着社會於疫情後全面復常，商業活動變得活躍，電力工程的數目亦有所增加。2023年的電力事故數目與去年的大致相若，但不幸地發生了數宗致命的電力事故，情況令人關注。機電署嚴肅看待相關事故，除了加強規管外，亦加強宣傳教育，以提升各方的電力安全意識，盡可能把電力事故的風險降至最低。

Actively Reducing the Risk of Electrical Incidents

As society was returning to full normality after the epidemic, commercial activities have become more active, leading to an increase in the number of electrical works. The number of electrical incidents in 2023 was roughly the same as that of the previous year, but unfortunately several fatal electrical incidents happened and raised concerns. The EMSD treated these incidents seriously. Apart from stepping up enforcement, we have also strengthened publicity and education to enhance the electrical safety awareness of all parties and minimise the risk of electrical incidents as far as possible.

機電署一直致力提高業界的電力安全意識。我們已完成2023年致命電力事故的調查，並在律政司協助下，藉專家證供供詞成功檢控未能有效督導涉案註冊電業工程人員的註冊電業承辦商。我們在事後採取一系列預防措施，包括與勞工處進行聯合巡查和宣傳活動，並為業界舉辦研討會，以防止類似事故再次發生。我們亦舉辦「電力規例研討會」和「2023年度表現優異註冊電業承辦商比賽」，以提高業界從業員的電力安全意識。機電署持續執法和宣傳，截至2024年6月，本港並未錄得致命的電力事故。

The EMSD has been committed to enhancing electrical safety awareness of the trade. We completed the investigation of the fatal electrical incidents of 2023. With the support of the Department of Justice, we successfully prosecuted the registered electrical contractor who failed to effectively supervise the involved registered electrical worker by providing the expert testimony. After the incidents, we took a series of preventive measures, including joint inspections and publicity campaigns with the Labour Department, as well as hosting seminars for the trade to prevent similar incidents from occurring again. We also conducted the Annual Technical Seminar and Outstanding Registered Electrical Contractors Competition 2023 to enhance the electrical safety awareness of electrical trade practitioners. Under the EMSD's ongoing enforcement and publicity efforts, no fatal electrical incidents have been recorded in Hong Kong as at June 2024.

為提高業界的安全意識，機電署每年都會舉辦電力規例研討會。隨着社交距離措施放寬，今屆電力規例研討會再次以實體型式舉行。

To enhance the safety awareness of the trade, the EMSD organises the Annual Technical Seminar every year. With the relaxation of social distancing measures, the Annual Technical Seminar this year was held again in a face-to-face format.

加強防範極端天氣的措施

為免極端天氣影響電力供應的穩定，機電署定期與電力公司檢討供電設施抵禦極端天氣的能力，並跟進相應的改善措施，例如在架空電纜上安裝避雷器，以及在變電站加裝防洪板、抽水設備和警報系統。另外，為確保供電安全可靠，我們亦敦促電力公司在雨季來臨前做好預防措施，包括在颱風來臨前檢查關鍵供電設施、在容易受水浸影響的變電站安裝防洪設備，以及修剪對架空電纜構成風險的樹木。

鑑於有部分安裝在建築物頂部的光伏板在超級颱風「蘇拉」吹襲期間未能繫穩在構築物，機電署於2023年聯同屋宇署、地政總署和房屋署引入新的註冊安排，確保新安裝的發電設施符合法定的結構要求。新的註冊安排已於2024年6月正式實施。

Strengthening Measures against Extreme Weather

To prevent extreme weather from affecting the stability of power supply, the EMSD regularly reviewed the resilience of power supply facilities against extreme weather with power companies, and followed up on corresponding improvement measures, such as installing lightning arrestors on overhead lines and installing flood barriers, pumping equipment and alarm systems at substations. Furthermore, to ensure a safe and reliable power supply, we also urged the power companies to take preventive measures before the rainy season, including inspecting critical power supply facilities before the arrival of typhoons, installing flood protection equipment at substations susceptible to flooding, as well as trimming trees that pose risks to overhead lines.

Since some of the photovoltaic panels at building roofs failed to be fastened to supporting structures securely during the Super Typhoon Saola, the EMSD collaborated with the Buildings Department, Lands Department and Housing Department in 2023, to introduce a new registration arrangement, so as to ensure that newly installed power generation facilities comply with statutory structural requirements. This new registration arrangement was officially implemented in June 2024.

保障公眾安全
PROTECTING PUBLIC SAFETY

利用創新科技提高執法效率

機電署一直秉持專業精神，根據相關條例及規例規管業界，並在有需要時採取執法行動。要確保香港的電力安全，有效的執法至關重要。因此，機電署致力檢討及持續改進現有的調查程序，務求收集足夠證據，把違規者繩之於法。

在刑事調查的過程中，證人陳述書和被告的警誡供詞對提出起訴非常重要。因此，我們於2023年着手研發人工智能語音識別系統，以改善錄取供詞的效率。上述的人工智能語音識別系統在第49屆日內瓦國際發明展上榮獲銀獎。

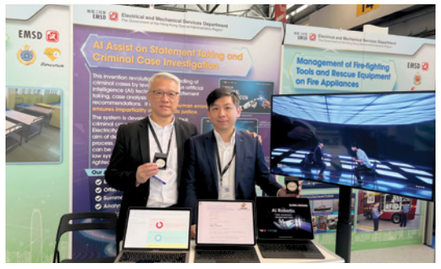
我們還以人工智能技術分析與《電力條例》相關的案例來建立資料庫，方便進行刑事案件的取證和案件的後續分析。我們希望日後可把系統應用在所有刑事案件中，令執法過程更有效率。

Leveraging Innovative Technology to Improve Law Enforcement Efficiency

Consistently upholding professionalism, the EMSD regulates the trade in accordance with relevant ordinances and regulations, and takes enforcement actions as necessary. Ensuring electrical safety in Hong Kong heavily relies on effective law enforcement. Therefore, the EMSD is committed to reviewing and continuously improving the existing investigation processes, in order to gather sufficient evidence and bring violators to justice.

During the course of criminal investigation, witness statements and the defendants' cautioned statements are crucial to prosecution. Therefore, we embarked on developing an artificial intelligence (AI) voice recognition system in 2023 to improve the efficiency of taking statements. The above-mentioned AI voice recognition system won a silver award at the 49th International Exhibition of Inventions of Geneva.

We also utilise AI technology to analyse cases related to the Electricity Ordinance to build a database, facilitating evidence collection and subsequent case analysis in criminal matters. In the future, we hope to apply the system to all criminal cases, with a view to making the law enforcement process more efficient.



機電署着手研發人工智能語音識別系統，以改善錄取供詞的效率。該系統在第49屆日內瓦國際發明展上榮獲銀獎。

The EMSD embarked on developing an AI voice recognition system to improve the efficiency of taking statements. The system won a silver award at the 49th International Exhibition of Inventions of Geneva.

積極為碳中和努力

上網電價計劃是推動可再生能源發展的重要措施。政府於2017年4月與兩間電力公司簽訂協議，讓安裝太陽能或風力發電系統的人士，能夠以高於一般電費的價格，向電力公司出售所產生的電力。2023年，機電署共處理4 200宗上網電價計劃的註冊申請，鼓勵社會生產可再生能源，並且共同為實現碳中和盡一分力。目前，本港約有22 000個可再生能源發電設施參與上網電價計劃。

除了發展可再生能源外，採用綠色運輸也是邁向碳中和的重要一環。自2021年3月公布《香港電動車普及化路線圖》（《路線圖》）後，政府一直積極落實《路線圖》中的各項政策及計劃，以推動車輛的綠色轉型，務求於2050年實現車輛零排放。在推動電動車使用方面，機電署

Actively Working Towards Carbon Neutrality

The Feed-in Tariff (FiT) Scheme is an essential initiative for promoting renewable energy development. In April 2017, the Government signed agreements with the two power companies to allow individuals who have installed solar or wind power systems to sell the electricity generated to the companies at rates higher than ordinary electricity tariffs. In 2023, the EMSD processed a total of 4 200 registration applications for the FiT Scheme, encouraging society to generate renewable energy and contribute towards achieving carbon neutrality. Currently, there are approximately 22 000 renewable energy generating facilities in Hong Kong participating in the FiT scheme.

In addition to developing renewable energy, adopting green transportation is also an integral part of moving towards carbon neutrality. Since the announcement of the Hong Kong Roadmap on Popularisation of Electric Vehicles (Roadmap) in March 2021, the Government has been actively implementing various policies and plans outlined in the Roadmap to promote the green transformation of vehicles, aiming for zero vehicular emissions by 2050. Regarding the promotion

作為「油站轉型快速充電站或油電站」工作小組的成員，一直積極就電動車設施的電力安全要求提供專業意見，希望市面上有更多快速充電站或油電站。

of electric vehicles (EVs), as a member of the task force on Conversion of Petrol Filling Stations into Quick Charging Stations or Petrol-cum-charging Stations, the EMSD has been actively providing professional advice on electrical safety requirements for the EV facilities, in the hope that there would be more fast charging stations or dual-fuel stations in the market.

上網電價計劃是推動可再生能源發展的重要措施，鼓勵社會生產可再生能源，並且共同為實現碳中和盡一分力。

The FiT Scheme is an essential initiative for promoting renewable energy development, which encourages the community to generate renewable energy and contributes towards achieving carbon neutrality.

促進跨境和國際協作

2023年11月23日和27日，機電署與國家海關總署（海關總署）在機電署總部分別舉行第19次《機電產品安全及能源效益合作安排》（《合作安排》）年度會議和《合作安排》簽署20周年慶典。海關總署副署長呂偉紅女士和環境及生態局局長謝展寧先生出席上述活動，與逾百位機電署人員和嘉賓一同見證本署與海關總署合作的里程碑。

Promoting Cross-border and International Collaboration

On 23 and 27 November 2023, the EMSD and the General Administration of Customs of the People's Republic of China (GACC) held the 19th annual meeting on the Co-operation Arrangement on Electrical and Mechanical Products Safety and Energy Efficiency (Co-operation Arrangement) and a ceremony to celebrate the 20th anniversary of the signing of the Co-operation Arrangement respectively at the EMSD Headquarters. Ms Lyu Weihong, the Vice Minister of the GACC, and Mr Tse Chin-wan, Secretary for Environment and Ecology, attended the above events and witnessed the milestone of collaboration between the EMSD and the GACC together with over a hundred EMSD officers and guests.

自2003年簽訂《合作安排》，內地和香港20年來一直保持緊密聯繫，有效促進機電產品安全及能源效益方面的發展。

Since the signing of the Co-operation Arrangement in 2003, the Mainland and Hong Kong have always maintained close ties over the past 20 years, effectively promoting the development of E&M product safety and energy efficiency.

保障公眾安全
PROTECTING PUBLIC SAFETY

《合作安排》不但進一步提升兩地機電產品的安全，亦透過提高機電產品的能源效益，幫助兩地逐步實現碳中和。

The Co-operation Arrangement not only further enhances the safety of E&M products in both places, but also helps the two places gradually achieve carbon neutrality by improving the energy efficiency of these products.

機電署定期在內地舉辦宣講會，加強向跨境電商平台的營運商和零售商等持份者宣傳教育。同時，我們透過線上影片和社交媒體帖文，向本港消費者宣傳精明選購和安全使用家用電氣產品，務求從供應和消費兩方面着手，以減少市民因使用不合規格的電氣產品而造成的安全隱患。

The EMSD has regularly conducted seminars in the Mainland to strengthen publicity and education for stakeholders such as operators and retailers on cross-border e-commerce platforms; meanwhile, we have been promoting smart purchase and safe use of household electrical products to consumers in Hong Kong through online videos and social media posts, with a view to reducing potential safety hazards associated with using non-compliant electrical products by promoting at both the supply and consumer levels.

隨着愈來愈多市民在跨境電商平台選購家用電氣產品，機電署與海關總署於2019年成立跨境電商工作小組，並採取多項措施教育有關廠商和產品銷售商，以提升他們對出口香港家用電氣產品相關法規的認識和理解。此外，機電署多年來與阿里巴巴集團保持協作，雙方並於2023年達成合作意向，該集團在年內試行為香港用戶屏蔽不符合本港安全規格的適配接頭和拖板的訂購網頁頁面，以免香港用戶購買不合規格的產品。

As more and more citizens purchase household electrical products through cross-border e-commerce platforms, the EMSD and the GACC established the Cross-border E-commerce Working Group in 2019, and implemented various measures to educate relevant manufacturers and product retailers, so as to enhance their knowledge and understanding of the regulations related to the export of household electrical products to Hong Kong. Furthermore, the EMSD has maintained collaboration with the Alibaba Group for many years. In 2023, we reached a consensus on co-operation. In the year, the Group conducted a trial to block for Hong Kong users the ordering web pages of adaptors and extension units that do not comply with the safety requirements in Hong Kong, thereby preventing Hong Kong users from purchasing non-compliant products.

另外，機電署與全國電器附件標準化技術委員會展開合作，並參加該委員會的年度會議。我們在會上作出簡報，向該委員會介紹香港家用電氣產品的安全法規要求。是次會議亦讓我們深入了解國家在電器附件標準化方面的最新發展。此外，我們與廣東省家用電器行業協會、深圳海關和行業代表合作，於2024年1月發布新的家用電氣產品安全標準，以提升大灣區的家用電氣產品安全。

Moreover, the EMSD has engaged with the National Technical Committee on Electrical Accessories and participated in its annual meeting. At the meeting, we made a presentation and introduced to the Committee the safety requirements of household electrical products in Hong Kong. The meeting also enabled us to gain insights into the latest developments in the standardisation of electrical accessories in our country. In addition, we collaborated with the Guangdong Household Electrical Appliances Trade Association, Shenzhen Customs and representatives of the trade to promulgate new safety standards for household electrical products in January 2024, aiming to enhance the safety of household electrical products in the Greater Bay Area.

除了加強兩地協作外，我們亦於2023年8月出席在美國西雅圖舉行的亞太區經濟合作組織第30次電氣及電子設備聯合監管諮詢委員會會議。會上我們作出專題簡報，與其他經濟體的代表分享香港在電氣產品安全管理方面的做法和經驗，並與他們就家用電氣產品事故和電商平台所供應產品的安全等議題進行深入交流，這些交流有助長遠提高區內家用電氣產品的安全水平。

Apart from strengthening collaboration between the Mainland and Hong Kong, the EMSD also attended the 30th meeting of the Joint Regulatory Advisory Committee on Electrical and Electronic Equipment under the Asia-Pacific Economic Co-operation (APEC) held in Seattle, the United States in August 2023. On the meeting, we delivered presentations on specific topics to share with the representatives of other economies practices and experience in the management of electrical product safety in Hong Kong, and had in-depth discussions with them on issues such as incidents of household electrical products and safety of products supplied by e-commerce platforms, which helped enhance the safety standards of household electrical products in the APEC region in the long run.

來年展望

來年，我們會繼續致力提升市民和業界的電力安全意識，以確保香港電力安全維持在高水平。

THE YEAR AHEAD

In the coming year, we will continue our efforts to raise the awareness of the public and the trade on electrical safety, so as to ensure that electrical safety in Hong Kong is maintained at a high level.

重點一：加強規管工作

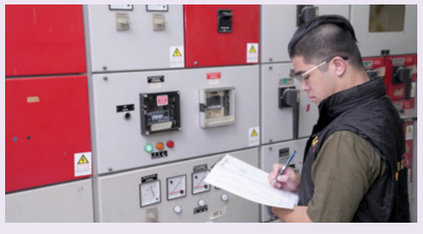
Focus 1: Strengthening Enforcement Efforts

鑑於2024年發生的多宗電力事故，機電署會加強對電力公司的監管，例如增加對變電站和供電設備的巡查。此外，為使電力供應更安全可靠，機電署已要求中電全面檢討與其供電系統相關的資產管理系統。有關檢討的內容包括發電和輸配電設備在維修保養安排的要求、整個電力系統抵禦外在因素影響的能力，以及外判合約管理等。

In the light of a number of electrical incidents in 2024, the EMSD will strengthen our regulation of the power companies, such as increasing the number of inspections of substations and power supply equipment. In addition, to enable safer and more reliable power supply, the EMSD has requested the CLP Power to conduct a comprehensive review of the asset management system of its power supply system. The scope of the review includes the requirement for maintenance arrangements of generation, transmission and distribution equipment, capability of the entire power system to withstand the impact of external factors, and management of outsourcing contracts.

在固定電力裝置定期檢測和家用電氣產品安全方面，我們亦會加大監管力度，例如到舊式住宅樓宇進行特別檢查，加強對售賣家用電氣產品的網上商店的規管，並就違規情況作出檢控。

Regarding the regular inspection of fixed electrical installations and the safety of household electrical products, we will also intensify our regulatory efforts, for example, by conducting special inspections in old residential buildings, stepping up the regulation of online shops selling household electrical products, and taking prosecution actions against non-compliance with statutory requirements.



我們定期檢測舊式住宅樓宇的固定電力裝置，並巡查售賣家用電氣產品的商店，以加強規管工作。

We regularly check fixed electrical installations in old residential buildings and inspect shops selling household electrical products to strengthen regulatory work.

保障公眾安全
PROTECTING PUBLIC SAFETY

重點二：善用創新科技

位於機電署總部大樓的註冊及許可證辦事處現正進行翻新工程，預計於2024年第四季完成。我們運用創新思維，優化註冊及許可證辦事處的設計，以期更方便市民，並提升申請效率。此外，為進一步提升電子政府服務，並增加服務的接觸點，機電署正籌備優化網上服務，預計有關人士可於2025年第一季，透過「智方便」使用「註冊電業工程人員持續進修計劃」的網上訓練平台和「註冊及許可證辦事處預約服務」的網上預約系統。

Focus 2: Leveraging Innovative Technologies

The Registration and Permit Office at the EMSD Headquarters is currently undergoing renovation works, and the works is expected to be completed in the fourth quarter of 2024. Using our ingenuity, we have optimised the design of the office to provide greater convenience for the public and improve the efficiency of making application. In addition, to further enhance e-government services and increase the number of points of contact for accessing the services, the EMSD is working on the enhancement of online services. It is anticipated that relevant persons will be able to use the online training platform of the Continuing Professional Development Scheme for Registered Electrical Workers and the online booking system of the Appointment Booking Service for the Registration and Permit Office via iAM Smart in the first quarter of 2025.

註冊及許可證辦事處現正進行翻新工程，其新設計旨在便利市民和提升申請效率。

The Registration and Permit Office is currently undergoing renovation works. Its new design is aimed at providing greater convenience for the public and improving the efficiency of making application.

重點三：進一步提升電力安全

機電署一直持續檢視有關電力安全的最新標準，現正籌備檢討《電力(線路)規例工作守則》(《工作守則》)的工作，並將於2024年第三季成立工作小組，以收集各電業界持份者的意見。工作小組會由多個業界組織、專業團體、學術機構、電力公司和政府部門的代表組成，負責檢視最新的國際安全標準、行業現有做法和創新技術，並提出修訂建議，以確保香港電力安全維持在高水平。新版《工作守則》預計將於2025年年底出版。

Focus 3: Further Enhancing Electrical Safety

The EMSD has been continuously reviewing the latest electrical safety standards. We are currently preparing for the review of the Code of Practice for Electricity (Wiring) Regulations (CoP) and will establish a working group in the third quarter of 2024 to collect the views of various stakeholders in the electrical trade. The working group will consist of members from multiple trade organisations, professional bodies, academic institutions, power companies and government departments. It will review the latest international safety standards, existing trade practices and innovative technologies, and propose amendments, with the aim of ensuring that electrical safety in Hong Kong is maintained at a high level. The new version of the CoP is expected to be published by the end of 2025.

機電署邀請不同界別的持份者加入工作小組，以檢討《電力(線路)規例工作守則》。

The EMSD invited stakeholders from different sectors to join the working group to review the Code of Practice for Electricity (Wiring) Regulations.

重點四：進一步深化跨境協作

除了與海關總署簽訂《合作安排》外，機電署計劃與國家市場監督管理總局建立伙伴合作，並將於2024年下半年簽訂合作協議。雙方會成立工作小組，就家用電氣產品安全展開多方面合作，包括回收和聯合調查不安全的家用電氣產品、舉辦公眾宣傳和教育活動、加強業界培訓和發展等。此合作機制有助進一步加強跨境協作，提高家用電氣產品的安全。

Focus 4: Further Deepening Cross-border Collaboration

In addition to the Co-operation Arrangement signed with the GACC, the EMSD plans to establish a partnership with the State Administration for Market Regulation and we will sign a co-operation agreement in the second half of 2024. Both parties will form a working group to engage in multi-faceted co-operation on the safety of household electrical products, including recall of and joint investigation into unsafe household electrical products, organisation of publicity and education campaigns, and enhancement of training and development for the trade. This co-operation mechanism will help further strengthen cross-border collaboration to improve the safety of household electrical products.

我們與內地當局展開跨境協作，從各方面提高家用電氣產品的安全。

We engage in cross-border co-operation with Mainland authorities to improve the safety of household electrical products from all aspects.

保障公眾安全
PROTECTING PUBLIC SAFETY

重點五：進一步加強跨部門協作

為提升市民的電力安全意識，機電署會進一步加強跨部門協作，並與消防處、民政事務總署、勞工處和消費者委員會(消委會)等政府部門和法定機構緊密合作。

來年，機電署會與各部門和機構合作，透過多種渠道宣傳電力安全，並改善各方的溝通機制，以達致更有效的協作。我們會與消防處在社交媒體發布一系列的聯乘帖文，以輕鬆有趣的方式，向市民傳達電力安全的信息。我們亦會與消委會協作，在《選擇》月刊的社交媒體專頁提供家用電氣產品的安全須知。此外，我們會與民政事務總署和勞工處探討加強電力安全的宣傳，務求有效提升不同持份者的電力安全意識。

Focus 5: Further Promoting Inter-departmental Collaboration

To enhance public awareness of electrical safety, the EMSD will further strengthen cross-departmental collaboration by working closely with government departments and statutory bodies, such as the Fire Services Department (FSD), Home Affairs Department (HAD), Labour Department (LD) and Consumer Council.

In the coming year, the EMSD will collaborate with various departments and bodies to promote electrical safety through multiple channels and improve the communication mechanisms among different parties for more effective collaboration. We will publish a series of joint posts on social media with the FSD to convey electrical safety messages to the public in a fun and engaging manner. Besides, in collaboration with the Consumer Council, we will provide safety message on household electrical products on the social media page of the CHOICE magazine. Furthermore, we will explore to step up publicity on electrical safety with the HAD and the LD, in order to effectively raise the awareness of different stakeholders on electrical safety.

服務以民為本　凡事多走一步
ALWAYS GOING THE EXTRA MILE TO PROVIDE PEOPLE-ORIENTED SERVICE

柴灣康翠臺電掣房的氣體爆炸事故導致電力供應中斷，黃沛良先生和他的團隊克盡厥職，竭誠為民，完成調查的本份後，更多走一步全力協助復電工作。

A gas explosion incident at the switch room of Greenwood Terrace in Chai Wan led to a power interruption. Apart from fully discharging their investigation duties, Mr Wong Pui-leung and his team went the extra mile and made every effort to assist in restoring power supply, serving the public wholeheartedly.

2024年1月29日下午，柴灣康翠臺第六座的電掣房發生氣體爆炸，事故造成兩名工人受傷，以及整幢大廈停電。電力法例部機電工程師黃沛良先生與團隊在得悉事故後，馬上趕往現場。黃先生憶述：「事發當日，我和團隊看到有關爆炸的即時新聞後，立即到場了解情況。我們聯同消防處和警務處人員進行深入調查，並迅速確定事故與電力故障無關。」當時黃先生和其團隊已完成職務，但是他們明白停電對居民的生活造成諸多不便，因此即使恢復電力供應是物業管理公司的責任，黃先生和他的團隊都決定多走一步，主動協助恢復電力供應，展現公務員盡忠職守、以民為本的服務精神。

On the afternoon of 29 January 2024, a gas explosion occurred in the switch room of Block 6, Greenwood Terrace in Chai Wan, resulting in injuries of two workers and a complete power outage in the entire building. Upon learning of the incident, Mr Wong Pui-leung, an electrical and mechanical engineer of the Electrical Legislation Division, and his team promptly rushed to the scene. Mr Wong recalled, "On the day of the incident, my team and I went to the scene to understand the situation immediately after we saw the breaking news about the explosion. We conducted an in-depth investigation with officers from the Fire Services Department and the Police Force, and quickly concluded that the incident was not related to electrical faults." Although Mr Wong and his team had completed their work then, they recognised the power outage would bring much inconvenience to the living of the residents, and thus even though the responsibility for restoring power supply rested with the property management company, they decided to go the extra mile and took the initiative to help restore power supply, demonstrating the civil servants' commitment to their work and the people-based service culture.

團隊善用專業知識協助擬定復電方案，並盡力加快復電工作，務求在最短時間內安全地恢復電力供應。黃先生表示：「擬定復電方案的過程充滿挑戰，我們必須與不同持份者協調，包括電力公司、物業管理公司、註冊電業承辦商和居民，回應他們的關注和要求。此外，我們提供專業的技術支援，靈活作出適當設施調配，務求在確保安全的情況下盡快復電，把事故對居民造成的影響降至最低。」

The team leveraged their expertise to help formulate a power restoration plan and made all-out efforts to speed up the power restoration work, in order to safely resume the power supply within the shortest time. Mr Wong stated, "The process of drawing up a power restoration plan was very challenging, as we had to co-ordinate with various stakeholders, including the power company, property management company, registered electrical contractor and residents, addressing their concerns and requirements. Besides, we provided professional technical support and made appropriate deployment of equipment with agility, in order to restore power supply as fast as possible while ensuring safety, thereby minimising the impact of the incident on the residents."

黃先生與團隊連續兩日留守現場，日以繼夜工作，直至電力供應恢復。由於事發突然，團隊成員只好放棄原先安排的朋友聚會和家庭活動等，全力協助復電工作。其後，黃先生對子女說：「雖然爸爸有兩天不能與你們見面，但爸爸努力地幫助了超過300戶居民，迅速恢復電力使他們可以如常生活。公務員應克盡己職、竭誠為市民服務，事事多走一步，貢獻社會。」

Mr Wong and his team remained on-site for two consecutive days, working day and night until power supply was restored. Due to the unexpectedness of the incident, the team members had to sacrifice their scheduled gatherings with friends and family activities to fully commit themselves to providing assistance in the restoration work. Afterwards, Mr Wong told his children, "Even though I couldn't see you for two days, I worked hard to help over 300 households, restoring power supply quickly, so that their living could resume normal. Civil servants should fulfil their duties and serve the community with dedication, always walking the extra mile and contributing to society."

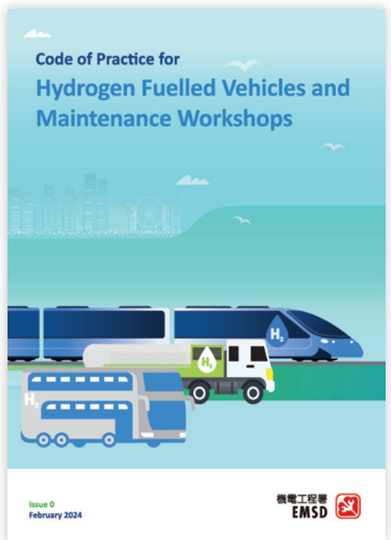
保障公眾安全
PROTECTING PUBLIC SAFETY

氣體安全

全面推動氫能發展

面對氣候變化帶來的挑戰，特區政府於2022年成立氫能源跨部門工作小組(工作小組)，負責統籌各政策局和部門推進本地氫燃料應用的工作。機電署積極參與工作小組，探索採用潔淨能源的新機遇，全力推動使用氫燃料的發展，並支持「綠色運輸」和「淨零發電」策略，以助香港於2050年前達成碳中和的目標，實現《香港氣候行動藍圖2050》的願景。

行政長官在《2023年施政報告》中提出，應在交通領域率先推動新能源的使用和供應，以帶動業界加速綠色轉型。機電署就此對全球氫能發展和應用進行了深入研究，審視國際上新興的氫能技術及相關法規；並依此制定符合香港需要的技術指引，以管理氫燃料的相關安全風險，配合政府的新能源發展策略。在參考國內外相關法規和標準，諮詢專業團體、業界及持份者，並且充分考慮香港實際情況後，我們於年內發布了三份技術指引供業界參考，即《氫燃料車輛及維修工場實務守則》、《加氫站實務守則》和《氫氣裝置定量風險評估研究指南》，為氫能技術在香港的發展奠下堅實的基礎。



為確保氫燃料車輛安全操作，相關維修工場符合安全標準，《氫燃料車輛及維修工場實務守則》涵蓋氫燃料車輛內氫燃料系統的設計、安裝、測試、校驗、操作和維修，以及氫燃料車輛維修工場的設計、裝置和運作。

To ensure the safe operation of hydrogen fuelled vehicles (HFVs) and the compliance with safety standards of the relevant maintenance workshops, the Code of Practice for Hydrogen Fuelled Vehicles and Maintenance Workshops encompasses the design, installation, testing and commissioning, operation, and maintenance of hydrogen fuel systems within HFVs, as well as the design, equipment and operation of maintenance workshops for HFVs.

GAS SAFETY

Fully Promoting the Development of Hydrogen Energy

In response to the challenges posed by climate change, the Hong Kong Special Administrative Region (HKSAR) Government established in 2022 an Inter-departmental Working Group on Using Hydrogen as Fuel (Working Group), which is responsible for coordinating efforts across various policy bureaux and departments to advance the local application of hydrogen fuel. The Electrical and Mechanical Services Department (EMSD) actively participates in the Working Group to explore new opportunities in utilising clean energy, fully promoting the development of using hydrogen as fuel in support of the "green transport" and "net-zero electricity generation" strategies, in order to help Hong Kong achieve the goal of carbon neutrality by 2050 and realise the vision outlined in the Hong Kong's Climate Action Plan 2050.

The Chief Executive announced in the 2023 Policy Address that we should promote the use and supply of new energy in the transportation sector first to accelerate the green transformation of the industry. In this regard, the EMSD conducted an in-depth study of global hydrogen development and applications, as well as examining emerging hydrogen technologies and relevant regulations. We have accordingly formulated technical guidelines tailored to Hong Kong's needs to manage the safety risks associated with hydrogen fuel, aligning with the Government's new energy development strategy. After reviewing relevant national and international regulations and standards, consulting professional organisations, the trade and stakeholders, and thoroughly considering local situations, we published three technical guidelines during the year for reference of the trade, namely the Code of Practice for Hydrogen Fuelled Vehicles and Maintenance Workshops, the Code of Practice for Hydrogen Filling Stations, and the Guidance Note on Quantitative Risk Assessment Study for Hydrogen Installations in Hong Kong, laying a solid foundation for the development of hydrogen technologies in Hong Kong.

工作小組先後審視並原則上同意了14個氫燃料本地應用試驗項目的申請。機電署為此提供了專業的技術和安全意見，並積極跟進項目的展開和實施。這些項目包括氫燃料電池雙層巴士、氫能源有軌電車、加氫設施、工地氫能發電設備，以及氫氣生產和運輸設施等。2023年11月30日，行政長官在城巴西九龍車廠主持全港首個加氫站及首輛氫燃料電池雙層巴士的啓用禮；而該雙層巴士於2024年2月25日正式投入服務，成為全港首輛氫燃料車輛。

The Working Group has examined and given agreement-in-principle to a total of 14 applications of trial projects on using hydrogen as fuel. In this connection, the EMSD provided professional technical and safety advice, and actively followed up the commencement and implementation of these projects. They include hydrogen fuel cell double-decker buses, hydrogen fuelled light rail vehicles, hydrogen refuelling facilities, hydrogen power generation at construction sites, and hydrogen production and transportation facilities. The Chief Executive officiated at the launching ceremony of the first hydrogen refuelling station and the first hydrogen fuel cell double-decker bus of Hong Kong at Citybus West Kowloon Depot on 30 November 2023, while the double-decker bus came into service on 25 February 2024, becoming the first hydrogen vehicle in the city.

相對於傳統柴油巴士，氫燃料電池雙層巴士能有效改善路邊空氣質素，為乘客帶來更佳的出行體驗。

Compared to traditional diesel buses, hydrogen fuel cell double-decker buses can effectively improve roadside air quality, thus delivering a better travelling experience for passengers.

為配合《香港氫能發展策略》，機電署於年內展開修訂《氣體安全條例》的準備工作，務求為氫能在香港的更廣泛應用及早作出準備。

In alignment with the "Strategy of Hydrogen Development in Hong Kong", the EMSD has initiated preparations to amend relevant legislation this year, aiming to ensure timely readiness for the broader application of hydrogen in Hong Kong.

各個氫燃料技術試驗項目的成果，對於推動香港氫燃料發展具有重要意義。這些項目不僅有助政府收集數據以制定相關政策，同時也為業界牽起帶頭作用，共同推動香港邁向碳中和的目標。為了進一步發展氫燃料及確保其安全使用，機電署除了為業界制定守則和標準，亦正為規管氫燃料構建全面的法律框架。我們在2024年開展修訂《氣體安全條例》的準備工作，有關修訂會規管氫燃料從生產、儲存、運送、供應到使用的整個供應鏈，確保氫然料的安全使用。在2024年2月至3月，我們廣泛地諮詢業界，包括舉行兩場諮詢論壇和20多次焦點小組會議，徵詢氫燃料本地應用試驗項目的申請者、氫燃料供應商、氫燃料設備供應商、氫燃料認證及培訓機構、氫燃料技術研發公司等多方面持份者的意見。這次全面的諮詢不僅收集到業界的寶貴意見，並獲得業界對擬定法律框架的廣泛支持。

The outcomes of various trial projects on hydrogen fuel technology are significant for advancing the development of hydrogen fuel in Hong Kong. These projects not only assist the Government in gathering data for relevant policy formulation, but also play a leading role in driving the trade together towards the goal of carbon neutrality for Hong Kong. To further develop hydrogen fuel and ensure its safe usage, on top of establishing codes and standards for the trade, the EMSD is also building a comprehensive legislative framework for regulating hydrogen fuel. The preparation work for the amendment of the Gas Safety Ordinance began in 2024, with a view to regulating the entire value chain of hydrogen fuel from manufacture, storage, transport, supply to use, thereby ensuring the safety of using hydrogen fuel. Extensive trade consultations were conducted from February to March 2024, including holding two consultation forums and over twenty focus group meetings with diverse stakeholders, such as the applicants of trial projects on using hydrogen as fuel, hydrogen fuel suppliers, hydrogen fuel equipment providers, certification and training organisations of hydrogen fuel, and research and development (R&D) companies of hydrogen fuel. This comprehensive consultation not only collected valuable trade feedback, but also garnered broad support of the trade for the proposed legislative framework.

保障公眾安全
PROTECTING PUBLIC SAFETY

新能源產業具備重大發展潛力，氫燃料的基建發展不但可為香港創造就業機會，更能刺激相關技術行業的經濟增長。完善的法制和監管機制可以增強市民信任，打造安全可靠的營商環境，吸引世界各地的投資者來港共同參與氫燃料的研發工作，推動綠色經濟發展，切合《2023年施政報告》的主題「拼經濟謀發展 惠民生添幸福」。

The new energy industry has significant potential for growth. The development of hydrogen infrastructure not only create job opportunities in Hong Kong, but can also stimulate economic growth in related technology sectors. A sound legal system and regulatory mechanism can enhance public trust, foster a safe and reliable business environment, and attract investors from around the world to participate in the R&D of hydrogen fuel, thereby promoting green economic development and aligning with the theme of the 2023 Policy Address: "A Vibrant Economy for a Caring Community".

發展電動車維修業

香港正朝向環保宜居的智慧都市發展，運輸系統電氣化必不可少，電動車亦日漸普及。除了全力發展氫能外，政府亦加快步伐推動電動車的發展，於2021年發表《香港電動車普及化路線圖》，明確訂立於2035年或之前停止新登記燃油及混合動力私家車的目標，帶領香港邁向「零碳交通」。

Development of Electric Vehicle Maintenance Service Industry

When Hong Kong is developing into a green and liveable smart city, the electrification of the transportation system is indispensable, and electric vehicles (EVs) are becoming increasingly popular. In addition to advancing hydrogen energy, the Government is accelerating the development of EVs. The Hong Kong Roadmap on Popularisation of Electric Vehicles was announced in 2021, setting a clear goal of ceasing new registration of fuel-propelled and hybrid private cars by 2035, guiding Hong Kong towards "zero-carbon transportation".

相關的政策會大大促進電動車的發展。截至2024年5月底，香港整體電動車數目約95 100輛，佔所有車輛總數約10.4%。隨著電動車普及化，預計電動車的維修需求會大幅上升，為車輛維修業帶來翻天覆地的改變。因此，機電署在參考車輛維修技術諮詢委員會(委員會)的意見後，把電動車維修服務納入「車輛維修技工自願註冊計劃」(技工註冊計劃)和「車輛維修工場自願註冊計劃」，期望車輛維修業界能夠與時並進，切合電動車的維修服務需求。

The relevant policies will significantly promote the development of EVs. As at May 2024, the total number of EVs in Hong Kong is approximately 95 100, accounting for about 10.4% of all vehicles. With the popularisation of EVs, it is anticipated that the demand for EV maintenance services will rise sharply, heralding transformative changes in the vehicle maintenance industry. As such, after consulting with the Vehicle Maintenance Technical Advisory Committee (VMTAC), the EMSD has included EV maintenance service in the Voluntary Registration Scheme for Vehicle Mechanics (VRSVM) and the Voluntary Registration Scheme for Vehicle Maintenance Workshops, hoping that the vehicle maintenance industry would keep abreast of the times and meet the demand for EV maintenance services.

為鼓勵年青人才投身車輛維修業，機電署聯同資歷架構秘書處、委員會和職業訓練局，突破傳統登記和認證機制的框架，引入「過往資歷認可」機制，為「車輛維修技工自願註冊計劃」下的技工申請人進行資歷認證。由2023年7月3日起，「車輛維修技工自願註冊計劃」正式接納以汽車業「過往資歷認可」機制獲取的「職業資歷階梯」第三級資歷作為註冊條件，當中涵蓋機械服務、電工服務、車身修理和車身噴漆範疇，讓經驗豐富的技工獲取認證並完成註冊。新機制為資深技工提供註冊的新途徑，讓車輛維修業得以薪火相傳。截至2024年3月底，已有356名註冊車輛維修技工取得第三級資歷。

To encourage young talent to join the vehicle maintenance industry, the EMSD has broken new ground for the traditional registration and certification framework in collaboration with the Qualifications Framework Secretariat, the VMTAC and the Vocational Training Council. The Recognition of Prior Learning (RPL) mechanism has been introduced, allowing mechanic applicants under the VRSVM to attain certification of their qualifications. With effect from 3 July 2023, the VRSVM officially accepts Level 3 qualifications acquired via the RPL mechanism of the automotive industry as registration requirements, which encompass mechanical services, electrical services, body repairs and body painting, allowing experienced mechanics to obtain certification and complete their registration. The new mechanism provides a new pathway for seasoned mechanics to become registered, so that the vehicle maintenance industry can continue to thrive. As at the end of March 2024, 356 registered vehicle mechanics had obtained Level 3 qualifications.

電動車與傳統汽油車的主要分別，是電動車涉及複雜且不同的機電技術，裝置使用的高壓電力往往可超過800伏特，所以在維修方面衍生獨特的職業安全風險。在技工註冊計劃下，電動車維修工作劃分為基礎、低電壓和高電壓等三個級別。由機電署署長出任主席的委員會已認可四間機構，包括職業訓練局、職業安全健康局、九巴學院和廣州市交通技師學院，舉辦八個電動車維修培訓課程，確保車輛維修技工掌握應有的知識和技術，以配合電動車的發展。

The primary distinction between EVs and conventional petrol vehicles lies in the complexity and diversity of electromechanical technologies involved. EV devices utilise high-voltage power that can often exceed 800 volts, entailing unique occupational safety risks in maintenance work. Under the VRSVM, EV maintenance is categorised into three levels: elementary, low voltage, and high voltage. The VMTAC, chaired by the Director of EMSD, has accredited four organisations to conduct eight training courses on EV maintenance, including the Vocational Training Council, Occupational Safety and Health Council, KMB Academy, and Guangzhou Communications Technician Institute. This ensures that vehicle mechanics acquire the necessary knowledge and skills to cope with the development of EVs.

此外，機電工程署和委員會參考了世界各地的標準，共同制定《電動車維修工作指引》；當中詳列電動車維修設施的建議清單，包括個人防護裝備、急救設備、消防設施、場地設置，以及測試和維修工具等，以提升汽車維修業在維修電動車方面的技術及服務水平。

Furthermore, the EMSD and VMTAC, after benchmarking global standards, have formulated together the Practice Guideline for Electric Vehicle Maintenance, which outlines recommended facilities for EV maintenance, including personal protective equipment, first aid equipment, fire protection facilities, venue setting, as well as testing and maintenance tools. This effort is aimed at enhancing the technical and service levels of EV maintenance among the automotive maintenance industry.

隨着電動車快速普及，機電署推出多份指引，並更新車輛維修技工自願註冊計劃，以推廣與電動車維修相關的事宜，確保電動車行業能夠安全穩健地發展。

With the rapid proliferation of EVs, the EMSD has issued several guidelines and introduced updates to the Voluntary Registration Scheme for Vehicle Mechanics to promote matters relating to the maintenance of EVs, ensuring the safe and robust development of the EV industry.

保障公眾安全
PROTECTING PUBLIC SAFETY

規管燃氣基建

除了發展「綠色運輸」外，機電署亦全面配合政府「淨零發電」的減碳策略。其中一項工作是對全港首座海上液化天然氣接收站(海上接收站)進行規管。海上接收站於2023年7月正式投入運作，而首批經長期協議購買的液化天然氣，亦於同月順利運抵接收站；隨後於2023年9月，行政長官主持海上接收站的開幕典禮。目前全球最大的浮式儲存再氣化裝置船「紫荊精神號」已長期停泊在海上接收站，把天然氣輸送至龍鼓灘發電廠和南丫發電廠，供發電之用。

Regulation of Gas Infrastructure

In addition to developing "Green Transport", the EMSD fully ties in with the Government's carbon reduction strategy of "net-zero electricity generation". One of the initiatives is regulating Hong Kong's first offshore liquefied natural gas (LNG) terminal (offshore terminal), which officially commenced operation in July 2023. The first LNG shipment purchased under a long-term supply agreement successfully arrived at the terminal in the same month, and the Chief Executive subsequently officiated at the opening ceremony of the offshore terminal in September 2023. At present, the world's largest floating storage and regasification unit vessel, namely "Bauhinia Spirit", is permanently moored at the offshore terminal, transmitting natural gas to the Black Point Power Station and Lamma Power Station for power generation.

全球最大的浮式儲存再氣化裝置船「紫荊精神號」長期停泊在海上接收站，用於接收、儲存液化天然氣，並把液化天然氣再氣化。機電署負責評估和批准接收站上的天然氣設施的建造及使用，並定期進行巡查。

"Bauhinia Spirit", the world's largest floating storage and regasification unit vessel, is permanently moored at the offshore terminal for receiving, storing and regasifying LNG. The EMSD is responsible for assessing and approving the construction and use of terminal's natural gas facilities and regular inspections of the facility.

在機電署的監管下，天然氣會經海底輸氣管道，分別輸送到中電龍鼓灘發電廠和港燈南丫發電廠作發電用途，為零碳能源發電寫下新的里程碑。

Under the supervision of the EMSD, natural gas is transported through subsea pipelines to the Black Point Power Station of CLP Power and the Lamma Power Station of HK Electric respectively for electricity generation, marking a new milestone in the use of zero-carbon energy for power generation.

機電署作為香港氣體安全的監管機構，負責評估和批准大型天然氣設施的建造及使用；在海上接收站投入運作後，定期進行巡查，並運用創新科技持續監察海上接收站的氣體安全狀況。這個劃時代的項目不僅為香港在零碳能源發電方面的發展揭開新篇章，更向世界展示香港坐擁多元化能源組合的專業實力，為實現碳中和作出重要貢獻。

As the gas safety regulator in Hong Kong, the EMSD is responsible for assessing and approving the construction and use of large-scale natural gas facilities. Upon the operation of the offshore terminal, the EMSD has conducted regular inspections and applied innovative technologies to continuously monitor gas safety condition at the offshore terminal. This epoch-making project not only starts a new chapter in Hong Kong's development of zero-carbon energy for power generation, but also showcases the city's expertise in maintaining a diversified energy portfolio to the world, contributing significantly to achieving carbon neutrality.

在2021年至2023年期間，全港12個專用石油氣加氣站分階段進行翻新工程，以全面更換車用石油氣加氣設施，並確保相關設施達到安全標準。

Between 2021 and 2023, 12 dedicated LPG DFSs across the territory underwent renovation works in phases for complete replacement of the auto-LPG filling facilities and assurance of the safety standards of the facilities.

在專用石油氣加氣站(專用氣站)方面，全港12個專用氣站於2021年至2023年期間分階段進行翻新工程，以更換車用石油氣加氣設施。為維持足夠的加氣服務以應付需求，我們採取循序漸進的翻新策略，分段進行不同專用氣站的工程；並在工程期間，密切監察各專用氣站所在區域的車用石油氣價格、加氣車輛數量和高峰時段的交通情況，務求降低對使用者的影響。隨着灣仔、美孚、屯門、馬鞍山和元朗的五個專用氣站於年內完成翻新工程，全港12個專用氣站已全數完成翻新，並恢復正常運作。

Regarding dedicated liquefied petroleum gas (LPG) filling stations (DFSs), 12 DFSs underwent renovation works in phases from 2021 to 2023 for replacement of the auto-LPG filling facilities. To maintain adequate filling services for meeting demand, we have adopted a step-by-step renovation strategy and carried out the works of different DFSs in phases. During the works period, we closely monitored the auto-LPG prices, number of refuelling vehicles, and traffic conditions at peak hours in the areas of the DFSs to minimise the impact on the users. With the renovation works of five DFSs in Wan Chai, Mei Foo, Tuen Mun, Ma On Shan, and Yuen Long completed during the year, all 12 DFSs in Hong Kong have been revamped and resumed normal operation.

為進一步擴展可再生能源的網絡，政府已在沙嶺建成有機資源回收中心「O · PARK 2」，中心於2023年年底開始運作，每日可處理300公噸有機廢物，用作生產沼氣和有機肥料，推動「轉廢為能」的發展。機電署與環境保護署及承辦商緊密合作，我們從氣體風險角度提供技術建議，確保中心內所有應具報氣體裝置均按計劃完成所有審批。預料中心每年最高可輸出約2 400萬度剩餘電力至電網，相等於約5 000個家庭的用電量；每年更可減少約67 000公噸溫室氣體排放，實現轉廢為能及減少使用化石燃料的目標。

To further expand the renewable energy network, the organic resources recovery centre "O.PARK 2" has been established in Sha Ling. With operation commenced at the end of 2023, this facility is capable of processing 300 tonnes of organic waste daily to produce biogas and organic fertilizer, promoting the development of "Waste to Energy". Collaborating closely with the Environmental Protection Department and contractors, the EMSD provided technical advice from the perspective of gas risks to ensure that all notifiable gas installations (NGI) at the O.PARK 2 have received the necessary approvals as planned. It is expected that the centre can generate about 24 million kWh of surplus electricity to the grid annually, equivalent to the power consumption by some 5 000 households; it can also reduce greenhouse gas emissions by some 67 000 tonnes per year, thereby realising the goal of "Waste to Energy" and reducing consumption of fossil fuel.

保障公眾安全
PROTECTING PUBLIC SAFETY

推動氣體業界保持專業

為提升註冊氣體裝置技工的水平，機電署設立持續專業進修機制，並於2023年1月1日正式展開「註冊氣體裝置技工自願持續專業進修計劃」，涵蓋「法定和安全要求」及「技術知識和最新科技」等兩大單元。計劃開始至今，已有逾千人參與由機電署和業界開辦的39個培訓課程和講座。註冊技工可以透過流動應用程式「機電行業通」緊貼計劃的最新消息、直接報讀機電署舉辦的培訓課程，以及閱覽個人進修記錄。

Promoting Professionalism of the Gas Trade

To enhance the standards of registered gas installers (RGIs), the EMSD has established a mechanism for continuing professional development (CPD). The Voluntary CPD Scheme for RGI was officially launched on 1 January 2023, covering the two modules of "Statutory and Safety Requirements" and "Technical Knowledge and Latest Technologies". Since the launch of the CPD scheme to date, over a thousand people have taken part in 39 training courses and seminars offered by the EMSD and the trade. RGIs can stay updated on the CPD scheme, directly enrol on training courses organised by the EMSD, and view their personal training records through the mobile E&M Trade App.

機電署為註冊氣體裝置技工設立持續專業進修機制，藉以增強業界的專業實務能力，以及提升註冊氣體裝置技工的水平。

The EMSD has established a CPD mechanism for RGIs, aiming to enhance the professional competence of the industry and the standard of RGIs.

「優秀註冊氣體裝置技工比賽」旨在提升註冊氣體裝置技工的安全意識和技術水平，並表彰傑出的註冊技工以樹立行業典範，從而鼓勵註冊技工持續進修。

The RGI Awards Scheme was aimed at raising the safety awareness and skill level of RGIs, recognising outstanding RGIs and setting examples for the industry, thus encouraging RGIs to pursue CPD.

此外，機電署與職業訓練局卓越培訓發展中心、香港中華煤氣公司華員職工會和香港氣體及燃料業從業員協會於2023年合辦「優秀註冊氣體裝置技工比賽」，旨在嘉許表現優秀的註冊氣體裝置技工以樹立行業典範，從而鼓勵註冊氣體裝置技工持續進修。

比賽分為兩個階段，參加者須於第一階段回答有關《氣體安全條例》、技術層面和工作安全的選擇題；成功入圍者須在第二階段的面試展示對即時情景的應變能力和客戶溝通技巧。是次比賽反應熱烈，多達171人參賽，而且表現卓越，反映業界的高服務水平。

In addition, the EMSD organised the RGI Awards Scheme in 2023 in collaboration with the Pro-Act by the Vocational Training Council, Hong Kong and China Gas Co. Limited Chinese Employees Association, and Hong Kong Gas and Fuel Practitioners Association, which was aimed at commending outstanding RGIs and setting examples for the industry, thereby encouraging RGIs to pursue continuing education.

The Awards Scheme was divided into two stages. In the first stage, participants had to first answer multiple-choice questions about the Gas Safety Ordinance, technical aspects, and work safety. Shortlisted candidates then had to demonstrate their ability to adapt to real-time scenarios and communication skills with clients during an interview in the second stage. The Awards Scheme received an overwhelming response, with 171 participants showcasing exceptional performance, reflecting the high service standards of the trade.

保障社區氣體安全

2023年的氣體事故共有239宗，比2022年的數字稍有回落，反映註冊氣體供應公司於疫情後恢復常規安全檢查，及時發現並修復老化的氣體喉管。然而，機電署依然保持警惕，以「治未病」的精神，加強氣體安全工作。

隨着《關於消耗臭氧層物質的蒙特利爾議定書》下的《基加利修正案》於2019年1月1日生效，家用冷氣機供應商逐漸以R32輕度易燃雪種取代R410A雪種，減輕雪種泄漏對全球暖化的影響。為了提升工程人員處理R32雪種的安全意識和相關技術，政府於2023年5月推出「家用冷氣機輕度易燃雪種處理工程人員自願註冊計劃」。截至2024年7月，累計已有1 400名工程人員完成註冊。

為響應《基加利修正案》中減少使用高全球升溫潛能值物質的倡議，環境及生態局正着手修訂《保護臭氧層條例》，以規管氫氟碳化物的進口、使用和排放。為此，我們積極參與公眾諮詢及法例修訂工作，以推動使用低全球升溫潛能值的雪種，同時為使用再生雪種展開試驗計劃。鑑於部分低全球升溫潛能值的雪種易燃、具高毒性和需要高操作壓力，經修訂的條例會規定承辦商必須向機電署註冊，並僱用已接受相關訓練的工程人員，方可處理上述雪種。

Ensuring Community Gas Safety

In 2023, there were 239 gas incidents, slightly lower than that in 2022, reflecting that registered gas supply companies (RGSCs) had resumed routine safety inspections, and through which timely identified and repaired aging gas pipes after the epidemic. Nevertheless, the EMSD remains vigilant, and employs the prevention strategy to beef up gas safety work.

Following the implementation of the Kigali Amendment to the Montreal Protocol on Substances that Deplete Ozone Layer on 1 January 2019, the suppliers of household air-conditioners have begun replacing R410A refrigerant with the mildly flammable R32 refrigerant to reduce the impact of refrigerant leaks on global warming. To enhance the safety awareness of technicians handling R32 refrigerant and hone their skills, the Government launched the Voluntary Registration Scheme for Technicians Handling Mildly Flammable Refrigerant of Household Air-conditioners in May 2023. As at July 2024, a total of 1 400 technicians have registered in this scheme.

In response to the advocacy of phasing down the use of high global warming potential (GWP) substances by the Kigali Amendment, the Environment and Ecology Bureau (EEB) is amending the Ozone Layer Protection Ordinance to regulate the import, use and emission of hydrofluorocarbons (HFCs). In this connection, we actively participate in public consultation and legislative amendments to promote the use of low-GWP refrigerants, while launching trial schemes for the use of reclaimed refrigerants. Given that some low-GWP refrigerants are flammable and of higher toxicity, and require high operating pressure, the revised regulations will stipulate that contractors must register with the EMSD and employ technicians who have received relevant training in order to handle the abovementioned refrigerants.

保障公眾安全
PROTECTING PUBLIC SAFETY

機電署透過不同渠道呼籲市民停止使用氣體煮食爐的「節能環」，以免發生一氧化碳中毒意外。

Through various channels, the EMSD urged the public to stop using "energy-saving rings" on gas cookers to avoid carbon monoxide poisoning accidents.

除了規管帶安全隱憂的新型雪種外，保障傳統氣體燃料的安全亦是我們的首要工作。由於瓶裝石油氣靈活易攜，在香港仍廣泛用作煮食及工業用途。然而，瓶裝石油氣的安全非常依賴分銷商的營運安排，以及註冊氣體供應公司的管理和監督。因應當前和未來趨勢，我們正全面審視和更新《瓶裝石油氣分銷商工作守則》，以向分銷商及氣體供應公司提供技術和管理指引；並且進行業界諮詢，以便稍後展開「瓶裝石油氣分銷商安全表現評級計劃」的修訂工作。

In addition to regulating new refrigerants that pose safety concerns, ensuring the safety of traditional gas fuels is also our priority. Thanks to their flexibility and portability, LPG cylinders are still widely used for cooking and industrial purposes in Hong Kong. However, the safety of LPG cylinders heavily relies on the operational arrangements of distributors, as well as the management and supervision of RGSCs. In light of the current and future trends, we are comprehensively reviewing and updating the Code of Practice for LPG Cylinder Distributors, with the aim of providing technical and administrative guidance for distributors and RGSCs. Trade consultation was also in progress, for the revision of the LPG Cylinder Distributor Safety Performance Recognition Scheme thereafter.

為了避免發生一氧化碳中毒事故，我們加強對家用氣體爐具的規管及宣傳教育工作。從最近幾宗一氧化碳中毒事故中，我們發現肇因與使用未經批准的氣體爐具及非原廠爐具生產商供應的配件有關，例如未附有GU標誌的氣體熱水爐，以及非爐具生產商供應的「節能環」等。因此，我們從問題的根源着手，與香港海關合力巡查商店，打擊違法出售「節能環」的行為；並聯合發布新聞稿，呼籲公眾停止在氣體煮食爐上加裝和使用「節能環」。同時，我們加大對本地網上購物平台的規管力度，禁止未經批准的氣體爐具在網上銷售。

To prevent incidents of carbon monoxide poisoning, we have enhanced the regulatory, publicity and education work on domestic gas appliances. From recent incidents of carbon monoxide poisoning, we found that the cause was related to the use of non-approved gas appliances and accessories not supplied by original cooker manufacturers, such as gas water heaters without the GU mark and "energy-saving rings" not supplied by original cooker manufacturers. Therefore, we tackle the root causes of the incidents by collaborating with the Hong Kong Customs and Excise Department to conduct inspections to retail shops, in order to curb illegal sales of "energy-saving rings". We also jointly issued a press release, urging the public to refrain from installing and using "energy-saving rings" on gas cookers. At the same time, we have stepped up regulation of local online shopping platforms to prohibit the sale of non-approved gas appliances on the Internet.

善用創科提升氣體安全

鑑於新建的海上液化天然氣接收站已正式投入運作，我們正研發人工智能遙距監察系統，以全天候實時監察接收站的氣體安全，進一步提升規管效率。

為了精簡氣體標準事務處的運作，並加快土地規劃階段的安全評估和審批流程，機電署為地理信息系統增添一項方便用戶的功能：用戶只需使用空間分析功能選擇某個地區，系統便會透過圖像界面，立即展示該區的應具報氣體裝置和定量風險評估報告。新功能預計於2024年至2025年推出，有助大幅縮短處理土地規劃申請的時間。

香港的煤氣管道網絡長度達3 700公里，由香港中華煤氣有限公司(煤氣公司)定期為地下煤氣輸送管道進行泄漏巡查，以監察其狀況並安排維修。然而，傳統的人工檢測方法耗時耗力，而且經常受到現場環境和儀器精準度等不同因素影響，可能導致結果有誤。為解決這些限制，我們正研究運用光纖傳感與人工智能技術探測地下氣體喉管泄漏的可行性。項目於2023年3月獲創新科技及工業局的科技統籌(整體撥款)計劃資助後展開，並於2024年第一和第二季度分別進行實驗室測試和實地測試，預計將於2024年年底完成。

Leveraging I&T to Enhance Gas Safety

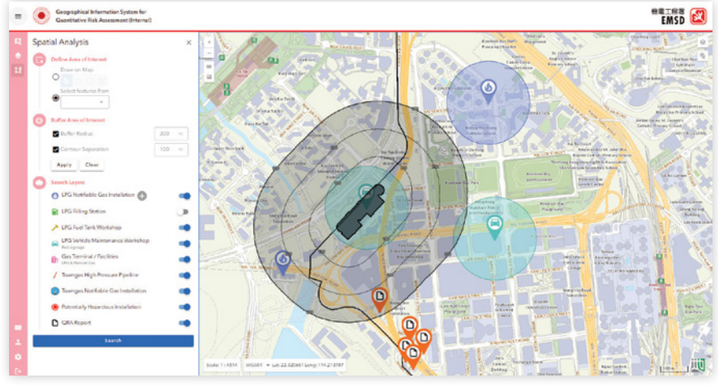
Having regard to the official commencement of operation of the newly built offshore liquefied natural gas (LNG) terminal, we are developing an artificial intelligence (AI) remote monitoring system to exercise real-time and round-the-clock monitoring of the gas safety of the terminal, thereby further enhancing regulatory efficiency.

To streamline the operation of the Gas Standards Office and expedite the procedures for safety assessment and approval at the land planning stage, the EMSD has initiated a user-friendly feature for the Geographic Information System. When a user selects an area with the spatial analysis tools, the system will immediately display the NGIs and quantitative risk assessment reports of the area through a graphical interface. The new function is expected to be launched between 2024 and 2025, and it can help significantly reduce processing time for land planning applications.

The gas pipe network in Hong Kong spans about 3 700 km in length. The Hong Kong and China Gas Company Limited (HKCG) regularly conducts leakage surveys of underground towngas transmission pipelines to monitor their condition and arrange maintenance accordingly. However, the traditional manual inspection methods are time-consuming and labour-intensive, and often affected by different factors, such as in-situ circumstances and instrument accuracy, which may lead to discrepancies. To address these limitations, we are exploring the feasibility of using optical fibre sensing and AI technologies to detect underground gas pipe leakage. After receiving the TechConnect (Block Vote) funding approval from the Innovation, Technology and Industry Bureau in March 2023, the feasibility study has commenced, with laboratory tests and field tests conducted in the first and second quarters of 2024 respectively. It is expected that the study will be completed by the end of 2024.

機電署為地理信息系統增添一項方便用戶的功能。新功能預計於2024年至2025年推出，有助大幅縮短處理土地規劃申請的時間。

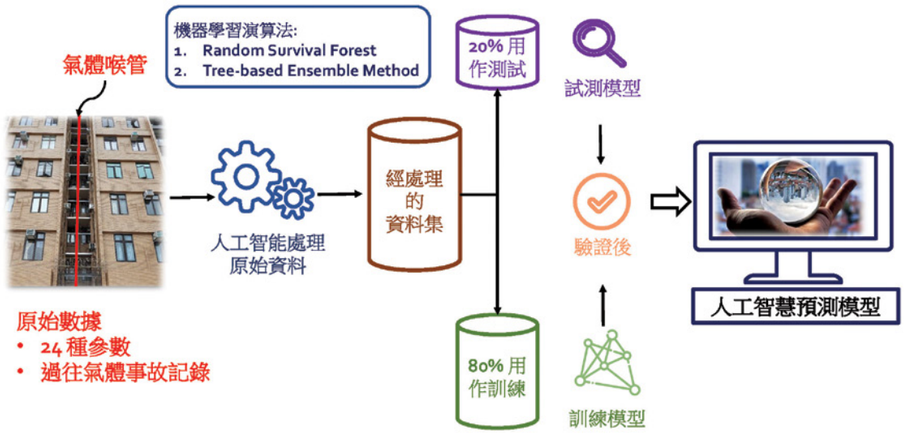
The EMSD has initiated a user-friendly feature for the Geographic Information System. The new function is expected to be launched between 2024 and 2025, and it can help significantly reduce processing time for land planning applications.



保障公眾安全
PROTECTING PUBLIC SAFETY

此外，我們與註冊氣體供應公司於2022年年底合力開發「氣體管道健康智能預測模型」，並於2024年1月與煤氣公司簽署授權協議，允許其繼續使用該模型預測氣體立管的健康狀況。這有助制定住宅大廈氣體喉管的檢查和維修計劃，從而確保香港氣體供應的安全。該模型採用人工智能和大數據分析技術，分析24種參數和過往氣體事故記錄，以評估全港約20 000幢住宅大廈的氣體喉管健康狀況，讓我們清楚掌握需要優先維修的老化喉管。

In addition, we successfully developed the Gas Pipe Health AI Prediction Model at the end of 2022 in collaboration with RGSCs. A licensing agreement was also signed with the HKCG in January 2024, allowing it to continue using the model to predict the health condition of gas risers. This facilitates the formulation of inspection and maintenance plans for gas pipes in residential buildings, thereby ensuring the safety of gas supply in Hong Kong. With the application of AI and big data analytics technologies, the model analyses 24 parameters and the records of previous gas incidents to assess the health condition of gas pipes in approximately 20 000 residential buildings across the territory, providing a clear overview of the aging gas pipes that need to be prioritised for repairs .



「氣體管道健康智能預測模型」採用人工智能和大數據分析技術，分析24種參數和過往氣體事故記錄，以評估全港約20 000幢住宅大廈的氣體喉管健康狀況，讓我們清楚掌握需要優先維修的老化喉管。

With the application of AI and big data analytics technologies, the Gas Pipe Health AI Prediction Model can analyse 24 parameters and the records of previous gas incidents to assess the health condition of gas pipes in approximately 20 000 residential buildings across the territory, providing a clear overview of the aging gas pipes that need to be prioritised for repairs.

強化跨境合作

機電署仔細審閱氫燃料技術試驗項目(包括氫燃料電池雙層巴士、加氫設施和氫燃料電池洗街車)的技術資料，並派員前往內地參與項目的出廠前測試，以全方位評估項目的安全水平；與此同時，亦為氫能源跨部門工作小組提供建議。

Strengthening Cross-Border Collaboration

The EMSD scrutinises the technical information of trial projects on hydrogen fuel technology, including hydrogen fuel cell double-deck buses, hydrogen refuelling facilities and hydrogen fuel cell street washing vehicles, and dispatches staff to participate in the factory acceptance tests for the projects in the Mainland to comprehensively evaluate their safety level. At the same time, we also make recommendations to the Inter-departmental Working Group on Using Hydrogen as Fuel.

此外，機電署在2023年11月23日與中華人民共和國海關總署舉行年度會議時，建議設立「綠色通道機制」，簡化把氫氣樣品運送至內地進行品質檢測的流程，以確保香港有穩定的氫氣供應。當局亦正積極研究簡化跨境運送氫氣的清關程序，以便從內地供應各類氫燃料到香港；通過建立高效的氫氣供應鏈和運輸機制，為氫能發展奠定基礎。

Besides, during the annual meeting with the General Administration of Customs of the People's Republic of China (GACC) on 23 November 2023, the EMSD proposed setting up a Green Corridor Mechanism to streamline the process of transporting hydrogen samples to the Mainland for quality testing, in order to smooth the way for a stable hydrogen supply to Hong Kong. The authorities are also actively exploring ways to simplify the clearance procedures for the cross-border transportation of hydrogen to facilitate the supply of various hydrogen fuels from the Mainland to Hong Kong, laying the groundwork for hydrogen development by establishing an efficient supply chain and transportation mechanism of hydrogen.

另一方面，機電署與國家市場監督管理總局簽訂合作備忘錄，並成立五個工作小組，包括氣體相關設備工作小組、機械裝置工作小組、電氣器具工作小組、標準計量與合格評定工作小組和能效工作小組，旨在推動有關氫能發展、燃氣安全、機械裝置安全、電器產品安全、能源效益標籤、碳足跡和碳標籤、計量和標準對接等方面的合作與交流，並提高內地與香港在相關設備的質量管制和安全監管的標準。

On the other hand, the EMSD signed a Memorandum of Cooperation (MoC) with the State Administration for Market Regulation and established five working groups, including the Gas Related Equipment Working Group, Mechanical Devices Working Group, Electrical Appliances Working Group, Standard Measurement and Certification Working Group, and Energy Efficiency Working Group, with the aim of promoting co-operation and exchanges on hydrogen development, gas safety, mechanical installations safety, electrical appliance safety, energy efficiency labelling, carbon footprint and labelling, as well as alignment of measurement and standards, and enhancing the standards of quality control and safety regulation of related equipment in the Mainland and Hong Kong.

自2019年起，機電署與海關總署建立通報機制，互相通報在跨境電商平台上銷售的不合規格氣體用具，例如氣體煮食爐、氣體熱水爐、卡式石油氣爐和石油氣瓶。鑑於近期發生的一氧化碳中毒事件與「節能環」有關，海關總署同意把「節能環」納入重點監管範圍，阻截「節能環」經跨境電商平台流入香港市場，進一步加強氣體用具的安全。

Since 2019, the EMSD has established a notification mechanism with the GACC, to mutually report non-compliant gas appliances sold on cross-border e-commerce platforms, such as gas cookers, gas water heaters, cassette cookers and LPG cylinders. In light of the recent carbon monoxide poisoning incidents in connection with "energy-saving rings", the GACC has agreed to subsume "energy-saving rings" under focused regulation, intercepting their entry into the Hong Kong market through cross-border e-commerce platforms to further enhance the safety of gas appliances.

機電署向海關總署建議設立「綠色通道機制」，以簡化氫氣樣品運送至內地進行品質檢測的流程，從而確保香港能夠維持穩定的氫氣供應。

The EMSD proposed to the GACC the establishment of a "Green Corridor Mechanism" to simplify the process of transporting hydrogen samples to the Mainland for quality testing, so as to ensure that Hong Kong can maintain a stable supply of hydrogen.

保障公眾安全
PROTECTING PUBLIC SAFETY

未來展望 The Year Ahead

重點一：推動氫能產業發展 Focus 1: Promoting the development of the hydrogen industry

未來，我們會繼續全力支持氫能發展。除了制定和發布更多安全和技術指引外，我們還會與學術團體和專業機構合作，研究為氫能產業從業者提供相關的安全和技術培訓課程，以確保氫燃料系統的運作安全可靠。

In the future, we will continue to fully support the development of hydrogen. In addition to formulating and publishing more safety and technical guidelines, we will collaborate with academic institutions and professional organisations to explore the provision of related safety and technical training programmes for practitioners in the hydrogen industry, ensuring the safe and reliable operation of hydrogen fuel systems.

為進一步規管氫燃料的使用，機電署現正進行《氣體安全條例》的修訂工作，並計劃於2025年向立法會提交修例建議。

To further regulate the use of hydrogen as fuel, the EMSD is working on the amendments to the Gas Safety Ordinance and plans to submit the proposed amendments to the Legislative Council in 2025.

重點二：加強規管具危害性的低全球升溫潛能值雪種 Focus 2: Strengthening the regulation of low-GWP refrigerants with potential safety hazards

我們會全力支持環境及生態局修訂《保護臭氧層條例》，以規管氫氟碳化物的進口、使用和排放，經修訂的條例預計於2025年頒布。

We will fully support the EEB in revising the Ozone Layer Protection Ordinance to regulate the import, use and emission of hydrofluorocarbons. The revised regulations are expected to be promulgated in 2025.

為確保工程人員能夠安全處理具危害性的低全球升溫潛能值雪種，機電署會協調業界開辦一系列訓練課程，以提升承辦商和工程人員的安全意識和技術水平。

To ensure that technicians can safely handle low-GWP refrigerants with potential safety hazards, the EMSD will co-ordinate with the industry for launching a series of training courses aimed at enhancing the safety awareness and technical level of contractors and technicians.

重點三：研發創科方案監察海上液化天然氣接收站 Focus 3: Developing I&T solutions for monitoring the offshore LNG terminal

為了有效監察海上液化天然氣接收站的氣體安全狀況，我們正研發人工智能遙距監察系統。系統預計於2025年投入服務，屆時我們可以全天候實時遙距監測接收站的氣體安全狀況，而無需在惡劣天氣或波濤洶湧的情況下，派員前往接收站進行實地巡查。系統也運用人工智能分析技術，在偵測到潛在風險時發出警報，讓相關人員可以盡早處理安全隱患。

To effectively monitor the gas safety condition of the offshore LNG terminal, we are developing an AI remote monitoring system, which is expected to come into operation in 2025. This system will allow us to remotely monitor the gas safety condition of the terminal in real-time and round-the-clock, without the need to dispatch staff to the terminal for conducting on-site inspections under inclement weather or rough sea conditions. Applying AI analysis technology, it will issue alerts upon detecting potential risks, enabling relevant officers to address potential safety hazards as early as possible.

重點四：加強巡查食肆和教育公眾安全使用卡式石油氣爐 Focus 4: Strengthening the inspections of restaurants and public education of using cassette cookers safely

在日常的氣體安全巡查中，我們偶爾發現部分食肆使用沒有「GU」標誌的卡式石油氣爐，對員工和顧客構成威脅。為此，我們計劃於2024年至2025年展開針對火鍋店的大規模巡查行動，務求杜絕食肆使用沒有「GU」標誌的卡式石油氣爐；同時，我們會加強監管本地零售商戶和網上電商平台，就違法爐具的進口和銷售進行執法行動。

During routine gas safety inspections, we have occasionally found that some restaurants were using cassette cookers without the GU marks, posing threats to their staff and patrons. To address this problem, we plan to conduct a large-scale inspection exercise targeting hot pot restaurants from 2024 to 2025, aiming at eliminating the use of cassette cookers without the GU marks. Simultaneously, we will step up the supervision of local retail outlets and online e-commerce platforms by carrying out law enforcement actions against the import and sale of illegal cassette cookers.

此外，我們會透過各種渠道，向業界和公眾推廣使用卡式石油氣爐的安全小貼士，例如使用大小適中的煮食器皿和避免平排使用兩個卡式石油氣爐，以免因使用不當而發生氣體事故。我們也會呼籲市民和食肆應只購買附有「GU」標誌的卡式石油氣爐。

Furthermore, we will promote the safety tips on using cassette cookers, such as using appropriately sized cooking utensils and avoiding using two cassette cookers side by side, through various channels to the trade and the public to prevent gas incidents due to improper use. We will also call upon the public and restaurants to only purchase cassette cookers that bear the GU marks.

重點五：提升地下石油氣管道的安全 Focus 5: Enhancing the safety of underground LPG pipework

檢查地下石油氣管道的狀況並不容易，必須先進行挖掘工程，才可以檢查一小段管道。由於石油氣比空氣重，如發生泄漏，會在地下積聚，因此難以察覺。根據《香港石油氣業工作守則》（《工作守則》），地下石油氣管道擁有人有責任為其管道安排維修和定期檢查。然而，現時檢查管道的方法為壓力測試，需要暫時中斷氣體供應，或會對用戶造成不便。

Inspecting the condition of underground LPG pipelines is not easy. Excavation is required before just a small segment of pipes can be examined. Given that LPG is heavier than air, LPG will accumulate underground if leakage occurs and thus it will be difficult to be detected. The Code of Practice for Hong Kong LPG Industry (CoP) mandates that underground LPG pipeline owners are responsible for arranging for maintenance and regular inspections of their pipelines. However, pipelines are currently checked by pressure tests, which require temporary suspension of gas supply and may cause inconvenience to users.

為進一步提升地下石油氣管道的安全水平，我們正積極與註冊氣體供應公司探討優化相關安全檢測的可行性，包括研究創新便捷的方法以評估地下管道的狀況，以及為全港地下石油氣管道進行全面的風險評估和制訂更換計劃。

To further improve the safety level of underground LPG pipelines, we are actively exploring the feasibility of optimising the related safety inspections with RGSCs. This includes researching innovative and convenient methods to assess the condition of underground pipelines, as well as conducting a comprehensive risk assessment and developing replacement plans for all underground LPG pipelines in Hong Kong.

此外，繼2023年和2024年分別修訂《工作守則》第一單元和第二單元後，我們計劃於2025年更新《工作守則》的第七單元《石油氣庫及石油氣瓶儲存間緊急事故處理程序》，以持續完善安全措施，並加強業界及相關持份者應對緊急情況的能力和準備功夫。

In addition, following the completion of the revisions to Module 1 and Module 2 of the CoP in 2023 and 2024 respectively, we plan to update Module 7 – Operating Procedures for Emergencies for LPG Compounds and Cylinder Stores of the CoP in 2025. This is aimed at continuously consummating safety measures, as well as strengthening the response capabilities and preparedness for emergencies of the trade and related stakeholders.

保障公眾安全
PROTECTING PUBLIC SAFETY

全速制定規管架構　協力推動氫能安全
ACCELERATING THE ESTABLISHMENT OF REGULATORY FRAMEWORK TO JOINTLY PROMOTE HYDROGEN SAFETY

時至今日，發展氫能已成為各國實現碳中和目標的新技術選項。氫能極具潛力，可用於發電、交通運輸、工業等多個範疇，以取代石油、煤炭和天然氣等傳統化石燃料。

Today, the development of hydrogen energy has emerged as a new technological option for countries to achieve carbon neutrality. As a replacement for traditional fossil fuels such as oil, coal and natural gas, hydrogen has great potential for use in various fields, including power generation, transportation and industry.

在本年度，機電署透過完善規管架構、制定標準和提供技術支援等，積極推動本港的氫能發展。為促進本港氫燃料的規管及安全應用，本署在年內進行多項有關的工作，包括完成制定《氫燃料車輛及維修工場實務守則》、《加氫站實務守則》，以及《香港氫氣裝置定量風險評估研究指南》，為業界和持份者提供技術指引。此外，我們的團隊積極進行修訂《氣體安全條例》（《條例》）的準備工作以把氫燃料納入規管範圍，又參與多個試驗項目，負責審視氣體安全相關事宜及提供技術支援。

During the year, the EMSD has been actively promoting the development of hydrogen energy in Hong Kong through improving the regulatory framework, establishing standards, and providing technical support. To promote the regulation and safe application of hydrogen fuel in Hong Kong, the EMSD carried out a number of related tasks this year, including completion of the formulation of the Code of Practice for Hydrogen Fuelled Vehicles and Maintenance Workshops, the Code of Practice for Hydrogen Filling Stations and the Guidance Note on Quantitative Risk Assessment Study For Hydrogen Installations in Hong Kong, providing technical guidance to the industry and stakeholders. Moreover, our team proactively engaged in the preparatory work for the amendment of the Gas Safety Ordinance (the Ordinance) to cover hydrogen fuel, and participated in multiple trial projects by reviewing matters related to gas safety and providing technical support.

李女士表示，相對於化石能源，氫能應用仍處於起步階段，目前國際上有關使用氫氣作為燃料的法規尚未成熟，亦沒有完整法規可供參考。她說：「幸好香港已有行之有效的《氣體安全條例》規管氣體安全，而且香港的氣體安全記錄良好。因此，我們認為修訂《條例》以全面有效地規管在香港安全使用氫氣作為燃料，是最合適不過的。」

Ms Li remarked that compared to fossil fuels, the applications of hydrogen energy are still in their infancy. Currently, international regulations on the use of hydrogen as fuel are not yet mature, and there is no comprehensive set of regulations for reference. “Fortunately, Hong Kong has an effective Gas Safety Ordinance in place to regulate gas safety, and a proven track record of gas safety. We therefore consider it most appropriate to amend the Ordinance to comprehensively and effectively regulate the safe use of hydrogen as fuel in Hong Kong,” she said.

她補充指，與其他在氫燃料範疇較為先進的國家相比，香港透過採用架構完善的《條例》規管氫燃料安全，可建立更全面有效的法例規管架構，以管理氫燃料的安全使用。此外，李女士與團隊年內已完成業界諮詢，並與不同持份者會面，了解修例對營商環境的影響。

She added that by adopting the well-structured Ordinance, Hong Kong could establish a more comprehensive and effective regulatory framework to govern the safe use of hydrogen fuel in comparison with other countries that were more advanced in the field of hydrogen fuel. Besides Ms Li and her team completed the consultation with the trade this year. They also met with different stakeholders to understand the impact of the legislative amendments on the business environment.

氣體標準事務處另外兩名工程師王俊彥先生和林向涌先生致力參與氫能項目，他們分別負責氫能車輛和加氫站的調試。年內，王先生負責監督香港首輛氫燃料電池雙層巴士和首列氫能源有軌電車（輕鐵）等的試驗項目，而林先生負責監督巴士廠房內的撬裝式加氫站，以及屯門輕鐵車廠的加氫站的建造和調試。目前，香港首個氫能項目－氫燃料電池雙層巴士已投入服務，而氫能源輕鐵已在年內展開測試計劃。

Mr Anson Wong and Mr Marco Lam, two other engineers of the GasSO, were actively involved in hydrogen projects. They were responsible for the commissioning of hydrogen vehicles and hydrogen filling stations respectively. During the year, Mr Wong oversaw the trial projects, including the first hydrogen fuel cell double-deck bus and the first hydrogen fuelled light rail vehicle (LRV) in Hong Kong, and Mr Lam supervised the construction and commissioning of a skid-mounted hydrogen filling station at a bus depot, as well as a hydrogen filling station at the Tuen Mun Light Rail Depot. Currently, the hydrogen fuel cell double-deck bus, which is the first hydrogen initiative in Hong Kong, has been put into service, while the testing programme of the hydrogen fuelled LRV has begun during the year.

談及推行氫能項目的困難，林先生指出香港沒有相關規例可依，故此有需要借鑒內地與海外的相關經驗和標準，同時要考慮香港的獨有情況，從而制定一套香港的專屬標準。他表示：「香港的人口和建築物較其他地區密集，因此在制定加氫站的安全標準時，我們會對現有的海外標準作出調整，以配合香港的實際情況。」至於氫燃料電池雙層巴士的調試，王先生認為此項工作極具意義。他說：「儘管挑戰滿途，不但要追趕項目進度，更要與多方協調，但能夠見證香港首個氫能項目從無到有，至順利推出，實在意義非凡。」

Speaking of the difficulties in implementing hydrogen projects, Mr Lam pointed out that in the absence of relevant regulations to follow in Hong Kong, it is necessary to draw on the experience and standards in the Mainland and overseas, taking into account the unique circumstances of Hong Kong, so as to develop a set of standards tailored for the territory. He said, “Hong Kong is more densely populated and built-up than other regions, so we will make adjustments to the existing overseas standards to suit the actual situation in Hong Kong when establishing safety standards for hydrogen filling stations.” Regarding the commissioning of the hydrogen fuel cell double-deck bus, Mr Wong saw great significance in the work. “Despite the challenges of catching up on the progress of the project and co-ordinating with multiple parties, it is truly meaningful to witness the launch of the first hydrogen project in Hong Kong from the ground up,” he said.

加強公眾教育和宣傳　減低氣體事故的風險
STEPPING UP PUBLIC EDUCATION AND PUBLICITY TO REDUCE THE RISK OF GAS INCIDENTS

家居氣體事故的成因與市民的氣體安全意識有密切相關。用戶缺乏安全意識，或受到坊間流傳的失實資訊誤導，都容易導致氣體事故發生。因此，機電署多年來致力透過各式各樣的宣傳方法，向市民傳遞正確的氣體安全資訊。

The causes of household gas incidents are closely related to the public awareness of gas safety. Users’ lack of safety awareness or their being misled by untrue information circulating in the community can easily lead to gas incidents. Therefore, the EMSD has been dedicated to disseminating accurate gas safety information to the public through a wide range of publicity approaches over the years.

除了執行日常規管工作外，氣體標準事務處工程師夏楚盈女士在年內積極推展公眾教育，善用不同渠道加深市民對氣體安全的認識，又主動接觸少數族裔、獨居長者等羣體，向他們灌輸正確使用氣體用具的知識。夏女士亦不忘開拓新的宣傳渠道，讓更多市民了解氣體安全的重要。

In addition to performing day-to-day regulatory duties, Ms Winko Har, an engineer of the Gas Standards Office, had been actively taking forward public education throughout the year. She made good use of different channels to enhance citizens’ understanding of gas safety, and took the initiative to reach out to groups such as ethnic minorities and elderly singletons to instil in them the knowledge of proper use of gas appliances. Ms Har had also been exploring new publicity channels to enable more citizens to learn about the importance of gas safety.

在2023/24年度，夏女士為少數族裔人士和外籍家庭傭工舉辦共三場氣體安全講座，講解使用氣體煮食爐等家用氣體爐具的安全要點。其中一場講座令夏女士印象特別深刻，對用戶安全意識的問題加深了解。她說：「我發現有些外傭缺乏在使用氣體煮食爐方面的安全意識，這很可能源自於她們的僱主，例如僱主忽視了保持空氣流通的重要，在夏天使用空調時把全屋窗戶關上，在煮食時也沒有開啟廚房的抽氣扇或抽油煙機，把廢氣排出屋外，造成室內一氧化碳水平上升。外傭可能跟隨僱主的錯誤做法，便會導致一氧化碳中毒的風險增加。」

In 2023/24, Ms Har organised a total of three gas safety talks for ethnic minorities and foreign domestic helpers, explaining the key points to note about the safe use of domestic gas appliances, such as gas cookers. One of the talks impressed on Ms Har the problem of users’ safety awareness in particular. She said, “I have observed that some foreign domestic helpers lack safety awareness in using gas cookers, and this is likely to be attributed to their employers. For example, their employers neglect the importance of maintaining good ventilation. They keep all windows closed while using air conditioners in summer; and even when cooking, they do not turn on the exhaust fan or range hood in the kitchen to draw the exhaust flue gas to the outside, thus resulting in a rise in the level of carbon monoxide in the indoor environment. The domestic helpers may follow the wrong practices of their employers, hence increasing the risk of carbon monoxide poisoning.”

此外，她留意到有不少僱主吩咐家傭於煮食前在爐面上放置非原廠配件，例如「節能環」、錫紙覆蓋物等，以節約能源和保持爐具清潔。然而，加裝這類配件不非但無助節能，更可能引發意外。夏女士透過連場講座釐清有關謬誤。她希望參與講座的少數族裔人士和外傭日後也會向親朋好友以及僱主傳遞正確的信息，從而減低意外發生的機會。

In addition, she noticed that many employers instructed their domestic helpers to place non-original accessories, such as “energy-saving rings” and tinfoil covering, on the gas cookers before cooking in order to save energy and keep them clean. However, the use of such accessories not only fails to save energy, but also increases the possibility of accidents. Through a series of talks, Ms Har clarified these misconceptions. She hoped that the ethnic minorities and foreign domestic helpers who had joined the talks would also pass on the correct information to their friends and families as well as their employers in the future, so that the chances of accidents will be reduced,” she said.

在地區工作方面，夏女士積極參與地區防火委員會定期舉辦的氣體及電力安全講座，並在講座中向地區人士講解相關安全守則。年內，夏女士亦組織氣體安全義工隊，義工隊與地區服務及關愛隊伍合辦外展活動，探訪荃灣福來邨的獨居長者，派發氣體安全單張和紀念品，並向他們講解家居氣體安全資訊。

In terms of district work, Ms Har actively participated in regular gas and electricity safety talks organised by the District Fire Safety Committee, and explained the relevant safety guidelines to the local community at the talks. During the year, she also formed a gas safety volunteer team, which collaborated with a District Services and Community Care Team to conduct an outreach activity to visit elderly singletons in Fuk Loi Estate, Tsuen Wan, distributing gas safety pamphlets and souvenirs while explaining to them household gas safety information.

除了舉辦講座和外展探訪活動外，夏女士亦在本年度採用新的宣傳渠道，務求把氣體安全資訊更有效地傳遞予市民大眾。夏女士與電視台資訊節目部緊密洽商，製作了一輯有關「GU」標誌及氣體安全的宣傳片，並安排在黃金時段的資訊節目中播出。另外，考慮到網上購物日益普及，她透過節目提醒市民在境外或跨境網購平台購買沒有「GU」標誌的氣體爐具，既有安全風險，更有機會觸犯法例。

Apart from organising talks and outreach visits, Ms Har also adopted new publicity channels during the year, with a view to conveying the gas safety message to the public more effectively. She worked closely with the information programme department of the television station for the production of a promotional segment on the GU mark and gas safety, which was then arranged to be aired in an information programme shown during prime time. Furthermore, in view of the increasing popularity of online shopping, she reminded the public through the programme that when purchasing gas appliances without the GU mark from overseas or cross-border e-commerce platforms, they may be exposed to safety risks and may violate the law.

夏女士表示：「未來，我們希望加強公眾教育工作，提高市民大眾對氣體安全的意識，目標是把家居氣體事故的風險降至零。」

Ms Har concluded, “We hope to step up our public education efforts in the future to raise the public awareness of gas safety, with the goal of reducing the risk of household gas incidents to zero.”

保障公眾安全
PROTECTING PUBLIC SAFETY

機械安全

與業界共同應對極端天氣

過去一年，極端天氣頻繁出現，為機械安全帶來一定風險。機電工程署（機電署）積極透過《電梯通訊》、即時通訊應用程式和工作小組等多個通訊渠道聯繫業界，敦促各持份者採取預防措施。在我們與前線工作人員的共同努力下，縱然2023年屢遇嚴重颱風和暴雨，但沒有發生涉及升降機和自動梯的重大事故。儘管2024年年初曾因電壓驟降，導致若干升降機停止運作，惟該些個案都獲從速處理。我們會繼續與物業管理公司加強溝通，促進更優質的服務。

此外，機電署與昂坪360和海洋公園保持緊密聯繫，研究和評估惡劣天氣對架空纜車的影響，並制定多項措施來提高系統的抵禦能力。我們鼓勵營運商在颱風和雨季來臨前定期進行應急演習；並在天氣劇變前向營運商發出預警，俾能及時有效地應對，把事故風險減至最低。

全面為機動設施安全把關

隨着社會邁向全面復常，各類娛樂活動亦逐漸恢復。其中，2023冬季在中環海濱舉辦的大型嘉年華設有25個機動遊戲機。為確保活動順利舉行，讓市民享受愉快的嘉年華，機電署早於2023年7月便與主辦單位緊密協調相關申請流程。在活動開始前，機電署更對場內機動遊戲機徹底進行安全測試和檢查，確保其安全運作，讓市民能放心遊玩，有個精彩難忘的體驗。

MECHANICAL SAFETY

Collaborating with the Trade to Deal with Extreme Weather

Over the past year, the frequent occurrence of extreme weather has posed certain risks to mechanical safety. The EMSD has proactively engaged with the trade through various communication channels, such as the Lift and Escalator Newsletter, instant messaging applications and working groups, urging stakeholders to adopt preventive measures. Thanks to our collaborative effort with frontline workers, there were no major incidents involving lifts and escalators, despite severe typhoons and rainstorms in 2023. Although there were some disruptions to lifts in early 2024 due to voltage dips, these cases were handled swiftly. We will continue to strengthen communication with property management companies to promote better services for the community.

Moreover, the EMSD has maintained close collaboration with Ngong Ping 360 and the Ocean Park to study and assess the impact of adverse weather on aerial ropeways, as well as developing various measures to enhance system resilience. We encourage operators to conduct routine emergency drills before typhoon and rainy seasons, and issue alerts to operators ahead of severe weather changes, so that they can respond promptly and effectively, thus minimising the risk of incidents.

Comprehensive Gatekeeping for the Safety of Amusement Facilities

As society is returning to normality in full, various entertainment activities are gradually resuming. Among them, a large carnival was held at the Central Harbourfront in the winter of 2023, featuring 25 amusement rides. To ensure the smooth running of the event for public enjoyment, the EMSD co-ordinated closely with the organiser on the application processes as early as July 2023. Prior to the commencement of the event, the EMSD also conducted thorough safety tests on and inspections of the amusement rides in the venue to ensure their safe operation, so that the public could play with peace of mind and have a fantastic and unforgettable experience.

為確保市民能夠安全地享用遊樂設施，機電署在嘉年華開幕前半年已着手處理機動遊戲機申請的審批工作，體現了對機電安全的承諾。

To ensure that citizens could safely enjoy the amusement facilities, the EMSD began processing the applications for approval of amusement rides six months prior to the opening of the carnival, demonstrating our commitment to electrical and mechanical safety.

機電署持續監察機動遊戲設施的操作和維修保養，以保障公眾安全。

The EMSD continuously monitors the operation and maintenance of amusement rides to safeguard public safety.

此外，機電署自疫情起便與香港迪士尼樂園及其他政府部門密切合作，共同審視主題公園的擴建和發展項目。經過仔細審批和安全測試後，「魔雪奇緣世界」正式於2023年11月20日向公眾開放，園區內設有兩款機動遊戲機：「魔雪奇幻之旅」和「雪嶺滑雪橇」，深受市民及遊客歡迎。

另外，由於市民的出行次數回復至正常水平，升降機和自動梯的使用量因而急增，事故數量亦有所上升。2023年共錄得3 115宗升降機和自動梯事故，較2022年的2 106宗多出逾千宗；其中不當使用升降機和自動梯而導致的事故，由2022年的1 954大增至2023年的2 946宗。

我們除了加強日常的外展工作以教育業界和公眾外，亦檢視現存的案例資料，發現不少事故都在港鐵車站發生。因此，我們與香港鐵路有限公司（港鐵）緊密溝通，多管齊下預防意外，包括要求港鐵加強宣傳力度，以及檢討現有港鐵車站自動梯的配置。

我們的調查發現，大部分事故發生於非繁忙時段，並且涉及長者。有見及此，我們建議港鐵在非繁忙時段降低部分自動梯的速度，以減少釀成意外的機會。港鐵預計會於2024年調整合共400多部自動梯的速度。機電署會持續評估措施的成效，並在有需要時適時作出跟進。

In addition, the EMSD has collaborated closely with Hong Kong Disneyland and other government departments to jointly examine the expansion and development projects of the theme park since the epidemic. Following careful assessment and safety testing, the World of Frozen officially opened to the public on 20 November 2023, featuring two amusement rides, namely Frozen Ever After and Wandering Oaken's Sliding Sleighs. Both of them were very popular among the public and tourists.

Besides, as the amount of public's travel has returned to normal levels, the usage of lifts and escalators has surged, leading to an increase in the number of incidents. In 2023, 3 115 lift and escalator incidents were recorded, representing an upsurge of over 1 000 cases from 2 106 incidents in 2022. Among them, incidents arising from improper use of lifts and escalators substantially increased from 1 954 in 2022 to 2 946 in 2023.

Apart from enhancing our daily outreach work to educate both the trade and the public, we also reviewed the existing information on cases, which revealed that many incidents occurred at MTR stations. Therefore, we engaged in close communication with the MTR Corporation Limited (MTRCL) and adopted a multi-pronged approach to prevent accidents, including requesting the MTRCL to strengthen publicity efforts and review the configuration of existing escalators in MTR stations.

Our investigation found that most incidents occurred during off-peak hours and involved the elderly. In view of this, we recommended the MTRCL to reduce the speed of some escalators during these off-peak times to reduce the chance of incidents. The MTRCL is expected to adjust the speeds of totally over 400 escalators in 2024. The EMSD will continue to evaluate the effectiveness of these measures and take timely follow-up actions when necessary.

保障公眾安全
PROTECTING PUBLIC SAFETY

善用創新方案發展智慧城市

《升降機及自動梯條例》要求安裝升降機或自動梯的註冊承辦商，必須確保升降機或自動梯及其安全部件取得機電工程署署長授予的「種類許可」，否則不得展開有關升降機或自動梯的安裝工程。「種類許可」的申請素來以紙本形式提交和處理，但科技發展一日千里，雲端科技、人工智能、光學字符識別等技術已十分普遍。為充分利用數碼科技帶來的好處，我們銳意研發全新的數碼系統，以取代沿用至今的紙本申請方式。經過長時間的籌備，我們於2024年推出「智慧升降機及自動梯設計審批系統」（審批系統），大幅縮短申請處理時間。

新的審批系統讓承辦商可輕鬆填寫和上載申請升降機或自動梯「種類許可」所需的文件。同時，機電署可直接審閱和批核該「種類許可」申請，而承辦商亦可在有需要時直接向審批系統提交補充文件。審批系統應用人工智能和光學字符識別的技術，可辨識試驗證書上的文字和影像，並轉換為電腦文字格式，使用者可省卻手動填寫和檢查資料的時間。除此以外，承辦商可透過審批系統進行資產管理，快速查閱已批核的升降機或自動梯及其安全部件的資料，如證書號碼、發證日期等。

Leveraging Innovative Solutions for Smart City Development

The Lifts and Escalators Ordinance requires registered contractors installing lifts or escalators to obtain a "type approval" granted by the Director of Electrical and Mechanical Services for the lifts or escalators and their safety components; otherwise, the lift or escalator installation works concerned cannot be commenced. The applications for "type approvals" have all along been submitted and processed in paper form. However, technology is advancing rapidly, and technologies such as cloud computing, artificial intelligence and optical character recognition have become a commonplace. To fully utilise the benefits brought by digital technology, we are determined to develop a brand-new digital system to replace the paper-based application method that has been used to date. After a long preparation, we launched the Type Approval Process and Authentication System (TAPAS) in 2024, reducing application processing times significantly.

The new TAPAS allows contractors to easily fill out and upload the documents required for "type approval" application, of lifts or escalators. At the same time, the EMSD can directly review and endorse applications for "type approvals", while contractors can directly submit supplementary documents to the TAPAS when necessary. The TAPAS applies AI and optical character recognition technology to identify text and images on test certificates and convert them into computer text format, thereby saving users' time for manually filling out and verifying information. Besides, contractors can manage their assets through the TAPAS, as they can quickly access the information on approved lifts or escalators and their safety components, such as certificate numbers and issuance dates.

承辦商可透過審批系統填寫和上載申請升降機或自動梯「種類許可」所需的文件，大幅縮短申請處理時間。

Contractors can fill out and upload the documents required for lift or escalator "type approval" applications via the TAPAS, which significantly reduces the application processing time.

數碼工作日誌自2022年11月推出以來，已應用於全港逾40 000部升降機及自動梯，預料於2024年年底會增至48 000部。

Since its launch in November 2022, the Digital Log-books have been used for over 40 000 lifts and escalators in Hong Kong, with an expected increase to 48 000 by the end of 2024.

除了規管升降機及自動梯的安裝工程外，機電署於2022年11月已推出「升降機及自動梯數碼工作日誌」（數碼工作日誌），獲得升降機及自動梯業界和負責人，以及物業管理界的廣泛好評，採用率亦穩步上揚。數碼工作日誌實現升降機及自動梯維修保養記錄數碼化，以取代傳統的紙本工作日誌；同時讓升降機及自動梯的負責人、承辦商、從業員以及機電署，透過流動應用程式或網上平台實時監察、記錄、管理和分析升降機及自動梯的維修保養資料，便利各持份者共同監察相關工作，從而提升升降機及自動梯的管理和安全水平。目前，數碼工作日誌已應用於全港逾40 000部升降機及自動梯，預料於2024年年底會增至48 000部。

機電署亦於2023年下半年陸續為數碼工作日誌增添新功能，便利用戶管理升降機及自動梯。新增功能包括「進階篩選」，讓用戶自訂篩選條件，例如項目時間和地點、工作類別、承辦商等，從而快速檢視相關項目的細節。這項功能可便利用戶密切監察工作進度，做好設施管理。另外，數碼工作日誌的流動應用程式還引入「自訂關鍵字」功能，讓工程人員在填寫備註時自訂常用的關鍵字，更快捷地描述工作內容，提升工作效率。

In addition to regulating the installation works of lifts and escalators, the EMSD rolled out in November 2022 the Digital Log-books System for Lifts and Escalators (the Digital Log-books), which has won widespread acclaim from the lift and escalator trade and responsible persons (RPs) of lifts and escalators, as well as the property management sector. The adoption rate is also rising steadily. Replacing the traditional paper-bound log-books, the Digital Log-books realise the digitalisation of maintenance records of lifts and escalators, enabling RPs, contractors and practitioners of lifts and escalators, as well as the EMSD to perform real-time monitoring, recording, management, and analysis of maintenance data on lifts and escalators through a mobile app or online platform, which facilitates all stakeholders to jointly monitor related work to improve the management and safety level of lifts and escalators. Currently, the Digital Log-books have been used for over 40 000 lifts and escalators in Hong Kong, with an expected increase to 48 000 by the end of 2024.

In the second half of 2023, the EMSD also gradually added new functions to the Digital Log-books to help users manage lifts and escalators more conveniently. The new functions include "advanced filtering", which allows users to customise filters like project timeframes and locations, work types, and contractors, in order to quickly access the details of relevant projects. With such function, users can closely monitor the work progress easily for better facility management. A "custom keywords" function was also introduced to the mobile app of Digital Log-books. Technicians can use it to customise frequently used keywords when filling in remarks, so that they can quickly describe their tasks to enhance work efficiency.

保障公眾安全
PROTECTING PUBLIC SAFETY

為解決停車位短缺的問題，機電署今年與運輸署緊密合作，推廣在香港使用機械化泊車系統。2023年，我們審批全港首個採用「垂直升降及橫向滑動」設計的機械化泊車系統。該項目座落新蒲崗，工程已於年內展開，預計於2026年落成，提供超過300個車位。此外，機電署亦與機場管理局合作，在港珠澳大橋香港口岸人工島的停車場內建造大型的機械化泊車系統，預計提供超過2 500個停車位，以應付未來因「粵車南下」而衍生的大量泊車需求。

To address the shortage of parking spaces, the EMSD collaborated closely with the Transport Department this year to promote the use of mechanised vehicle parking systems (MVPSs) in Hong Kong. In 2023, we approved the first MVPS utilising a vertical lifting and horizontal sliding system in Hong Kong. The project, located in San Po Kong, already had its works started during the year and is expected to be completed in 2026, providing over 300 parking spaces. Additionally, the EMSD is also cooperating with the Airport Authority to build a large-scale MVPS in the carpark on the artificial island at the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port. The MVPS is expected to offer over 2 500 parking spaces to meet the huge parking demand incurred by Southbound Travel for Guangdong Vehicles in the future.

近年市場上出現了不少創新和先進的機械化泊車系統，有助紓緩停車位短缺的問題。機電署與運輸署通力合作，完成了多個機械化泊車系統的審批，以響應政府「智慧出行」的策略。

In recent years, many innovative and advanced MVPSs have emerged in the market, contributing to alleviating the shortage of parking spaces. The EMSD has worked closely with the Transport Department to complete the approval of a number of MVPSs in response to the Government's "smart mobility" strategy.

機電署積極響應政府「智慧出行」的策略，現正審批首個地下圓筒型機械化泊車系統項目：項目擬於2026年至2027年在深水埗落成，為市民提供更多優質的停車設施。

The EMSD is actively responding to the Government's "smart mobility" strategy, and currently approving a project on the first underground circular shaft MVPS. Located in Sham Shui Po, the project is expected to be completed between 2026 and 2027, providing the public with more quality parking facilities.

繼續推展「優化升降機資助計劃」

自2018年起，政府先後撥款45億港元，推行「優化升降機資助計劃」（資助計劃），為私人住宅和綜合用途樓宇的業主提供經濟誘因及專業支援，協助合資格業主進行優化升降機工程，以提升舊式升降機的安全水平。

過去數年，機電署和市區重建局（市建局）一直攜手推行資助計劃，然而疫情使資助計劃進度受阻。隨着社會疫後復常，業主立案法團恢復正常運作，資助計劃的整體進度亦大有改善。截至2024年3月，約5 100部升降機已進入工程籌劃、施工或竣工階段；當中約2 900部升降機正接受評估或招標文件正擬備中；約1 400部合約已批出或正在施工；約800部則已完工。我們會繼續推行資助計劃，讓合資格的業主能盡早受惠。

此外，機電署協助市建局開發香港首個「升降機工程投標價格指數」。我們結合傳統方法和智能工具，通過分析資助計劃過往的回標價格數據而制定該指數，為監察優化升降機工程價格趨勢提供重要參考。這項新猷深受專業界別認同，更榮獲皇家特許測量師學會頒發「香港年度大獎2023」的「年度研究團隊」獎項。

Continuous Implementation of the Lift Modernisation Subsidy Scheme

Since 2018, the Government has successively allocated HKD 4.5 billion to implement the Lift Modernisation Subsidy Scheme (LMSS), which provides financial incentives and professional support for owners of private residential and composite buildings to assist eligible owners in carrying out lift optimisation works, in order to improve the safety level of aged lifts.

In the past few years, the EMSD and the Urban Renewal Authority (URA) have been collaborating to advance the LMSS, yet the epidemic has hindered the progress of the LMSS. As society is returning to normality after the epidemic, owners' corporations have resumed normal operation, leading to significant improvements in the overall progress of the LMSS. As at March 2024, approximately 5 100 lifts have entered the work planning, construction or completion phase. Among them, around 2 900 lifts are currently undergoing evaluation or tender document preparation; approximately 1 400 have contracts awarded or are in the construction phase; and about 800 have their works completed. We will continue to implement the LMSS and enable eligible owners to benefit at the earliest opportunity.

Furthermore, the EMSD has assisted the URA in developing Hong Kong's first Lift Works Tender Price Index. We have combined traditional methods with smart tools, and analysed historical tender price data on the LMSS to develop the index, which serves as a vital reference for monitoring the price trends in lift optimisation works. This innovation has won great acclaim from the professional community and received the RICS Hong Kong Awards 2023 – Research Team of the Year from the Royal Institution of Chartered Surveyors.

機電署協助市建局開發香港首個「升降機工程投標價格指數」，為監察優化升降機工程價格趨勢提供參考。這項新猷更榮獲皇家特許測量師學會頒發「香港年度大獎2023」的「年度研究團隊」獎項。

The EMSD has assisted the URA in developing Hong Kong's first Lift Works Tender Price Index, which serves as a reference for monitoring the price trends in lift optimisation works. This innovation has received the RICS Hong Kong Awards 2023 – Research Team of the Year from the Royal Institution of Chartered Surveyors.

保障公眾安全
PROTECTING PUBLIC SAFETY

我們更與市建局合作，為有需要的居民提供外展社會支援服務，以紓解他們在工程期間的出行困難。截至2024年3月，我們提供約1 300次送餐和日用品代購服務，以及約3 600次樓梯升降機服務。服務自推出以來深受有需要的居民歡迎，並獲許多居民和業主立案法團嘉許。

We have even collaborated with the URA to provide outreach social support services to the residents in need, to alleviate their transportation difficulties during the construction period. As at March 2024, we have provided approximately 1 300 meal deliveries and daily necessities purchasing services, as well as around 3 600 stairlift services. Since their launch, the services have been well received by residents in need, and commended by numerous residents and owners' corporations.

在優化升降機工程進行期間，我們積極為有需要的居民提供外展社會支援服務，以紓解他們的出行困難。

During the lift modernisation works, we actively provided outreach social support services to the residents in need to alleviate their transportation difficulties.

與業界攜手宣揚施工安全

鑑於2023年工業意外數目有所上升，機電署加強與業界聯繫，並透過不同的宣傳活動，提升業界的職業安全意識。我們於年內成立工作小組，持續檢討升降機業界的安全問題，並推行新措施以鞏固工地的機械安全，包括向工人發送安全提示信息、向物業管理公司發出安全警示、在《電梯通訊》設立安全專欄，以及鼓勵業界分享案例等，務求全方位提升業界對施工安全的意識。展望未來，除了現有的虛擬實境模擬升降機維修的培訓單元外，我們正着手開發虛擬實境模擬自動梯安全的培訓單元。

Collaboration with the Trade to Promote Construction Safety

In the light of the increase in the number of industrial accidents in 2023, the EMSD has strengthened the liaison with the trade to enhance their occupational safety awareness through different publicity campaigns. During the year, we established a working group to continuously review safety issues within the lift industry and implement new measures to consolidate machinery safety in construction sites, including sending safety reminder messages to workers, issuing safety alerts to property management companies, setting up a safety column in the Lift and Escalators Newsletter, and encouraging the trade to share cases, with a view to comprehensively enhancing the trade's awareness of construction safety. Looking ahead, in addition to the existing virtual reality (VR) simulation training modules for lift maintenance, we are developing VR simulation training modules for escalator safety.

回望2023至2024年度，建造業的工業事故確實有所增加，相關趨勢令人深表關注。因此，機電署特別囑咐承建商，對於在建築工地操作起重機械和進行高空工作，要以安全為優先。我們會維持嚴格監管，務求把正確的操作觀念和嚴謹的安全標準推廣到整個行業。

Reflecting on the year of 2023-2024, the construction industry has indeed witnessed an uptick in industrial incidents, raising considerable concern for the related trends. Consequently, the EMSD specifically advises contractors to prioritise safety in operation of lifting machinery and working at heights in construction sites. We will maintain rigorous supervision to promote proper operational principles and strict safety standards among the whole industry.

為進一步提倡建造業安全文化，我們於2024年1月在香港建築機械設備總會舉行《建築工地升降機設計及建造實務守則(2021年版)》的實行及案例分享簡報會，並向出席的主要發展商、承建商、工程師和安全主任詳細解說最新的作業要求和通報機制的更新，敦促業界注重職業安全。

To further advocate a safety culture in the construction industry, we held a briefing session on the implementation and case-sharing of the Code of Practice on the Design and Construction of Builders' Lifts (2021 Edition) at the Hong Kong Construction Machinery Equipment Association in January 2024. In the briefing session, we explained in detail the latest operational requirements and updates on the reporting mechanisms to major developers, contractors, engineers, and safety officers attending the session, urging the trade to pay heed to occupational safety.

機電署舉辦相關實務守則的實行與個案分享簡報會，向業界詳細解說最新的作業要求和通報機制，敦促他們時刻注重職業安全，共同締造建造業的安全文化。

The EMSD organised a briefing session on the implementation and case-sharing of the relevant code of practice to explain to the trade in detail the latest operational requirements and reporting mechanisms. We also urged the trade to pay heed to occupational safety at all times and work together to foster a culture of safety in the construction industry.

機電署在2023年9月首次主辦國際纜車監管機構會議，這是會議的第71屆，匯聚來自13個司法管轄區的監管人員、專家、專業人士和學術界人士，就架空纜車和索道系統安全的行政管理和規管方式進行交流。

The EMSD hosted the International Meeting of Technical Authorities for Cableways (ITTAB) for the first time in September 2023. This 71st ITTAB brought together regulators, experts, professionals and academia from around 13 jurisdictions, who exchanged approaches to the administration and regulatory control of the safety of aerial ropeways and gondola systems.

主辦國際纜車監管機構會議

國際纜車監管機構會議是一個國際非商業閉門會議，每年由世界各地不同的纜車監管機構輪流舉辦。作為香港的架空纜車規管機構，機電署自2007年起一直參與會議，並於2019年首次獲邀主辦第71屆國際纜車監管機構會議。

第71屆國際纜車監管機構會議於2023年9月17日至21日舉行，匯集來自13個司法管轄區的監管人員、專家、專業人士和學術界人士進行多項活動，包括工作會議、技術考察、經驗分享和事故檢討，從中交流有關架空纜車和索道系統安全的行政管理和規管方式。

Hosting the International Meeting of Technical Authorities for Cableways

The International Meeting of Technical Authorities for Cableways (ITTAB) is an international, non-commercial and closed-door meeting held annually in rotation by different supervisory authorities in charge of aerial lifts around the world. As the regulatory authority of aerial ropeways in Hong Kong, the EMSD has been participating in the ITTAB since 2007, and was invited to host the 71st ITTAB for the first time in 2019.

The 71st ITTAB was held from 17 to 21 September 2023, bringing together regulators, experts, professionals and academia from 13 jurisdictions, who engaged in a range of activities, including working sessions, technical visits, experience sharing and incident reviews. During these activities, participants exchanged approaches to the administration and regulatory control of the safety of aerial ropeways and gondola systems.

我們在會議上作出匯報，簡介海洋公園和昂坪360纜車事故的調查報告；以及全面分析21個司法管轄區超過760宗事故案例，歸納該些事故的主要原因。有關匯報獲得與會者的好評，並引起熱烈討論。同場也舉辦了「青年論壇」，超過80名本地學生參加。論壇透過以纜車為主題的STEAM工作坊、展覽和職業講座，加深學生對架空纜車的認識、誘發他們的創意潛能，以及增強他們的科學思維。我們也藉此機會推廣「機電青少年大使計劃」。

At the meeting, we made presentations on the investigation reports on the incidents of the cable cars at the Ocean Park and Ngong Ping 360, and a comprehensive analysis of over 760 incident cases across 21 jurisdictions to summarise the main causes of these accidents. The presentations received positive feedback from the attendees and aroused heated discussion. A Youth Forum was also held at the same venue, attended by over 80 local students. Through STEAM workshops, exhibitions and career talks with the theme of aerial lifts, the forum enriched the students' understanding of aerial ropeways, unleashed their creative potential and enhanced their scientific thinking. The opportunity was also taken to promote the E&M Young Ambassador Programme.

機電署帶領各地專家參觀本地架空纜車和索道系統，講解本署的規管工作。

The EMSD led experts from around the world to visit local aerial ropeways and cableways, illustrating the Department's regulatory work.

為響應政府的「你好，香港！」全球宣傳活動，機電署為與會者舉辦夜間電車派對，讓他們體驗「東方之珠」的獨特魅力。香港的迷人夜景和熱情好客之道，令他們留下深刻的印象。

To echo the Government's "Hello Hong Kong" global promotional campaign, the EMSD hosted a night tram party for the attendees, offering them a chance to experience the unique charm of the Pearl of the Orient. They were deeply impressed by the enchanting night views and warm hospitality of Hong Kong.

透過主辦該年會，機電署可掌握國際架空纜車和索道系統的最新情況、標準和技術發展，從而提升相關方面的專業知識與行政能力，加強對昂坪360纜車、海洋公園的纜車和海洋列車，以及山頂纜車的規管。

By hosting the annual meeting, the EMSD can keep up with the latest international situations, standards and technological developments of aerial ropeways and gondola systems, and improve professional knowledge and administrative capabilities in relevant aspects, so as to strengthen the regulation of the Ngong Ping 360 cableway, the cableway and Ocean Express at the Ocean Park, as well as the Peak Tram.

機電署會繼續與海外監管機構保持密切聯繫。我們會於2024年9月參與在瑞典舉行的第72屆國際纜車監管機構會議，並在會上發表專題報告。

The EMSD will continue to maintain close communication with overseas regulatory agencies. We will participate and present a monograph at the 72nd ITTAB to be held in Sweden in September 2024.

保障公眾安全
PROTECTING PUBLIC SAFETY

推動人才發展

「優質升降機服務認可計劃」已實施多年。在該計劃下，合資格的升降機負責人會按照所得評分獲發證書，以表彰他們對優化現有升降機的努力，以及持續提供優質升降機管理服務的貢獻。此外，證書上會顯示負責保養升降機的承辦商名字，以讚揚他們的良好服務。計劃旨在鼓勵升降機負責人採取更多優化措施，使現有升降機更安全、可靠和舒適，從而滿足使用者對升降機服務的要求。

2023年，升降機和自動梯工程人員的註冊續期數目達到高峰；在6 000多名的註冊工程人員中，近八成須於2023年申請續期。機電署自2021年起使用「智方便」，便利業界於網上提交續期申請。今年我們繼續與香港電梯業總工會合作，讓工程人員透過多種途徑依時辦理續期。機電署不但與工會合作，幫助工程人員向前僱主取得工作經驗證明文件，以符合註冊續期的要求；更與註冊承辦商密切合作，讓他們為工程人員提交大批續期申請。在業界、工會和機電署的共同努力下，處理續期申請的工作得以如期完成。

為與其他管制樓宇安全法例所定的專業人士註冊資歷要求看齊，我們建議提高註冊升降機/自動梯工程師的資歷要求，有關方案並獲立法會支持。《升降機及自動梯條例》中以學士學位或同等學歷申請成為註冊升降機/自動梯工程師的過渡安排將於2027年12月起廢除。機電署已舉辦一連串諮詢會，收集業界的意見。我們亦致力向約100名現職從業員提供機會和支援，讓他們於未來四年透過現有途徑考取註冊升降機/自動梯工程師資格，從而盡量減低措施對他們的影響。

對於很多業主和承辦商來說，電梯風險評估仍是較新的概念。有見及此，機電署與職業訓練局(職訓局)合作，於2024年2月下旬根據「粵港澳大灣區標準」(「灣區標準」)籌備兩個相關的培訓課程，讓機電署人員、房屋署代表，以及相關從業員掌握進行電梯風險評估所需的知識和技能，提高行業的專業水平，確保電梯安全運行。

Promoting Talent Development

The Quality Lift Service Recognition Scheme (QLSRS) has been implemented for many years. Under the QLSRS, qualified RPs for lifts will be presented with certificates according to their scores, in recognition of their contribution to the modernisation of existing lifts and continuous provision of quality lift management services. In addition, the names of the contractors responsible for lift maintenance will be shown on the certificates to recognise their good services. The QLSRS is aimed at encouraging RPs for lifts to adopt more modernisation measures to improve the safety, reliability and comfort of existing lifts, thereby meeting users' demand for lift services.

The number of registration renewal of lift and escalator workers peaked in 2023. Among over 6 000 registered workers, nearly 80% were required to apply for renewal of their registration in 2023. Since 2021, the EMSD has been using "iAM Smart" to provide the convenience of submitting renewal applications online for the trade. This year, we continued to collaborate with the Hong Kong General Union of Lift and Escalator Employees, so that workers could arrange for renewal on time through various channels. The EMSD not only worked with the union to assist workers in obtaining the documentary proofs of work experience from their former employers to meet the renewal requirements, but also closely co-operated with registered contractors to enable bulk submissions of renewal applications for registered workers. Thanks to the concerted effort of the industry, the union and the EMSD, the handling of renewal applications was completed on schedule.

To align with the qualification requirements for registering as professionals stipulated under other legislation governing building safety, we suggested uplifting the qualification requirements for becoming registered lift/escalator engineers, and the proposal was supported by the Legislative Council. The transitional arrangements under the Lifts and Escalators Ordinance in respect of the application for registration as lift/escalator engineers with bachelor's degrees or equivalent academic qualifications will be repealed from December 2027. The EMSD has organised a series of consultation sessions to gather feedback from the industry. We are also committed to providing opportunities and support for approximately 100 in-service practitioners to take examinations for becoming registered lift/escalator engineers through existing channels in the next four years, so as to minimise the impact of these measures on them.

Risk assessment of lifts and escalators remains a relatively new concept to many owners and contractors. In view of this, the EMSD collaborated with the Vocational Training Council (VTC) to prepare two relevant training courses based on the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) Standards (GBA Standards) in late February 2024, in order to equip the EMSD staff, representatives from the Housing Department and relevant practitioners with the knowledge and skills necessary for carrying out risk assessment of lifts and escalators, enhancing the professional levels of the industry and ensuring the safe operation of lifts and escalators.

促進跨境合作

廣東省、香港和澳門三地政府簽訂關於共同促進「灣區標準」發展的合作備忘錄，並公布「灣區標準」清單，包括《在用電梯風險評價規範—曳引驅動電梯》。機電署已按照該標準，為超過100部升降機進行現場風險評估。2024年2月下旬，我們亦與職訓局合辦兩個採用「灣區標準」的相關培訓課程，讓業界更了解升降機風險評估的項目和程序。展望未來，我們會積極與業界合作推動在香港應用「灣區標準」，包括鼓勵業主和承辦商根據該標準為升降機進行風險評估。

隨着疫情結束，社會全面復常，機電署也全面恢復與內地當局的協作。我們與海關總署舉行年度會議，深化雙方在升降機和自動梯安全方面的交流。此外，多名工程師和督察於年內參加了深圳市質量安全檢驗檢測研究院舉辦的培訓課程。課程為期五天，加深了他們對內地升降機和自動梯監管制度的認識。

Promoting Cross-Border Collaboration

The governments of Guangdong Province, Hong Kong and Macao have signed a Memorandum of Understanding on jointly promoting the development of the GBA Standards, and announced a list of GBA Standards, including the Specifications for Risk Assessment of Traction Lifts. Based on the standards, the EMSD has completed on-site risk assessment of over 100 lifts. In late February 2024, we also partnered with the VTC to co-organise two relevant training courses applying the GBA Standards, so as to familiarise the trade with the items and procedures in the risk assessment of lifts. Looking forward, we will actively collaborate with the trade to promote the application of the GBA Standards in Hong Kong, including encouraging owners and contractors to conduct risk assessments of lifts according to the standards.

With the epidemic coming to an end and society returning to normality in full, the EMSD also fully resumed collaboration with the Mainland authorities. We convened an annual meeting with the General Administration of Customs to deepen exchanges on the safety of lifts and escalators. Additionally, a number of engineers and inspectors participated in a training course organised by the Shenzhen Institute of Quality and Safety Inspection and Research during the year. The five-day programme has deepened their understanding of the regulatory framework for lifts and escalators in the Mainland.

機電署與職訓局合作，於2024年2月下旬根據「灣區標準」籌備兩個相關的培訓課程，讓業界了解在用升降機風險評估的項目和流程，藉此提高行業的專業水平。

The EMSD collaborated with the VTC to organise two relevant training courses based on the GBA Standards in late February 2024 to familiarise the trade with the items and procedures in the risk assessment of exiting lifts, thereby enhancing the professional levels of the industry.

機電署派出多名工程師和督察參加由深圳市質量安全檢驗檢測研究院舉辦的培訓課程，加深他們對內地升降機和自動梯安全監管制度的認識。

The EMSD sent a number of engineers and inspectors to participate in a training course organised by the Shenzhen Institute of Quality and Safety Inspection and Research, in order to deepen their understanding of the safety regulatory framework for lifts and escalators in the Mainland.

展望未來 The Way Ahead

重點一：「人工智能電梯部件影像分析系統」 Focus 1: AI-based Lifts and Escalators Condition Analysis System (LECAS)

機電署正在開發具深度機器學習功能的人工智能系統，就電梯主要部件的照片進行影像分析，從而檢視該些部件以至電梯的狀況，並發放分析結果予相關人士作適切跟進。系統預計於2024年第四季推出，可提升規管工作的效率，以及全港升降機和自動梯的安全水平。

The EMSD is developing an AI system with deep machine learning capacity to conduct image analysis on the photos of the main components of lifts and escalators, so as to check the condition of those components, as well as that of the lifts and escalators concerned, whereas the analysis results will then be disseminated to the concerned parties for appropriate follow-up. Expected to be launched in the fourth quarter of 2024, the system will enhance the efficiency of regulatory work and improve the safety level of all lifts and escalators in Hong Kong.

重點二：提升機電設施抵禦極端天氣的能力和能源效益 Focus 2: Enhancing the resilience against extreme weather and energy efficiency of electrical and mechanical facilities

面對日益頻繁的極端天氣，機電署會繼續與業界緊密合作，在機電設施的機件設計和維修保養方面不斷精進，強化設施抵禦極端天氣的能力。此外，我們會繼續和內地相關部門合作，檢討並適時更新《在用電梯風險評價規範－曳引驅動電梯》的「灣區標準」，並爭取在標準中加入能源效益的準則。

In the face of the increased occurrences of extreme weather events, the EMSD will continue to work closely with the industry, consistently improving the design of components and maintenance of electrical and mechanical facilities to strengthen their resilience against extreme weather. Besides, we will keep on collaborating with relevant Mainland authorities to review and timely update the GBA Standards in the Specifications for Risk Assessment of Traction Lifts, as well as striving for the inclusion of energy efficiency criteria in the standards.

重點三：透過「優化升降機資助計劃」推動優化舊式升降機 Focus 3: Pushing forward the modernisation of aged lifts through the Lift Modernisation Subsidy Scheme

「優化升降機資助計劃」已實施多年，我們會聯同市區重建局繼續推行計劃，為更多有需要的業主提供財政資助；並加強升降機優化工程的宣傳工作，以提升本港舊式升降機的安全水平。

The LMSS has been implemented for several years. We will continue to carry out the LMSS in collaboration with the Urban Renewal Authority to provide financial assistance for more owners in need, and step up the publicity of lift modernisation works, in order to improve the safety level of aged lifts in Hong Kong.

主辦國際纜車監管機構會議　全力說好香港故事
HOSTING THE INTERNATIONAL MEETING OF TECHNICAL AUTHORITIES FOR CABLEWAYS TO TELL GOOD STORIES OF HONG KONG VIGOROUSLY

國際纜車監管機構會議是一個國際非商業性的閉門會議，每年由世界各地不同的纜車監管機構輪流舉辦。第71屆國際纜車監管機構會議是在疫情後首次舉行的實體會議，也是香港自2007年成為機構會員以來，首次以主辦城市身分統籌的會議，意義尤其重大。

The International Meeting of Technical Authorities for Cableways (ITTAB) is an international, non-commercial and closed-door meeting held annually on a rotating basis by different supervisory authorities in charge of aerial ropeways and/or cableways around the world. The 71st ITTAB was not only the first physical meeting held after the COVID-19 epidemic, but also the first one coordinated by Hong Kong as the host city since Hong Kong became a member of the ITTAB in 2007, which was of great significance.

一般法例部工程師嚴栢明先生和曾梓豐先生代表機電署負責本屆會議的統籌工作。在為期五天的會議中，他們與其團隊成功促進國際專家互相交流規管纜車系統的經驗，又帶領與會者實地考察本地架空纜車及索道系統，加強機電署與海外和內地技術機構的聯繫，全力說好香港故事。

機電署主辦的第71屆國際纜車監管機構會議於2023年9月17日至21日圓滿舉行，匯聚29名來自13個司法管轄區的國際纜車專家，交流有關纜車系統的最新資訊及發展。會議期間進行多項活動，例如工作會議、實地考察、經驗分享、事故審視和專家聯誼等，讓與會者交流有關架空纜車和索道系統安全的行政管理和規管事宜，同時加深國際專家之間的聯繫。藉着舉辦和參與這個年度會議，機電署可充分掌握國際上有關架空纜車和索道系統的最新發展。

機電署作為本屆會議的主辦單位，肩負統籌會議議程和舉辦各項活動的責任。其中，嚴先生和曾先生協助進行數據分析，兩人先收集和整理來自21個地區合共760多宗事故和意外的數據，然後進行詳盡分析，並在會議上與各地專家分享分析結果，以便他們就相關議題進行討論。此分析規模之大屬業界首次，並成功促進與會者踴躍討論。各地專家在會上就四大範疇，包括事故數據分析、架空纜車的城市發展、國際標準的更新以及意外調查交流意見，並作深入討論。

另外，嚴先生和曾先生聯絡本地纜車營運公司，為與會者安排實地考察。在機電署的協調下，各地專家參觀了海洋公園、山頂纜車和昂坪纜車，視察共四個架空纜車和索道系統，並進入機房等重要地方，仔細了解這些設施的運作和安全管理。

嚴先生和曾先生總結道：「機電署透過主辦本屆會議，加強掌握架空纜車和索道系統的最新發展，並促進與各地專家的知識交流。此外，為了響應《施政報告》提出『說好香港故事』的目標，我們在會議結束後精心安排了富香港特色的交流活動—『電車派對』，向參加者展示香港熱鬧的一面，務求讓世界看到香港的光芒。活動當晚，各地專家乘坐電車在港島鬧市中漫遊，一邊聚餐聯誼，一邊沉浸在五光十色的城市夜景中，非常愉快。一連五天的會議圓滿結束，並獲得與會專家一致好評，他們的正面反應令我們深感鼓舞和自豪。」

Mr Patrick Yim and Mr Klaus Tsang, engineers of the General Legislation Division, were in charge of the coordination of this meeting on behalf of the EMSD. During the five-day event, they and their team successfully facilitated international experts' exchanges of experience on regulation of ropeway systems, led site visits to local aerial ropeways and cableways, strengthening the connections between the EMSD and technical institutions from both overseas and the Mainland, and endeavouring to tell the good stories of Hong Kong.

The 71st ITTAB, hosted by the EMSD, was successfully held from 17 to 21 September 2023, bringing together 29 international ropeway experts from 13 jurisdictions to exchange the latest information and developments regarding ropeway systems. A wide range of activities, such as working sessions, site visits, experience sharing, incident reviews, and networking among experts, were conducted during the meeting to enable attendees to exchange views on the administrative management and regulation of the safety of aerial ropeways and cableways while strengthening ties among international experts. By hosting and participating in this annual meeting, the EMSD could keep abreast of the latest global developments in aerial ropeways and cableways.

As the host of this meeting, the EMSD was responsible for coordinating the agenda and organising various activities. In particular, Mr Yim and Mr Tsang assisted with data analysis. They collected and collated the data on over 760 incidents and accidents from 21 regions, then analysed the data in detail and shared the findings with the experts at the meeting to facilitate their discussion on relevant topics. This scale of analysis marked a first for the industry and successfully sparked active discussion among attendees. At the meeting, experts from various regions exchanged views and had in-depth discussion on four major areas, including analysis of incident data, urban development of aerial ropeways, updates on international standards, and accident investigation.

Moreover, Mr Yim and Mr Tsang liaised with local cable car operators to arrange site visits for the attendees of the meeting. With the coordination by the EMSD, experts from around the world visited Ocean Park, the Peak Tram and Ngong Ping Cable Car, observing a total of four aerial ropeway and cableway systems, including their key areas such as the plant rooms, to learn about the operation and safety management of these facilities.

"Through hosting this meeting, the EMSD has further grasped the latest developments in aerial ropeways and cableways, and facilitated knowledge exchanges with experts from various regions. Besides, in response to the objective of 'telling the good stories of Hong Kong' outlined in the Policy Address, we meticulously arranged a 'Tram Party', a networking event rich in local character, after the meeting to showcase the vibrancy of Hong Kong to the participants and let Hong Kong shine in the world. On the evening of the event, the experts enjoyed a tram ride through bustling Hong Kong Island, dining and socialising while immersing themselves in the colourful night view of the city. The five-day meeting concluded with unanimous praise from the experts, whose positive feedback has given us great encouragement and filled us with a sense of pride", Mr Yim and Mr Tsang summarised.

鐵路安全

推動業界善用創新科技

行政長官在2023年《施政報告》中提到香港已全面復常。隨着社會復常，市民出行次數增加，港鐵於2023年的總載客量高達16.2億人次，較2022年上升一成，反映市民對鐵路服務的需求逐漸上升。然而，2023年的鐵路事故數目增至1 305宗，情況令人關注。機電工程署(機電署)一直高度重視鐵路安全，除了不斷敦促香港鐵路有限公司(港鐵公司)多加著重安全，並採取有效的措施和方案以提升鐵路系統的安全水平外，我們亦於年內為內部事故管理系統進行全面升級。升級後的系統利用人工智能分析事故報告，可更準確地掌握高危地點的狀況，以便適時作出跟進。

為確保鐵路系統維持良好狀態，以配合未來的營運需要和發展，港鐵公司正在機電署的規管下逐步更換信號系統，以應對增加列車班次和可載客量；預計整體載客量於更換工程完成後可提升10%。不過，更換信號系統的工作艱巨複雜，不但要確保系統安全無虞，還要把工程對乘客的影響降至最低。如僅在每晚的「黃金兩小時」進行測試，需耗費很長時間才能完成整個工程項目。

因此，機電署聯同港鐵公司和泰雷茲(香港)有限公司，合作研發「通用人工智能互動自動化情境測試工具」。該工具以相關國際標準為依據，可自動產生數十萬個測試情境，以識別信號系統中可能出現的問題或漏洞。機電署於年內完成該工具的概念驗證。該工具可自動執行測試和驗證結果，有助增強測試的全面性和覆蓋範圍，減少人手輸入資料和核實結果的錯誤，進而大幅縮短測試時間，使鐵路服務更穩健可靠。本港現時已有不少同類工程及測試應用「通用人工智能互動自動化情境測試工具」，我們希望把此工具建立為國際測試標準，為推動鐵路安全作出貢獻。

RAILWAY SAFETY

Promoting the Utilisation of Innovative Technology in the Industry

The Chief Executive stated in the 2023 Policy Address that Hong Kong has returned to full normalcy. With the increase in the trips made by the public as a result of society returning to normal, the patronage of MTR services reached 1.62 billion in 2023, representing an increase of 10% compared to 2022, and reflecting the growing demand for railway services among citizens. However, the rise in the number of railway incidents to 1 305 in 2023 gives cause for concern. The Electrical and Mechanical Services Department (EMSD) has placed a high priority on railway safety. In addition to repeatedly urging the MTR Corporation Limited (MTRCL) to enhance its safety awareness and implement effective measures and solutions to improve the safety of the railway system, we conducted a comprehensive upgrade of the internal incident management system this year. The upgraded system employs artificial intelligence (AI) to analyse incident reports, enabling a more accurate grasp of the conditions at high-risk locations for timely follow-up.

To ensure that the railway system is maintained in good condition to meet future operational needs and developments, the MTRCL is, under the regulation of the EMSD, gradually replacing the signalling system to cope with increase in train frequency and capacity. It is expected that the overall capacity will be increased by 10% upon completion of the replacement works. However, the replacement of the signalling system is a challenging and complex task, which involves not only ensuring system safety, but also minimising the impact of the works on passengers. It will take a considerable amount of time to complete the entire works project if testing is only carried out during the "golden two hours" every night.

Therefore, the EMSD has collaborated with the MTRCL and Thales Transport and Security (Hong Kong) Limited to develop the "Universal AI Interacted Automated Scenario Tester" (AI-AST). Based on relevant international standards, the AI-AST can automatically generate hundreds of thousands of testing scenarios for identifying potential issues or vulnerabilities of the signalling system. This year, the EMSD completed the concept validation of the AI-AST, which can automatically execute tests and verify results. This helps enhance the comprehensiveness and coverage of testing, as well as reducing human error in data input and result verification, and in turn significantly shortens testing time, making railway services more robust and reliable. Many similar projects and tests in Hong Kong have already applied the AI-AST, and we aspire to establish it as an international testing standard to contribute to the promotion of railway safety.

隨着香港人口和經濟持續增長，港鐵公司會在公共交通方面擔當更加重要的角色。因此，我們積極鼓勵港鐵公司創新，透過發展智慧鐵路系統，使鐵路系統可持續提升水平，應對社會不斷轉變的需求，以配合香港未來的發展。在我們的支持下，港鐵公司於年內取得多項創新成果，並在第49屆日內瓦國際發明展中贏得21個獎項，足證港鐵公司在鐵路資產監測、列車轉向架的維修和應急通訊等範疇的努力和成就。有關創新項目為擴展鐵路系統奠定堅實的基礎。

As the population and economy of Hong Kong continue to grow, the MTRCL will play an increasingly significant role in public transportation. Therefore, we actively encourage the MTRCL to innovate and develop smart railway systems, so that the railway system can continuously improve to meet the evolving demands of society, in line with the future growth of Hong Kong. During the year, with our support, the MTRCL brought about a number of innovations and won 21 awards at the 49th International Exhibition of Inventions of Geneva, demonstrating its efforts and achievements in areas such as railway asset monitoring, train bogie maintenance and emergency communication. These innovations lay a solid foundation for the expansion of the railway system.

為進一步提升鐵路系統的安全水平，機電署推動業界持續創新，並於年內研發「通用人工智能互動自動化情境測試工具」，以識別信號系統可能出現的問題或漏洞，使鐵路服務更穩健可靠。

To further enhance the safety of the railway system, the EMSD has been promoting continuous innovation among the trade, and developed the "Universal AI Interacted Automated Scenario Tester" during the year to identify potential issues or loopholes in the signalling system, thereby making railway services more robust and reliable.

在機電署的支持下，港鐵公司矢志創新，並在第49屆日內瓦國際發明展中贏得21個獎項，獲獎項目涵蓋鐵路資產監測、列車轉向架的維修和應急通訊等範疇。

With the support of the EMSD, the MTRCL strived to innovate, winning 21 awards at the 49th International Exhibition of Inventions of Geneva. The award-winning projects covered areas such as railway asset monitoring, train bogie maintenance and emergency communication.

保障公眾安全
PROTECTING PUBLIC SAFETY

全面防止鐵路安全事故發生

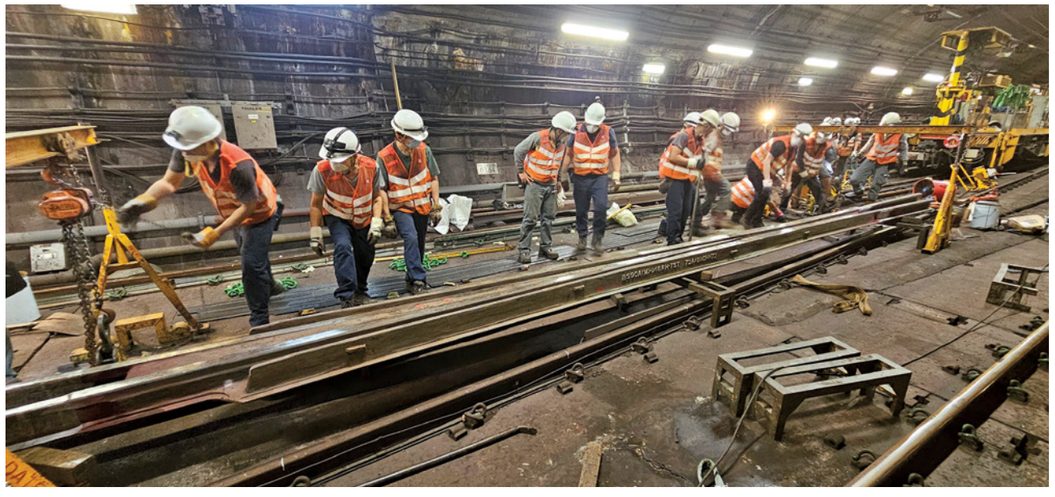
2022年年底發生的兩宗港鐵事故引起社會各界對鐵路安全的廣泛關注，機電署也非常重視事故成因、維修水平和未來可採取的預防措施。因應這兩宗事故，政府於2022年成立獨立監督小組，由機電署擔任秘書處，密切監督港鐵公司的檢討工作，並跟進改善措施的細節，確保預防事故方案適切得宜。

港鐵公司就鐵路資產管理和維修保養制度進行的全面檢討，已於2023年6月完成。在本署的監督下，港鐵公司制定了多項改革措施，包括增撥資源和善用科技，進一步提升其服務水平，以確保鐵路服務安全可靠。

Comprehensive Prevention of Railway Safety Incidents

The two MTR incidents that occurred in late 2022 aroused wide concern over railway safety in society. The EMSD also placed significant emphasis on the causes of the incidents, maintenance standards and future preventive measures. In response to these two incidents, the Government established the Independent Monitoring Panel in 2022, with the EMSD serving as the secretariat, to closely monitor the MTRCL's review and follow up on the details of improvement measures, ensuring the appropriateness and effectiveness of preventive plans.

A comprehensive review of railway asset management and maintenance regime conducted by the MTRCL was completed in June 2023. Under our supervision, the MTRCL developed a variety of reform measures, including allocation of additional resources and utilisation of technology, to further enhance their service level, thereby ensuring the safety and reliability of railway services.



為確保鐵路系統的安全，機電署敦促港鐵公司進行基建資產更新工程。2024年7月28日，港鐵公司在機電署監督下完成香港鐵路網絡的首項主要資產更新工程，更換觀塘線隧道內的大型金屬吊架，從而提升鐵路安全。

To ensure the safety of the railway system, the EMSD urged the MTRCL to undertake the renewal works of infrastructure assets. On 28 July 2024, the MTRCL completed the first major asset renewal project of the Hong Kong railway network under our supervision, replacing the large metal hangers inside the Kwun Tong Line tunnel, and thereby improving railway safety.

為確保鐵路系統能抵禦極端天氣的衝擊，機電署積極敦促港鐵公司全面檢視現有車站的防洪能力，並在有較高水浸風險的出入口安裝水位感應器，以便有需要時立刻通知職員豎設防洪板。

To ensure that the railway system can withstand the impacts of extreme weather, the EMSD proactively urged the MTRCL to conduct a comprehensive review of the flood prevention capabilities of existing stations and install water level sensors at entrances and exits involving higher risk of flooding, so that staff would be immediately notified when necessary to erect flood boards.

年內，本港屢受極端天氣影響，當中包括超強颱風「蘇拉」和世紀暴雨，導致多區出現嚴重水浸，港鐵黃大仙站的情況尤為嚴峻。有見及此，機電署積極敦促營運機構因應極端天氣制訂預防方案，確保鐵路系統能抵禦極端天氣所帶來的衝擊。在基礎設施方面，我們敦促港鐵公司全面檢視現有車站的防洪能力，並在各車站有較高水浸風險的出入口安裝水位感應器。當水位觸碰到感應器時，感應器便會發出警報，並即時通報車站控制室，以便職員及時豎設防洪板。截至2024年3月，全港已有26個港鐵站，合共42個有較高水浸風險的出入口安裝了水位感應器，以應對雨季帶來的威脅。

機電署亦於年內優化山頂纜車和電車的現有緊急應變程序，並把焦點放在應對氣候變化所帶來極端天氣危機的準備工作上。此外，我們採取「早部署、早介入」的策略，提早做好應對重大事故的部署。在2024年7月16日，本署聯同山頂纜車公司、警務處和消防處在白加道山頂纜車站附近舉行跨部門演習，藉此加強各部門在發生重大事故時的協調和應變能力。

During the year, Hong Kong was repeatedly affected by extreme weather, including Super Typhoon Saola and a once-in-a-century rainstorm, resulting in serious flooding in many districts, particularly at Wong Tai Sin MTR Station. In view of this, the EMSD proactively urged the operator to formulate preventive measures in response to extreme weather, so as to ensure that the railway system could withstand the impacts of such conditions. In terms of infrastructure, we urged the MTRCL to conduct a comprehensive review of the flood prevention capabilities of existing stations and install water level sensors at entrances and exits of stations that are at higher risk of flooding. When the water level reaches a sensor, an alert will be triggered and the station control room concerned will be notified immediately, so that staff can erect flood boards in time. As at March 2024, a total of 42 entrances and exits that are at higher risk of flooding in 26 MTR stations were installed with water level sensors, in order to address the threats posed by the rainy season.

During the year, we also enhanced the existing emergency response procedures of the Peak Tram and trams, with a focus on the preparedness for the extreme weather crisis brought about by climate change. Besides, we adopt a strategy of "early planning and early intervention" to devise deployment plans for major incidents in advance. On 16 July 2024, we collaborated with the Peak Tramways Company Limited, Hong Kong Police Force and Fire Services Department to conduct an inter-departmental drill near Barker Road Peak Tram Station, with the aim of strengthening the co-ordination and response capabilities among various departments during major incidents.

保障公眾安全
PROTECTING PUBLIC SAFETY

把握廣深港高鐵香港段發展的機遇

廣深港高速鐵路(高鐵)香港段在2023年首季全面復運，2023年的全年乘客量高達2 000萬人次。港鐵公司於2023年8月14日推出「靈活行即日變更車次安排」(「靈活行」)，讓已購買往返香港西九龍站與福田或深圳北站車票的旅客，可免費改乘即日來往兩站的指定車次最多三次；更增設「無預留座位」(亦即「企位」)，讓乘客可在無編配座位的情況下站立乘車，令行程安排更具靈活性。

Embracing the Development Opportunities of the Guangzhou-Shenzhen-Hong Kong Express Rail Link

The Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) resumed full operation in the first quarter of 2023, with the annual patronage reaching 20 million for the year. On 14 August 2023, the MTRCL launched the "Same-day Flexi-trip Arrangement" ("Flexi-trip"), allowing passengers who have purchased a ticket between Hong Kong West Kowloon Station and Futian or Shenzhenbei Station to change their train trips among designated trains between the two stations up to three times on the same day free of charge. "Non-reserved Seats" (i.e. "standee space") are also introduced, allowing passengers to stand during their ride in the absence of an allocated seat, thus providing more flexibility in travel arrangements.

高鐵香港段在2023年首季全面復運。機電署在復運前進行測試，並仔細視察軌旁設備等相關設施，以確保鐵路運作安全。

The XRL Hong Kong Section resumed full operation in the first quarter of 2023. Before the resumption of train services, the EMSD had conducted tests and carefully inspected relevant facilities such as trackside equipment, so as to ensure the safety of railway operation.

在「靈活行」推出前，機電署先行審視港鐵公司有關超員的專家論證報告，確保即使在超員的情況下列車也能安全運作。此外，機電署人員亦視察了與超員相關的列車測試和票務系統測試，並在「靈活行」實施首天在香港西九龍站和列車上進行巡查，以確保運作暢順。「靈活行」切合市民的出行需要。截至2024年6月30日，已有逾26萬位乘客使用服務，平均每日逾825人次使用。

Before the launch of standee arrangement, the EMSD had reviewed the MTRCL's expert reports on standee capacity to ensure the safe operation of XRL under standee condition. Additionally, officers of the EMSD inspected the train tests related to standee and the ticketing system tests. On the first day of the implementation of "Flexi-trip", EMSD staff conducted inspections at Hong Kong West Kowloon Station and on the trains to ensure smooth operations. "Flexi-trip" service serves the travel needs of the community. As at 30 June 2024, over 260 000 passengers used the service, with an average of more than 825 users per day.

機電署人員到內地車廠視察全新臥鋪列車的測試情況，以確保列車可在高鐵香港段安全運作。

The EMSD staff inspected the testing of the new sleeper trains in the Mainland depot to ensure the safe operation of the trains on the XRL Hong Kong Section.

由2024年6月15日起，高鐵新增張家界西線，因此高鐵香港段直達站點增至78個，整體班次亦增加至每日200班。此外，高鐵同日推出全新臥鋪列車直達北京和上海，把原本往來香港紅磡站與北京或上海的普通速度直通車提質升級。為了全新臥鋪列車可順利通車，機電署早於2024年5月與港鐵公司展開籌備工作，並審視港鐵公司的列車技術報告以及視察相關測試，以確保全新臥鋪列車可在高鐵香港段安全運作。

Starting from 15 June 2024, the Zhangjiajiexi Line was introduced to the XRL, resulting in an increase in the number of destinations directly connected to the XRL Hong Kong Section to 78, and a rise in the total train frequency to 200 train trips per day. On the same day, the XRL launched a new sleeper train service directly to Beijing and Shanghai, upgrading the previous ordinary-speed train service between Hong Kong Hung Hom Station and Beijing or Shanghai. To ensure the smooth commissioning of the new sleeper trains, the EMSD commenced the preparatory work with the MTRCL in May 2024, reviewed the MTRCL's technical assessment reports on the sleeper trains and inspected the relevant tests, so as to ensure the safe operation of the new sleeper trains on the XRL Hong Kong Section.

深化與內地和國際伙伴合作

機電署自2010年起成為國際鐵路安全議會核心小組的成員，多年來積極參與議會的年度會議，與世界各地的鐵路安全規管機構、營運機構和鐵路持份者交流有關鐵路安全的信息、經驗和心得，推動國際鐵路安全及表現持續改善。我們計劃與國家鐵路局和港鐵公司聯合主辦於2025年在香港舉行的國際鐵路安全議會年度會議，並邀請不同地區的政府和鐵路業界代表來港參與。

此外，為了加強在監管高鐵方面的合作，國家鐵路局、運輸及物流局和機電署定期召開會議，討論有關高鐵安全監管和高鐵駕駛人員資格管理的事宜。

Deepening Cooperation with the Mainland and International Partners

The EMSD has been a member of the Core Group of the International Railway Safety Council (IRSC) since 2010, and has over the years actively participated in its annual conferences to exchange information, experience and insights on railway safety with railway safety regulators, operators and railway stakeholders around the world, contributing to the ongoing improvement in international railway safety and performance. We plan to co-host the IRSC annual conference to be held in Hong Kong in 2025 with the National Railway Administration (NRA) and the MTRCL, and invite representatives of governments and the railway industry from various regions to participate.

Furthermore, to strengthen cooperation in the regulation of the XRL, the NRA, the Transport and Logistics Bureau, and the EMSD hold regular meetings to discuss matters relating to the regulation of the safety of XRL and the management of qualifications of XRL train drivers.

保障公眾安全
PROTECTING PUBLIC SAFETY

展望未來 The Way Ahead

重點一：工程項目安全檢討 Focus 1: Project Safety Review

為了加強對新鐵路項目的規管，機電署自2023年起在多個新鐵路項目中引入「工程項目安全檢討」程序。有關程序全面及有系統地評估這些鐵路項目在各個發展階段的長遠運作安全，有助及早發現可能出現的問題，並降低因項目調整或延誤而衍生的社會成本。

To enhance the regulation of new railway projects, the EMSD has introduced the Project Safety Review (PSR) process for various new railway projects starting from 2023. The PSR process evaluates the long-term operational safety of these railway projects at various stages of development in a comprehensive and systematic manner, enabling early identification of potential issues and reducing the social costs associated with project adjustments or delays.

機電署至今已在東涌線延線、小蠔灣站、屯門南延線、東鐵線古洞站、洪水橋站等多個新鐵路項目中實行「工程項目安全檢討」程序，貫穿整個工程項目周期，包括初步設計、詳細設計、建造、安裝和測試等階段，對項目的長遠運作安全進行系統性的評估。

The EMSD has so far implemented the PSR process in a number of new railway projects, including the Tung Chung Line Extension, Oyster Bay Station, Tuen Mun South Extension, Kwu Tung Station on the East Rail Line and Hung Shui Kiu Station. The PSR process is put in place throughout the entire project life cycle, including stages of preliminary design, detailed design, construction, installation and testing, to evaluate the long-term operational safety of the projects in a systematic way.

通過這個全面的檢討過程，我們可以及早發現影響鐵路長遠運作安全的潛在風險，例如設計缺陷和設備故障等，以便及時採取補救措施，減低在鐵路系統投入服務後發生重大運作故障的機會。未來，我們會在其他新鐵路項目應用「工程項目安全檢討」程序，包括北環線主線、白石角站和港深西部鐵路等項目，以全面評估這些項目在各個發展階段的長遠安全隱患，確保項目能為市民大眾提供更安全可靠的鐵路服務。

Through this comprehensive review process, we can identify potential risks affecting the long-term operational safety of the railway at an early stage, such as design deficiencies and equipment failures. This enables us to take timely remedial measures to minimise the chances of major operational failures occurring after the commissioning of the railway system. In the future, we will apply the PSR process to other new railway projects, including the Northern Link Main Line, Pak Shek Kok Station and the Hong Kong-Shenzhen Western Rail Link, to comprehensively assess the long-term safety hazards of these projects at various stages of development, ensuring that these projects can provide safer and more reliable railway services to the public.

重點二：更新市區鐵路線的信號系統 Focus 2: Upgrading the Signalling System of Urban Lines

港鐵公司正分階段更換信號系統，並使用「通用人工智能互動自動化情境測試工具」進行全面測試，以確保鐵路運作安全。作為規管機構，我們會繼續監督港鐵公司就市區線信號系統進行的測試工作，並敦促港鐵公司按既定時間表完成工程。荃灣線、港島線、觀塘線和將軍澳線的信號系統更換工程預計將於2028/29年度完成。

The MTRCL is replacing the signalling system in phases, with the use of the AI-AST for comprehensive testing to ensure safe railway operation. As the regulator, we will continue to oversee the signalling system testing on urban lines, and urge the MTRCL to complete the works according to the established schedule. The signalling system replacement works of the Tsuen Wan Line, Island Line, Kwun Tong Line and Tseung Kwan O Line are expected to be completed by 2028/29.

港鐵車站遭逢百年一遇暴雨　把握黃金時間迅速完成排查
SWIFTLY COMPLETING INSPECTION WITHIN THE GOLDEN TIME FOR MTR STATION HIT BY ONCE-IN-A-CENTURY DOWNPOUR

2023年9月7日深夜，黃大仙港鐵站因特大暴雨發生嚴重水浸，大量雨水湧進車站大堂、月台、路軌甚至行車隧道，對站內設施造成極大破壞，並令車站運作完全停頓。黑色暴雨警告信號持續16小時35分鐘，直至翌日下午才除下。

In the small hours of 7 September 2023, the Wong Tai Sin MTR Station suffered from severe flooding under extraordinary rainstorm, with a huge volume of rainwater pouring into the station concourse, platforms, tracks, and even the train tunnels, causing serious damage to the station facilities and bringing the station operation to a complete halt. The black rainstorm warning signal was in effect for 16 hours and 35 minutes, and not lifted until the afternoon of the next day.

其間，香港鐵路有限公司(港鐵公司)全速搶修站內設施，包括自動運行系統、升降機、自動梯、月台幕門和閉路電視等，務求車站盡快重投運作。機電工程署(機電署)鐵路科作為鐵路安全的把關者，馬上派員前往黃大仙站，審視各項設施是否符合安全要求。擔此重任的是鐵路科工程師譚力剛及其團隊，他們對黃大仙站進行全面評核，以確保車站能夠安全恢復服務；即使車站後來回復運作，團隊也絕不鬆懈，持續監察站內各項設施的修復和改善工作進度，以策萬全。

To restore the station operation as quickly as possible, the MTR Corporation Limited (MTRCL) worked at full speed to repair the station facilities, including the automatic operation system, elevators, escalators, platform screen doors, and closed-circuit televisions. The Railways Branch (RB) of the EMSD, as the gatekeeper of railway safety, immediately dispatched personnel to Wong Tai Sin Station (WTS) to examine various facilities to see if they met safety requirements. Responsible for this important task were Mr Tam Lik-gong, Gareth, an engineer of the RB and his team, who conducted a comprehensive assessment of WTS to ensure that its services could be safely resumed. Even when the station resumed operation later, the team did not slack off, but continuously monitored the progress of repairs of the station, such that everything would be in order.

在黑色暴雨警告信號生效期間，譚先生及其團隊都在候命，整裝待發隨時執行任務；在改掛紅色暴雨警告信號後，他們便立即動身前往黃大仙站。譚先生憶述：「根據工作守則，我們必須確保同事安全，所以要等到紅色暴雨警告信號發出才能出動。我們的職責就是在通車前確保鐵路運作暢順無礙，因此必須第一時間趕赴現場，爭分奪秒、有條不紊地完成檢查工作。」譚先生指，當時黃大仙站已關閉，加上附近路面受水浸和塌樹影響，團隊故此只能先乘坐港鐵到附近的鑽石山站，在暴雨下徒步前往黃大仙站。團隊在抵達目的地後，一邊檢查行車隧道的水浸情況，一邊審視站內設施的受損情況，以盡快確定車站仍然安全。

While the black rainstorm warning signal was in force, Mr Tam and his team were standing by, ready for missions. After the red rainstorm warning signal was issued, they immediately set off for WTS. "According to our operational protocols, we must ensure the safety of our colleagues, so we had to wait for the issue of the red rainstorm warning signal before deploying. Our duty was to ensure unobstructed railway operations before the resumption of train services. Hence, we had to rush to the scene at once, and race against time to complete our inspections in an orderly manner." Mr Tam recounted. Mr Tam pointed out that WTS was already closed at the time, and the neighbouring roads were affected by flooding and fallen trees. Therefore, the team could only take the MTR to nearby Diamond Hill Station and then walk to WTS in the torrential rain. Upon arrival at the destination, the team inspected the flooding condition in the train tunnel and assessed the damage to the station facilities to ensure that the station remained safe as soon as possible.

在9月9日黃大仙站重開當日早上，團隊發現通風管尚有積水，損毀了隧道內的架空電纜系統。團隊於是敦促港鐵馬上採取行動，更換已損壞的組件。此外，由於多部升降機和自動梯已停用，團隊亦要評估車站是否有足夠路徑疏散人流。團隊馬上評估車站設施的損毀程度對疏散人流的影響，並提出不同的應對方案。經過一番努力，車站最終能夠在當日稍後時間重開。

On the morning of 9 September, the day that WTS reopened, there was still water accumulated in the ventilation ducts, damaging the tunnel's overhead line system. They urged the MTRCL to take immediate action to replace damaged components. Besides, as several lifts and escalators were out of service, they also needed to evaluate whether there were sufficient pathways for crowd evacuation in the station. Mr Tam and his team promptly assessed the impact of the damage to the station facilities on crowd evacuation and proposed different response plans. After some efforts, the station could eventually reopen later that day.

縱然當日時間緊迫，但機電署人員保持專業，謹小慎微。在評估人流疏散過程中，他們一絲不苟地進行排查，並在極短時間內找出車站的原本設計，以便進行比對和判斷損毀狀況；即使數據符合要求，仍堅持實地步行測試，確保乘客安全。

Despite time constraints, the EMSD staff displayed professional and conscientious. During the assessment of crowd evacuation, they meticulously inspected every detail, and found out the original design of the station in a very short time for comparing and determining the extent of the damage. Even when data met the requirements, they still insisted on walking on-site to conduct inspections in person to ensure passenger safety.

車站服務其後雖然逐步回復，但機電署依然用心跟進，定期到場檢查；並與港鐵公司舉行會議，商討進一步的改善方案，例如在各個高風險車站加裝水浸感應器、把防洪板移近出入口，以及探討使用自動防洪板。這樣即使未來再次發生同類事件，優化措施也可減少損毀和加快服務恢復，令市民可以安心使用鐵路服務。

As the station services gradually resumed, the EMSD continued to follow up attentively through regular on-site inspections and meetings with the MTRCL for further improvements, such as installing flood detection sensors, relocating flood barriers closer to entrances, and exploring the use of automatic flood barriers at high-risk stations. In this way, even if similar events occur in the future, these enhancement measures will help reduce damage and expedite service recovery, ensuring that citizens can use railway services with peace of mind.

推廣能源效益及節能
PROMOTING ENERGY EFFICIENCY AND CONSERVATION

實施「強制性能源效益標籤計劃」第四階段

為促進節能減碳，以及進一步提升公眾的節能意識，「強制性能源效益標籤計劃」（強制性標籤計劃）第四階段已於2023年9月1日正式生效，涵蓋範圍擴展至11類產品，新增發光二極管燈、氣體煮食爐和即熱式氣體熱水爐。強制性標籤計劃旨在協助消費者選擇更具能源效益的產品，從而在日常生活中節約能源，為實現碳中和出力。在第四階段實施後，所涵蓋的產品會佔住宅總能源消耗量八成，預計消費者每年可額外節省約570太焦耳（約1.6億度電），相當於每年減少排放約75 000公噸二氧化碳。

除了擴大強制性標籤計劃的涵蓋範圍外，我們已就第三次能源效益級別標準提升諮詢業界，並於2024年3月8日刊憲公布《產品能源標籤實務守則2024》。新能源效益評級標準於2024年6月30日生效，涵蓋的電器包括冷凍器具、洗衣機和儲水式電熱水器，預計每年可節省約2.7億度電。

IMPLEMENTATION OF PHASE IV OF THE MANDATORY ENERGY EFFICIENCY LABELLING SCHEME

To promote energy savings, reduce carbon emissions and further raise public awareness of energy conservation, Phase IV of the Mandatory Energy Efficiency Labelling Scheme (MEELS) officially came into effect on 1 September 2023. The coverage expanded to eleven products, with the addition of LED lamps, gas cookers and gas instantaneous water heaters. The MEELS aims at assisting consumers in selecting more energy-efficient appliances, so that they can save energy in their daily lives and contribute to carbon neutrality. Upon the implementation of Phase IV of the MEELS, the products covered by the MEELS account for 80% of total residential energy consumption. It is expected that consumers can additionally save about 570 terajoules (approximately 160 million kilowatt-hours in terms of electricity) per year, equivalent to an annual reduction of approximately 75 000 tonnes of carbon dioxide emissions.

In addition to extending the coverage of the MEELS, we conducted industry consultation for the third upgrading exercise for the energy efficiency grading standards. The Code of Practice on Energy Labelling of Products 2024 was gazetted on 8 March 2024. The new energy efficiency grading standards will take effect on 30 June 2024. They will cover refrigerating appliances, washing machines and storage type electric water heaters. It is estimated that the upgrading will help annually save about 270 million kilowatt-hours in terms of electricity.

強制性標籤計劃第四階段的涵蓋範圍擴展至發光二極管燈、氣體煮食爐和即熱式氣體熱水爐，進一步促進節能減碳。

In the Phase IV of the MEELS, the coverage has been expanded to LED lamps, gas cookers and gas instantaneous water heaters to further promote energy saving and carbon reduction.

修訂《建築物能源效益條例》的準備工作

自《建築物能源效益條例》於2012年全面實施以來，全港已有逾2 200幢新建建築物符合指定的能源效益標準和規定；約4 000幢樓宇完成能源審核，以及多達15 000項現有建築物的主要裝修工程符合能源效益標準。為進一步提升建築物的能源效益，行政長官在2023年的《施政報告》中提出修訂該條例。建議修訂包括擴大規管範圍至更多類別的建築物；大幅縮短能源審核周期，由十年減至五年；以及強制公開能源審核報告內的技術資料，從而鼓勵業界發展節能技術，推動綠色經濟。就此，機電署和環境及生態局已諮詢業界，有超過八成回應者表示支持建議修訂，響應為實現《香港氣候行動藍圖2050》的願景共同努力。

PREPARATORY WORK FOR AMENDING THE BUILDINGS ENERGY EFFICIENCY ORDINANCE

Since the full implementation of the Buildings Energy Efficiency Ordinance (BEEO) in 2012, over 2 200 new buildings in Hong Kong have complied with the specified energy efficiency standards and requirements; energy audits for about 4 000 buildings have been completed and a total of up to 15 000 major retrofitting works of existing buildings have complied with the energy efficiency standards. To further enhance the energy efficiency of buildings, the Chief Executive announced in the 2023 Policy Address that the Government would put forth proposals to amend the BEEO. The proposed amendments include extending the scope of regulation to more types of building; significantly shortening the interval of energy audits from ten years to five years; and mandating the disclosure of technical information in energy audit reports, thereby encouraging the trade to develop energy saving technologies and promoting the development of green economy. In this connection, the EMSD and EEB have completed the consultation with the industry. Over 80% of respondents expressed support for the proposed amendments, agreeing to achieve the vision outlined in Hong Kong's Climate Action Plan 2050 in a concerted effort.

2024年度為註冊能源效益評核人而設的簡介會已於2024年2月6日和3月7日舉行，內容涵蓋《建築物能源效益條例》的主要規定、電子提交方法、常見違規事項、「遵行規定登記證明書」的最新續領安排，以及未來的修例建議。

Held on 6 February and 7 March 2024, the briefing session for registered energy assessors in 2024 covered the major requirements of the BEEO, e-submission methods, common violations to the law, the latest renewal arrangements for the "Certificate of Compliance Registration", and introduction to proposed legislative amendments in the future.

推廣能源效益及節能
PROMOTING ENERGY EFFICIENCY AND CONSERVATION

更新《重新校驗技術指引》

受惠於《建築物能源效益條例》的成效，近年新建成的建築物在設計和安裝上皆符合一定的能源效益標準。然而，建築物在落成後，可能因為空間使用和用戶行為的轉變，以及設計和實際操作之間的落差等因素，令建築物的能效表現未達預期。因此，繼2018年發布《重新校驗技術指引》後，我們成立了一個包括業界代表的工作小組，全面檢討和修訂該指引，更新相關技術要求和操作流程。經修訂的指引已於2023年12月公布，有助業界尋找節能機會，進一步提升香港建築物的能源效益。

ENHANCING THE TECHNICAL GUIDELINES ON RETRO-COMMISSIONING

Benefitted from effect of the BEEO, new buildings constructed in recent years had already met various energy efficiency standards in terms of both design and installation. However, after completion of the buildings, they may not achieve the energy performance as expected due to various factors, such as changes in usage and behaviour of occupants, and deviation between design and actual operation. As such, following the publication of the Technical Guidelines on Retro-commissioning in 2018, we established a working group with industry representatives to conduct a comprehensive review and revision of the guidelines, and update the relevant technical requirements and operational procedures. The revised guidelines were released in December 2023, which would help the trade identify energy-saving opportunities, and thereby further improving the energy efficiency of buildings in Hong Kong.

為全面檢討和修訂《重新校驗技術指引》，機電署成立了設有業界代表的工作小組，更新相關技術要求和操作流程。

To comprehensively review and revise the Technical Guidelines on Retro-commissioning, the EMSD established a working group including trade representatives to update relevant technical requirements and operational procedures.

啟德區域供冷系統除了現有的一號廠房和二號廠房外，三號廠房的建造工程已於2020年開展，廠房亦於2024年開始分階段啟用。

In addition to the existing Plant No.1 and Plant No.2, the construction of the Plant No.3 of the Kai Tak DCS started in 2020 and the plant has commenced operation in phases since 2024.

區域供冷系統新發展

隨着啟德發展區蓬勃發展，區內的空調需求持續攀升。機電署早已為該區規劃和建造區域供冷系統，以應對大量供冷需求。除了現有的一號廠房和二號廠房外，三號廠房的建造工程已於2020年開展，廠房亦於2024年開始分階段啟用。當三號廠房全面運作，整個啟德區域供冷系統的總製冷量會提升至462兆瓦，足以供應空調冷凍水予區內多達50座樓宇。區域供冷系統能紓緩熱島效應，而且其能源效益較傳統氣冷式空調系統高35%，預計啟德區域供冷系統全面投入運作後，每年可節省高達1.38億度電，相當於每年減少96 500噸二氧化碳排放。

NEW DEVELOPMENT OF DISTRICT COOLING SYSTEMS

With the Kai Tak Development (KTD) blossoming, the demand for air conditioning continues to rise in the area. The EMSD had planned and constructed a district cooling system (DCS) early to meet the heavy cooling demand. In addition to the existing Plant No.1 and Plant No.2, the construction of the Plant No.3 of the Kai Tak DCS started in 2020 and the plant has commenced operation in phases since 2024. After full operation of Plant No. 3, the total cooling capacity of the whole Kai Tak DCS will be boosted to 462 megawatts, enough to provide chilled water for air-conditioning for up to fifty buildings in the area. DCSs not only alleviate the urban heat island effect, but also are 35% more energy-efficient than traditional air-cooled air-conditioning systems. Upon the full operation of the Kai Tak DCS, it is estimated that it will help save up to 138 million kilowatt-hours in electricity consumption per year, which is equivalent to an annual reduction of approximately 96 500 tonnes of carbon dioxide emissions.

啟德區域供冷系統三號廠房應用了機電裝備合成法，大部分複雜組件都在工廠預製，再於工地裝嵌。這不但加快工程進度，也可避免工程人員在狹窄環境中工作的潛在安全問題。

The Kai Tak DCS Plant No.3 applied the MiMEP method. Most of the complex components were pre-assembled in factories and then assembled at the construction site. This not only accelerated the progress of works, but also avoided potential safety hazards to engineering personnel in cramped working environments.

為加快啟德區域供冷系統三號廠房工程的進度，我們採用機電裝備合成法建造廠房的中央供冷站、冷凍水分配網路和用戶支站。機電裝備合成法應用嶄新的裝配式設計方法，在工地外預製組件，再把組件運送至工地裝嵌。例如，我們預先設計和製造重型機械、管道和機電裝備的組件，包括合成式鮮風櫃、組合式水泵組、組合式掛牆配電箱等。機電裝備合成法大幅縮短施工時間，提升工程效率和質量，也避免在狹窄環境中潛在的安全問題。此外，我們鼓勵承建商使用安全智慧工地系統，以提升工地安全水平，推動職業安全和健康。

To expedite the construction of the Kai Tak DCS Plant No.3, we applied the Multi-trade Integrated Mechanical, Electrical and Plumbing (MiMEP) approach to build the central chiller plant, distribution network and consumer substations of the DCS. Adopting the innovative approach of Design for Manufacture and Assembly, the MiMEP enables off-site prefabrication of components, which are then delivered to construction sites for installation. For example, we designed and manufactured in advance the components of heavy-duty machinery, pipework, and E&M equipment such as the integrated air-handling units, integrated pump sets and modular wall-mounted distribution boards. The MiMEP approach significantly reduced construction time and improved the efficiency and quality of works, while relieving potential safety hazards in tight working environments. Besides, we also encouraged contractors to adopt the Smart Site Safety System (SSSS) to enhance the onsite safety standard and to promote the occupational health and safety.

此外，我們於2023年年底開始在啟德區域供冷系統應用人工智能技術，預測用戶的供冷需求，並設定系統最佳運作模式，以優化空調系統制冷機組的能效表現；更可進行預測性維修保養，提高系統的可靠程度。

Furthermore, we have been adopting Artificial intelligence (AI) technology in the Kai Tak DCS since the end of 2023 to predict the cooling demand of users and set the best operating mode of the system accordingly, optimising the energy performance of the chillers of air-conditioning systems, as well as facilitating predictive maintenance to enhance the reliability of the DCS.

除了發展和監察啟德區域供冷系統外，機電署亦積極為其他新發展區的區域供冷系統進行規劃，包括東涌新市鎮擴展(東)、古洞北、洪水橋/厦村、北部都會區其他新發展區，以及交椅洲人工島。我們分別於2023年9月和2024年2月批出東涌新市鎮擴展(東)和古洞北新發展區的區域供冷系統的設計、建造及營運合約，並在合約中要求承辦商採用高效的機電裝備合成法和安全智慧工地系統，以提升工地安全水平和工程效率。

Other than developing and monitoring the Kai Tak DCS, the EMSD is actively conducting the planning of DCSs in other new development areas (NDAs), including Tung Chung New Town Extension (East), Kwu Tung North, Hung Shui Kiu/Ha Tsuen, Other NDAs in the Northern Metropolis and the Kau Yi Chau Artificial Islands. The Design-Build-Operate Contracts for the DCSs at Tung Chung New Town Extension (East) and Kwu Tung North New Development Area were awarded in September 2023 and February 2024 respectively, requiring the contractors to apply the efficient MiMEP and Smart Site Safety System to uplift site safety performance and work efficiency.

推廣能源效益及節能
PROMOTING ENERGY EFFICIENCY AND CONSERVATION

機電署為全港小學生舉辦「啟德區域供冷系統」填色及繪畫比賽，希望提升公眾對區域供冷系統的認識。

The EMSD organised the "District Cooling System at Kai Tak Development" Colouring and Drawing Competition for primary school students in Hong Kong, hoping to enhance public awareness of the DCS.

此外，機電署於2023年舉辦「啟德區域供冷系統」填色及繪畫比賽，旨在提升小學生對區域供冷系統的認識，並鼓勵他們就節能和可再生能源技術展現他們的創意和想像力。是次比賽反應熱烈，共有逾千名小學生參加。環境及生態局首席助理秘書長(能源)、機電工程署署長、副署長/規管服務，以及助理署長/電力及能源效益均應邀出席於2024年1月16日舉辦的頒獎典禮，嘉許得獎者的卓越表現。

In addition, the EMSD organised the "District Cooling System at Kai Tak Development" Colouring and Drawing Competition in 2023, which is aimed at enhancing the understanding of primary school students on DCSs and encouraging them to showcase their creativity and imagination on energy conservation and renewable energy technologies. The competition received an enthusiastic response, with over 1 000 students participated. The Principal Assistant Secretary for Environment and Ecology (Energy), the Director, the Deputy Director/Regulatory Services and the Assistant Director/Electricity and Energy Efficiency of the EMSD, attended the Award Presentation Ceremony held on 16 January 2024 to recognise the outstanding performance of all award winners.

在過去一年，我們於啟德區域供冷系統一號廠房舉辦了19場參觀活動，向公眾、學生、業界、專業團體、客戶、政府官員，以及國際組織，介紹啟德區域供冷系統的發展進程，以及我們在發展和營運系統上持續工作。為加深年輕人對區域供冷系統的認識，機電署在2023年4月為「區域供冷系統STEM工作坊及比賽」的優勝者安排參觀啟德區域供冷系統一號廠房。在2023年9月，機電署亦製作了啟德區域供冷系統一號廠房虛擬導賞遊，提供互動和沉浸式的體驗，讓公眾更深入了解區域供冷系統。在導賞遊推出後首個月，已有超過4 000人次瀏覽網頁。

In the past year, we organised 19 visits to the Kai Tak DCS Plant No.1 to introduce the development of the Kai Tak DCS and our continued efforts in developing and operating the DCS to the general public, students, the industry, professional bodies, our clients, government officials and international organisations. To give the young people a deeper understanding of DCSs, a visit to the Kai Tak DCS Plant No.1 was arranged by the EMSD in April 2023 for the winners of the STEM Workshops and Competition for District Cooling System. In September 2023, the EMSD produced the Virtual Tour for Kai Tak DCS Plant No.1, providing an interactive and immersive experience for the public to gain a better understanding of DCSs. There were more than 4 000 visits to the webpage in the first month of the launch.

推廣可再生能源

機電署於2019年推出為期五年的「採電學社」計劃，為合資格的學校和非政府福利機構設計和安裝小型太陽能發電系統，讓他們能參與本地兩家電力公司推行的上網電價計劃。計劃於年內圓滿結束，為500所學校和非政府福利機構處所安裝了超過700套10千瓦的太陽能發電系統，估計每年可產生高達640萬度電，即大約2 000個三人家庭的全年用電量，較預期目標高出兩成。

機電署不但透過「採電學社」鼓勵採用可再生能源發電，更建立創新科技平台「採電地圖」，讓學校和有關機構能監測其裝置的的效能。該方案更在2023年第48屆日內瓦國際發明展獲得銅獎。此外，「採電地圖」現已加入人工智能分析，在發現裝置有異常情況時，會向處所擁有人發出警示，以便安排預防性維修工作。

PROMOTING RENEWABLE ENERGY

The EMSD launched the five-year Solar Harvest scheme in 2019 to help eligible schools and welfare non-governmental organisations (NGOs) design and install small-scale solar photovoltaic systems, facilitating their participation in the Feed-in Tariff (FiT) scheme implemented by the two power companies. It was successfully concluded this year, and over 700 10-kilowatt solar energy generation systems were installed for 500 schools and welfare NGO premises. It is expected that the installed systems will generate up to 6.4 million kilowatt-hours of electricity per year, equivalent to the annual electricity consumption of approximately 2 000 three-person households, and 20% higher than the expected target.

Apart from encouraging the use of renewable energy through the Solar Harvest scheme, the EMSD also established an innovation and technology (I&T) platform named "Solar Harvest Map" which enables the schools and NGOs concerned to monitor the performance of their installations. In 2023, the solution won the Bronze Medal in the 48th International Exhibition of Inventions of Geneva. Moreover, the Solar Harvest Map now incorporates an AI analytic function to alert premises owners when abnormalities are detected, so that they can arrange for preventive maintenance.

「採電學社」計劃於年內圓滿結束，一共為500所學校和非政府福利機構的處所安裝超過700套太陽能發電系統，估計每年可產生高達640萬度電。

The Solar Harvest scheme was successfully concluded during the year, with over 700 solar photovoltaic systems installed in the premises of 500 schools and welfare NGOs in total. It is expected that they will generate up to 6.4 million kilowatt-hours of electricity per year.

推廣能源效益及節能
PROMOTING ENERGY EFFICIENCY AND CONSERVATION

機電署於年內舉辦多個工作坊，向中學老師講解如何使用「採電學社」STEAM中學教材套。

The EMSD organised a number of workshops during the year to explain to secondary school teachers how to use the Solar Harvest STEAM educational kit for secondary schools.

為進一步在校園推廣可再生能源，機電署推出「採電學社」STEAM(即科學、科技、工程、藝術和數學)小學教材套後，隨即與環境及生態局和教育局攜手合作，編制「採電學社」STEAM中學教材套，教材套已於年內納入中學課程。教材附有教學短片，內容結合物理科知識，講解有關太陽能的科學原理，更剖析影響系統效能的因素。教材套以活潑互動的方式，讓學生了解可再生能源，加深他們對潔淨能源的興趣，從而向他們推廣低碳生活。

To further promote renewable energy in schools, the EMSD rolled out the Solar Harvest STEAM (Science, Technology, Engineering, Arts and Mathematics) educational kit for primary schools. Subsequently, in collaboration with the EEB and the Education Bureau, we compiled the Solar Harvest STEAM educational kit for secondary schools, which was incorporated into the curriculum of secondary schools in the year. It comes with teaching videos that involve physics knowledge, explaining the scientific principles and applications of solar energy, as well as examining the factors affecting system performance. Through lively and interactive approaches, the educational kit enhances students' understanding of renewable energy and deepens their interest in clean energy, thereby promoting low-carbon living.

另外，機電署總部大樓於本年榮獲「綠建環評既有建築2.0版綜合評估計劃」的「最終鉑金級評級」，以及「零碳就緒建築認證」的「特低耗能評級」。機電署計劃於2025年升級機電署總部大樓的太陽能發電系統，並於總部大樓推出「太陽能發電建築先導計劃」，發揮帶頭作用，為社會各界樹立榜樣。

Besides, the EMSD Headquarters achieved the Final Platinum rating of BEAM Plus Existing Buildings V2.0 Comprehensive Scheme and Extra Low rating under the Zero-Carbon-Ready Building Certification Scheme this year. The EMSD plans to upgrade the solar energy generation system and launch the Pilot Scheme on Building-Integrated Photovoltaics at the EMSD Headquarters by 2025, taking the lead and setting a role model for all sectors of the community.

應用創科方案提升能源效益

機電署肩負促進香港低碳發展的使命，一直致力探索與能源效益和可再生能源相關的創新技術。為此，我們積極聯繫初創企業，並在不同政府場地試驗其綠色創新技術。我們已展開了45個綠色創科試驗項目，包括應用於數據中心伺服器的浸沒式冷卻系統、永磁同步馬達盤管風機，以及人工智能製冷機組優化系統等。

雖然「採電學社」計劃已圓滿結束，機電署繼續推行「綠色校園2.0 — 智能慳電」，透過加入節能系統和創新科技，提升學校的能源表現和培養學生的節能意識。我們向合資格的中學和小學提供資助和一站式服務，將現有的冷氣機替換變頻式冷氣機、將現有照明轉換為成發光二極管燈，以及安裝實時能源監察系統。安裝實時能源監察系統後，老師和學生可以隨時隨地上網了解每間課室的用電量，並分析全校的用電情況，以便減少用電。此外，老師可把收集到的數據製作成教材，教導學生如何計算電費，推動科技與教育結合。

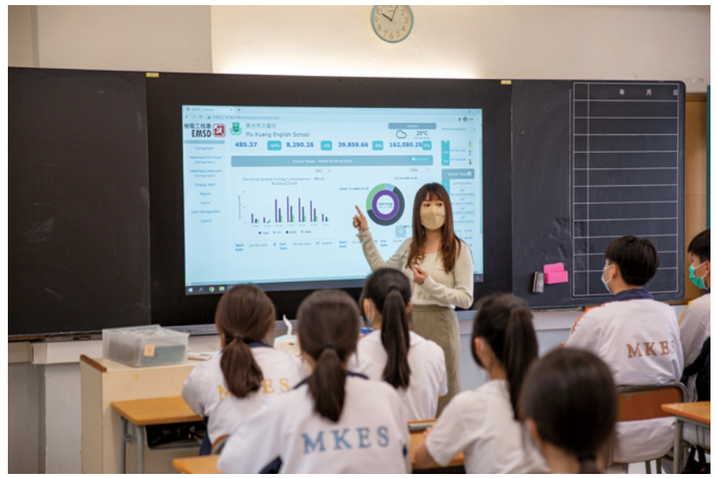
APPLYING INNOVATION AND TECHNOLOGY SOLUTIONS TO ENHANCE ENERGY EFFICIENCY

The EMSD is committed to promoting low-carbon development in Hong Kong, and has been actively exploring innovative technologies related to energy efficiency and renewable energy. In this connection, we have been connecting with start-ups to test out their green innovative technologies in different government venues. We have initiated 45 green I&T trial projects, including the immersion cooling system for servers in data centres, permanent magnet synchronous motor fan coil units and AI-based Chiller Plant Optimisation System, etc.

Although the Solar Harvest scheme has been concluded successfully, the EMSD continues to implement the "Green Schools 2.0 – Energy Smart". By adopting energy efficient systems and innovative technologies, it enhances the energy performance of schools and cultivates students' awareness about energy conservation. We provide subsidy and one-stop services for eligible primary and secondary schools to replace existing air-conditioners with variable-speed air-conditioners, convert existing lighting to LED lighting and install real-time energy monitoring systems. With the real-time energy monitoring systems installed, teachers and students can monitor the electricity consumption of each classroom, and analyse that of the entire school, so as to reduce such consumption accordingly. Moreover, the collected data can be used to produce materials for students to learn to calculate electricity tariff, thereby promoting the integration of technology and education.

「綠色校園2.0 — 智能慳電」讓老師和學生在網上了解每間課室的用電量，以便分析全校的用電情況，從而幫助學生培養節能習慣。

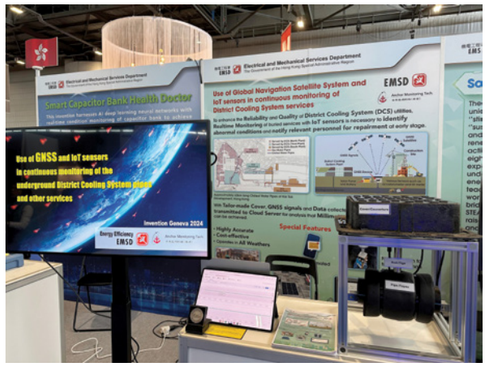
The "Green Schools 2.0 – Energy Smart" enables teachers and students to know the electricity consumption of each classroom online, so as to analyse the overall energy usage of the whole school, thereby helping students cultivate energy-saving habits.



推廣能源效益及節能
PROMOTING ENERGY EFFICIENCY AND CONSERVATION

此外，機電署於年內成功研發創新方案，利用全球衞星導航系統技術監測啟德區域供冷系統管道沉降情況，項目更在第49屆日內瓦國際發明展獲得銀獎。現時啟德發展區內有多個工程項目正在施工，為供冷系統的管道帶來風險；而且區內工地曾發生沉降事件，引起公眾關注。為有效監察廣大地下管道的沉降風險，我們分析全球衞星導航系統提供的監測數據。相對於耗費大量時間和資源的傳統人手沉降檢測方法，利用全球衞星導航系統不但可減少人手測量所涉及的誤差和開支，更能讓機電署每天24小時進行實時監察，而且新方案具備使用壽命長、維護成本低等優點。未來，我們會研究在新發展區的區域供冷系統採用全球衞星導航系統技術監察管道沉降情況，從而令供冷系統更可靠。

In addition, during the year, the EMSD successfully developed an I&T solution, using the Global Navigation Satellite System (GNSS) technology to monitor the settlement condition of the Kai Tak DCS underground piping network. The project also won a silver medal at the 49th International Exhibition of Inventions of Geneva. There are various ongoing construction projects in the KTD, which pose risks to the pipes of the DCS. Moreover, settlement incidents previously occurred at the construction sites in the KTD and aroused public concern. To effectively monitor the settlement risks of the extensive underground pipes, we analyse monitoring data provided by the GNSS. Compared to the traditional manual settlement detection method that requires ample time and resources, utilising the GNSS not only reduces errors and the labour costs involved in manual surveying, but also enables real-time monitoring by the EMSD around the clock. The new solution also has the advantages of long lifespans and low maintenance costs. In the future, we will explore the deployment of the GNSS technology in the DCSs in new development areas to monitor pipe settlement, so as to make the DCSs more reliable.



由於啟德區域供冷系統的地下管道網絡分布範圍廣泛，運用傳統人手沉降監測方法並不理想。通過採用全新的全球衞星導航系統技術，便可實時監測區域供冷系統管道的沉降情況。

Due to the extensive distribution of the Kai Tak DCS underground piping network, the traditional manual settlement detection method is unfavourable. By adopting GNSS technology, we can monitor the settlement of the DCS pipes in real time.

機電署主辦亞太經合組織能源數據及分析專家小組第35次會議，有逾40名來自九個亞太經合組織成員經濟體和兩個國際組織的專家和代表參加。

The EMSD hosted the 35th Meeting of the EGEDA of the APEC, with over 40 experts and delegates from nine APEC member economies and two international organisations participated.

區域及國際合作

在2024年1月17日至18日，機電署主辦亞太區經濟合作組織(亞太經合組織)能源數據及分析專家小組第35次會議，有逾40名來自九個亞太經合組織成員經濟體和兩個國際組織的專家和代表參與。他們在會上就能源數據和分析分享見解和交流經驗，並探討年度數據收集的工作進度、亞太經合組織的能源供需概況和目標進展，以及新能源技術數據收集等議題。

REGIONAL AND INTERNATIONAL COOPERATION

On 17 and18 January 2024, the EMSD hosted the 35th Meeting of the Expert Group on Energy Data and Analysis (EGEDA) of the Asia-Pacific Economic Cooperation (APEC), with over 40 experts and delegates from nine APEC member economies and two international organisations participated. At the meeting, they shared insights and exchanged experience on energy data and analysis, and explored issues such as updates of the work of the EGEDA on annual data collection, an overview of energy supply and demand in APEC, the progress of APEC goals, and data collection of new energy technologies, etc.

東盟重新校驗能力培訓工作坊於2024年2月在香港舉辦，是本港首次舉辦與能源相關的東盟工作坊。

In February 2024, the Capacity Building Training on Retro-commissioning of the ASEAN was held in Hong Kong, which was the first energy-related ASEAN workshop organised in Hong Kong.

除了舉辦會議和研討會外，我們亦在亞太經合組織能源工作組擔任領導工作。本署首席能源顧問在2021至2023年度出任能源工作組的副主席，並在2024至2025年度獲選連任。此外，一位高級工程師獲選為2023至2025年能源效益及節能專家小組副主席。這標誌着機電署會繼續在能源工作組扮演重要角色，並會積極參與亞太經合組織的工作，進一步加強與其他亞太經合組織成員經濟體和國際組織的合作。

In addition to organising meetings and workshops, we also take on leadership roles in the Energy Working Group (EWG) of the APEC. Our Principal Energy Advisor served as the Vice-chair of the EWG for session 2021-2023, and has been re-elected for session 2024-2025. In addition, a senior engineer was elected as the Vice-Chair of the Expert Group on Energy Efficiency and Conservation for session 2023-2025. This signifies that the EMSD will continue to play an important role in the EWG, and actively take part in the work of the APEC, with a view to further strengthening collaboration with other APEC member economies and international organisations.

此外，我們於2024年2月26日至27日在香港舉辦東南亞國家聯盟(東盟)重新校驗能力培訓工作坊。是次工作坊為香港首次舉辦與能源相關的東盟工作坊，超過20名來自八個東盟成員國的專家和代表聚首一堂，就重新校驗分享見解和經驗，交流技術知識。

Furthermore, we organised the Capacity Building Training on Retro-commissioning (RCx) of the Association of Southeast Asian Nations (ASEAN) in Hong Kong on 26 and 27 February 2024. As the first energy-related ASEAN project held in Hong Kong, the workshop gathered over 20 experts and delegates from eight ASEAN member states to share insights and experience and exchange technical knowledge on RCx.

我們亦積極促進跨境合作，攜手推動節能減碳。機電署已經與國家海關總署(海關總署)建立20年的合作關係，並於2023年與其能效小組在內地和香港舉行兩次會議。因應香港實施「強制性能源效益標籤計劃」第四階段，以及新能源效益級別標準，雙方積極與相關單位聯繫協調，確保內地的產品製造商和檢測機構熟悉新修訂的標準，並按照相關要求為香港供應產品和進行能源效益測試。

We also actively promote cross-border co-operation to step up our efforts in energy saving and carbon reduction together. The partnership between the EMSD and the General Administration of Customs of the People's Republic of China (GACC) has been established for 20 years. Two meetings with the energy efficiency group of the GACC were held in the Mainland and Hong Kong in 2023. In response to the implementation of Phase IV of the MEELS and the new energy efficiency grading standards in Hong Kong, the EMSD and the GACC actively co-ordinated with the parties concerned to ensure that Mainland manufacturers and testing organisations are familiar with the revised standards, and supply products to Hong Kong and perform energy efficiency tests in compliance with the relevant requirements.

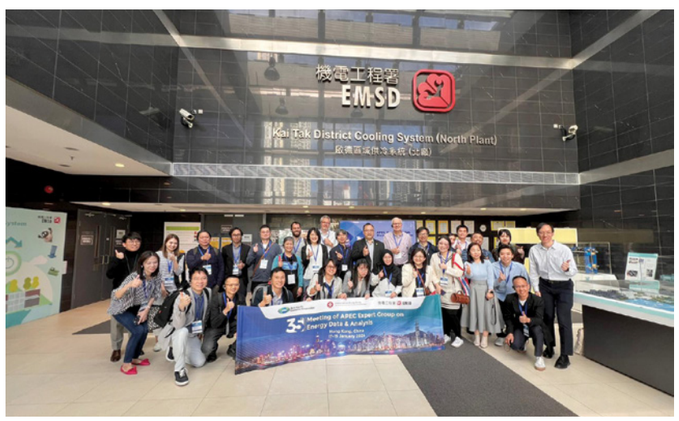
推廣能源效益及節能
PROMOTING ENERGY EFFICIENCY AND CONSERVATION

隨着政府在新發展區推展區域供冷系統，其設計和營運亦需與時並進。為持續優化香港區域供冷系統的設備，機電署積極加強與內地和國際機構在這方面的交流。2023年7月，本署代表前往深圳市前海能源科技發展有限公司的供冷設施進行實地考察，與內地業界人士就供冷設施的規劃和營運進行交流；並於同年10月參與「粵港澳大灣區區域供冷及高效空調系統論壇」，探討區域供冷系統的最新發展。除了與內地業界交流經驗外，我們亦於2024年1月帶領亞太經合組織專家小組代表參觀啟德區域供冷系統一號廠房，並就能源數據和分析互相進行深入討論。

As the Government is incorporating DCSs in new development areas, the design and operation of DCSs need to keep up with the times. To continuously optimise the equipment of DCSs in Hong Kong, the EMSD enhanced exchanges with Mainland and international organisations in the related areas. In July 2023, the EMSD representatives conducted a site visit to the cooling facilities of the Shenzhen Qianhai Energy Technology Development Co., Ltd. and exchanged views on the planning and operation of cooling facilities with trade practitioners there. In October 2023, we participated in the Guangdong-Hong Kong-Macao Greater Bay Area Regional Cooling and High-Efficiency Air Conditioning System Forum, exploring the latest developments of DCSs. In addition to sharing our experience with our Mainland counterparts, we also guided the representatives of the APEC expert groups to visit the Kai Tak DCS Plant No.1 and engaged in extensive discussion with them on energy data and analysis in January 2024.

機電署代表於2023年內先後兩次到訪深圳前海，實地考察當地的區域供冷設施，並與業界人士就供冷設施的規劃和營運交流意見。

The EMSD representatives visited Qianhai, Shenzhen twice in 2023 to conduct on-site visit to local district cooling facilities and exchange views on the planning and operation of cooling facilities with trade practitioners.



2024年1月，亞太經合組織專家小組的代表參觀啟德區域供冷系統一號廠房，並就能源數據和分析與機電署人員進行深入討論。

In January 2024, representatives of the APEC expert groups visited the Kai Tak DCS Plant No.1 and conducted in-depth discussion with EMSD officers on energy data and analysis.

機電署於年內與多個機構簽訂《粵港澳大灣區建築物重新校驗(再調適)合作備忘錄》，希望推動大灣區發展和應用建築物重新校驗。

During the year, the EMSD signed a Memorandum of Co-operation on RCx of Buildings in the GBA with various organisations, with a view to promoting the development and application of RCx of buildings in the GBA.

此外，機電署亦與粵港澳大灣區(大灣區)的相關單位緊密合作，致力提升建築物的能源效益。機電工程署自2019年聯同廣東省建築科學研究院集團股份有限公司等單位開始編製《粵港澳大灣區既有建築機電系統再調適技術導則》。於2024年1月4日，《粵港澳大灣區既有建築機電系統再調適技術導則》的團體標準經廣東省建設科技與標準化協會組織審查後，自2024年3月1日起實施，為大灣區的相關從業員提供操作指引，以期提升現有建築物的能源效益。同時，我們於年內進一步擴展大灣區的合作網絡，包括與多個機構簽訂《粵港澳大灣區建築物重新校驗(再調適)合作備忘錄》，希望透過資訊交流和經驗分享提高技術水平，以推動大灣區發展和應用建築物重新校驗。

Moreover, the EMSD collaborates closely with the relevant organisations of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) to enhance building energy efficiency. The EMSD and the Guangdong Provincial Academy of Building Science Group Co., Ltd., etc. jointly commenced to prepare "Technical Guide on Retro-commissioning of Buildings in Greater Bay Area" in 2019. On 4 January 2024, association standard of the "Technical Guide on Retro-commissioning of Buildings in Greater Bay Area" was reviewed and approved by the Guangdong Provincial Construction Technology and Standardization Association to be implemented with effective date from 1 March 2024, this Technical Guide provides clear operational guidance for relevant practitioners in the GBA, with a view to improving energy efficiency in existing buildings. We also expanded our co-operation network in the GBA, including signing a Memorandum of Co-operation on RCx of Buildings in the GBA with various organisations, in order to develop technical competence through experience sharing and information exchange, thereby promoting the development and application of RCx of buildings in the GBA.

未來工作重點 THE WAY FORWARD

重點一：修訂《建築物能源效益條例》 Focus 1: Amendment of the Building Energy Efficiency Ordinance

在建築物能源效益方面，機電署擬在2024年內把《建築物能源效益條例》的修訂建議提交立法會審議，以加強推動建築物節能減碳，鼓勵業界共同努力，為實現碳中和出一分力。機電署亦會繼續與不同持份者攜手合作，透過不同的宣傳渠道和平台，共同推廣能源效益、節能和可再生能源。

In terms of building energy efficiency, the EMSD aims to submit the proposed amendments to the BEEO to the Legislative Council for review in 2024 to enhance promotion of energy saving and decarbonisation in buildings, and encourage the industry to work together toward achieving carbon neutrality. The EMSD will also continue to collaborate with various stakeholders to promote energy efficiency, energy saving and renewable energy through various promotion channels and platforms.

重點二：進行「太陽能發電建築先導計劃」 Focus 2: Launching a Pilot Scheme on Building-Integrated Photovoltaics

為促進可再生能源的發展，政府會在機電工程署總部大樓推出「太陽能發電建築先導計劃」，在其幕牆應用太陽能發電技術，以提供綠色電力。我們會根據先導計劃收集所得的相關數據，從多方面評估太陽能發電建築的成效和可行性，例如實際發電效能、維修保養的要求和開支，以及建造成本等，以探討這種可再生能源方案在香港的廣泛應用。

To drive the development of renewable energy, the Government will conduct the Pilot Scheme on BIPV at the EMSD Headquarters, applying photovoltaic technology on its facades to supply green electricity. Based on the relevant data collected in the pilot scheme, we will assess the effectiveness and feasibility of BIPV from various aspects, such as the actual power generation efficiency, repair and maintenance requirements and expenditures, as well as the construction expenses, in a bid to explore the wide adoption of this renewable energy solution in Hong Kong.

重點三：加強推廣「強制性能源效益標籤計劃」第四階段 Focus 3: Strengthening the Promotion of Phase IV of the Mandatory Energy Efficiency Labelling Scheme

為配合「強制性能源效益標籤計劃」第四階段於2024年12月1日全面實施，我們會進行多項宣傳和公眾教育工作，進一步提升公眾對計劃的認識。與此同時，我們會繼續舉辦業界講座，並加強向零售商進行宣傳工作，務求讓社會各界為第四階段的全面實施作充足準備。除了加強推廣工作外，機電署會持續檢討強制性標籤計劃，以及擴大涵蓋範圍，助力香港邁向碳中和。

To support the full implementation of Phase IV of the MEELS on 1 December 2024, we will undertake various promotion and public education activities to further raise public awareness of the MEELS. In the meantime, we will continue to organise industry seminars and step up promotional efforts targeting retailers, ensuring that all walks of life are well-prepared for the full implementation of the Phase IV of the MEELS. In addition to ramping up promotion, the EMSD will continuously review the MEELS and expand its scope, helping Hong Kong to achieve carbon neutrality.

重點四：設立「區域供冷系統教育中心」 Focus 4: Establishment of the District Cooling System Education Centre

我們會在啟德區域供冷系統三號廠房設立「區域供冷系統教育中心」，向公眾和業界介紹區域供冷系統的資訊，例如其運作原理、優點等，以提升他們對供冷系統的認識，並收集他們的意見。另外，為推動區域供冷系統和人工智能的發展，我們會舉辦與區域供冷系統和人工智能應用相關的比賽，以進一步提高青年對區域供冷系統的認識和支持。鑑於啟德區域供冷系統在提升能源效益方面卓越成效，未來的新發展區也會採用區域供冷系統，為區內的非住宅建築物供冷。同時，我們會致力研究在北部都會區和交椅洲人工島推展區域供冷系統，以發展節能的綠色基建，把香港建設成為更宜居的綠色城市。

We will set up the District Cooling System Education Centre at the Kai Tak DCS Plant No.3 to disseminate information on DCSs, for example, the operation principles and merits of DCSs, to the public and industry, to deepen their understanding of DCSs, and gather views from them. Besides, to promote the development of DCSs and AI, we will organise a competition related to the applications of AI and DCSs to further enhance youth's understanding and support in DCSs. Thanks to the outstanding achievements of the Kai Tak DCS in improving energy efficiency, DCSs will be adopted in future new development areas to provide cooling services for non-residential buildings there. Meanwhile, we will be committed to studying the implementation of DCSs in the Northern Metropolis and the Kau Yi Chau Artificial Islands, with a view to establishing energy-efficient green infrastructures, thereby making Hong Kong a more liveable green city.

重點五：獲取ISO 45001職業健康及安全管理系統認證 Focus 5: Obtaining the Certification of ISO 45001 Occupational Health and Safety Management System

機電署計劃於2024年為規管服務獲取ISO 45001職業健康及安全管理系統認證，以保障員工和承辦商的作業安全與健康。

The EMSD plans to be certified with ISO 45001 Occupational Health and Safety Management System for its Regulatory Services by 2024, in order to safeguard workplace safety and health of its employees and contractors.

重點六：主辦亞太經合組織專家小組的聯合會議 Focus 6: Hosting the APEC Joint Expert Group Meeting

機電署計劃於2025年4月為亞太經合組織能源工作組轄下四個專家小組舉辦聯合會議，包括能源數據及分析專家小組、能源效率及節約專家小組、新能源及再生能源技術專家小組，以及清潔化石能源專家小組，以共同探討能源轉型、提高能源效益、發展潔淨能源等議題，推動亞太地區的能源可持續發展。

The EMSD plans to host a joint meeting in April 2025 for four expert groups under the APEC EWG, including the Expert Group on Energy Data and Analysis, the Expert Group on Efficiency and Conservation, the Expert Group on New and Renewable Energy Technologies, and the Expert Group on Clean Fossil Energy, to examine issues such as energy transition, enhancing energy efficiency and developing clean energy, with a view to promoting the sustainable development of energy in the Asia-Pacific region.

重點七：主辦亞太經合組織「推廣數碼太陽能資源地圖及管理技術研討會」 Focus 7: Hosting APEC Workshop on Promoting Digital Solar Resources Maps and Management Technologies

機電署計劃於2024年7月8日舉辦亞太經合組織「推廣數碼太陽能資源地圖及管理技術研討會」，推動利用太陽能促進可持續能源轉型。屆時亞太經合組織經濟體系的專家和代表可聚首交流有關太陽能技術知識，分享寶貴心得。

The EMSD plans to hold the APEC Workshop on Promoting Digital Solar Resources Maps and Management Technologies on 8 July 2024 to enhance the utilisation of solar energy in fostering a sustainable energy transition. It will bring together experts and delegates from APEC economies to exchange technical knowledge and share insights on solar technologies.

推廣能源效益及節能
PROMOTING ENERGY EFFICIENCY AND CONSERVATION

未雨綢繆　實時監察
確保區域供冷系統在極端天氣下正常運作

LEVERAGING ADVANCE PREPARATION AND REAL-TIME MONITORING TO ENSURE NORMAL OPERATION OF DISTRICT COOLING SYSTEM DURING EXTREME WEATHER

2023年，香港分別於8月有超強颱風蘇拉襲港及9月的歷時最長黑色暴雨警告。在接連出現的極端天氣中，啟德區域供冷系統廠房的運作並未受影響，實有賴日常嚴謹的監管和事前的充足準備。能源效益部人員在暴雨期間全程監察廠房的情況，確保一切運作正常。待雨勢減弱，團隊立即動身前往各個區域供冷系統支站，檢視設施的狀況，以策安全。

In 2023, Hong Kong experienced the impact of Super Typhoon Saola in August and the longest duration of the Black Rainstorm Warning in September. Thanks to the stringent daily monitoring and adequate preparations beforehand, operation of the Kai Tak District Cooling System (DCS) plant was not affected by the successive extreme weather. During the rainstorms, officers of the Energy Efficiency Division (EED) continuously monitored plant situation to ensure everything operated normally. Once the rain tapered off, the team promptly set out to various DCS substations to inspect the facilities' condition for the sake of safety.

在風暴來臨前，機電署嚴陣以待，以防機電設施受到影響。能源效益部工程師王冠平先生表示，區域供冷系統團隊得悉暴雨即將來襲，便從速前往啟德區域供冷系統的廠房安排防風措施，包括檢查各個排水系統以確保暢通，放置足夠的擋水板和沙包，並確保後備供電系統和地庫排水水泵運作正常。團隊亦到廠房最低樓層檢查排水井，並特別巡查各個有機會漏水的位置。另外，針對可能因電壓驟降而導致的設備故障，團隊也提前做好準備，包括檢查設備的運作情況，並制定相關的緊急應變措施，以便在緊急情況下以最短的時間恢復系統正常運作。

Before the storms arrived, the EMSD was on high alert to prevent any impact on electrical and mechanical facilities. Mr Jairus Wong, an engineer of the EED, stated that upon learning of the impending heavy rain, the DCS team quickly went to the Kai Tak DCS plant to implement wind protection measures, including inspecting all drainage systems to ensure they were unblocked, placing sufficient flood barriers and sandbags, and ensuring the proper operation of backup power supply systems and basement drainage pumps. The team also inspected the sump pits on the lowest floor of the plant and conducted special checks of potential leak locations. In addition, for possible equipment failures due to voltage dips, the team made advance preparations, including checking the operation of equipment and formulating relevant emergency response measures, which could enable the restoration of normal system operation in the shortest time possible in case of emergencies.

雖然區域供冷系統團隊已為廠房應對惡劣天氣作好充分準備，但團隊在暴雨來襲時仍毫不鬆懈，亦不敢掉以輕心，反倒保持警覺，候命支援。能源效益部高級工程師馬靜華女士憶述：「當時區域供冷系統團隊按照事先訂立的危急應變程序，組成緊急應變小組。在極端天氣期間，我們安排營運商定時檢查廠房的設備狀況，並向機電署匯報。一旦有事故發生，緊急應變小組成員便會立即乘坐預先安排的工作車輛返回廠房增援和搶修。」馬女士負責管理緊急應變小組，持續接收前線人員的實時信息，再向總工程師匯報，同時與部門其他小組溝通。儘管特大暴雨的極端天氣情況持續了兩天，緊急應變小組的每位成員仍然緊守崗位，確保廠房運作正常。最終在極端天氣期間，廠房並沒有出現緊急狀況，啟德區域供冷系統亦運作如常。

Although the DCS team had made thorough preparations for adverse weather conditions at the plant, they did not let the guard down or take things lightly when the rainstorm arrived. Instead, they stayed alert and on call for provision of support. Ms Midco Ma, a senior engineer of the EED, recalled, "The DCS team formed an emergency response team at that time in accordance with the emergency response procedure drawn up in advance. During extreme weather, we arranged for the operators to regularly check the status of the plant equipment and report the status to the EMSD. In the event of an incident, members of the emergency response team would immediately return to the plant by the pre-arranged vehicles for support and repair." Ms Ma, who was in charge of the emergency response team, continuously received real-time updates from frontline officers and reported the relevant information to the Chief Engineer, while co-ordinating with other teams within the Department. Even though the extreme weather lasted for two days during the mega-rainstorm, every member of the emergency response team stuck to their posts to ensure the plant operated normally. Eventually, there were no emergencies at the plant during the extreme weather events, and the Kai Tak DCS continued its operation as usual.

除了確保廠房在颱風暴雨下正常運作外，機電署亦要監察區域供冷系統各個支站的狀況。在極端天氣下，王先生當值期間一直密切關注廠房狀況，並規劃巡查各支站的行程。他補充道：「區域供冷系統支站遍布啟德新發展區的重要建築物中，例如醫院、郵輪碼頭、鐵路設施、警務處東九龍總區總部、政府大樓、商業大廈等。雖然我們可以透過安裝在支站內的漏水感應器遙距監察支站的情況，但為了防止潛在問題發生，我們仍須進行實地巡查。因此，我們在暴雨期間與營運商協調巡查行程，待天氣好轉便馬上出發。」由於事前準備充足，各個支站均未受嚴重損毀，區域供冷系統的重要設施亦運作正常。

In addition to ensuring the normal operation of the plant in times of typhoon and rainstorm, the EMSD also had to monitor the status of various DCS substations. Under the extreme weather, Mr Wong closely observed the status of the plant while on duty and planned the inspection schedule for various substations. "DCS substations are located within important buildings in the Kai Tak new development area, such as hospitals, the cruise terminal, railway facilities, the Kowloon East Regional Police Headquarters, government buildings and commercial complexes. While we can remotely monitor the status of the substations through the leak sensors installed inside, on-site inspections are still required to prevent potential issues that may emerge. Thus, we co-ordinated our inspection schedule with the operators during the rainstorms, so we could set out immediately once the weather improved," he added. With thorough preparations made in advance, no major damage was sustained at any of the substations and the essential facilities of DCS functioned properly.

全賴區域供冷系統團隊不辭勞苦，盡心盡力作好周全準備，讓區域供冷系統在風雨中安然無恙，如常運作。馬女士希望團隊未來繼續保持專業和嚴謹的態度，竭力確保區域供冷系統全天候運作正常。

Thanks to the hard work and dedication of the DCS team in making comprehensive preparations, the DCS was able to withstand the rainstorms and operate normally. Ms Ma hoped that the team would continue to take a professional and rigorous approach and do their utmost to ensure the proper operation of the DCS at all times.

圓滿籌辦國際會議　不負超級聯繫人重任

INTERNATIONAL CONFERENCES ORGANISED SUCCESSFULLY, ACCOMPLISHING THE IMPORTANT MISSION OF THE SUPER-CONNECTOR

能源效益部於2023/24年度主辦多項國際活動，包括亞太區經濟合作組織（亞太經合組織）能源數據及分析專家小組第35次會議，以及東南亞國家聯盟（東盟）重新校驗能力培訓工作坊，並邀得不同國家及地區的代表出席。兩項大型活動前者討論能源供需概況和進展，以及新能源技術的數據收集；後者則分享重新校驗技術應用的見解和經驗。

In 2023/24, the Energy Efficiency Division (EED) hosted several international events, including the 35th Meeting of the Asia Pacific Economic Cooperation (APEC) Expert Group on Energy Data and Analysis and Capability Building Training on Retro-commissioning (RCx) of the Association of Southeast Asian Nations (ASEAN). Representatives of different countries and regions were invited to attend the two events. The former event discussed the overview and progress of energy supply and demand, as well as collection of data on new energy technologies, whereas the latter event shared insights into and experience of applications of RCx technologies.

能源效益部高級工程師黃建潭先生和工程師葉惠玲女士在活動中擔當重要的策劃角色，負責籌辦2024年1月的亞太經合組織能源數據及分析專家小組第35次會議，以及同年2月的東盟重新校驗能力培訓工作坊。他們的職責包括籌備活動、協調相關組織的秘書處、各地區和國際組織的代表團，以及主持工作坊和小組討論等。兩人除了做好工程師的份內事外，還竭盡全力為海外訪客提供難忘的香港體驗。

Mr Wong Kin-tam, Anthony, a senior engineer and Ms Yip Wai-ling, Elaine, an engineer of the EED, took on heavy responsibilities in organising the 35th Meeting of the APEC Expert Group on Energy Data and Analysis in January 2024 and the Capability Building Training on RCx of the ASEAN in February of the same year. Their duties encompassed preparing for the events, co-ordinating the secretariats of relevant associations, delegations of various regions and international organisations, and hosting workshops and panel discussions. Apart from fulfilling their duties as engineers, they went above and beyond to provide memorable experiences of Hong Kong for overseas visitors.

黃先生表示與會者來自五湖四海，文化背景各異，因此必須精心策劃活動與本地行程。葉女士則指他們經常易地而處為與會者擬訂活動規格，在安排活動議程、舉行場地、實地考察、餐飲等時候，充分考慮與會者的期望和負擔能力。兩人分析了與會者的訪港次數、背景、資助金額、宗教信仰等細節，悉心安排他們在香港的整個旅程。

Mr Wong stated that the attendees came from all over the world with different cultural backgrounds, so they had to carefully plan the events and local trips. Ms Yip said that they often put themselves in the attendees' shoes to tailor event specifications, so as to take the attendees' expectations and affordability into comprehensive consideration when arranging the event agendas, venues, site visits and catering. The two of them analysed details such as the number of visits to Hong Kong, backgrounds, financial backing and religious beliefs of the attendees, meticulously arranged their entire journey in Hong Kong.

談到過程中的挑戰，黃先生解釋說：「視聽設備失靈或日程突然有變，打亂後續活動的情況並不罕見。然而，我們處變不驚、迎難而上，逐一解決每個問題，使一切都按計劃進行。」

Talking about the challenges in the process, Mr Wong explained, "It is not rare to encounter issues like audio-visual equipment glitches, or sudden changes in schedules that disrupt subsequent activities. However, we maintained our composure and bit the bullet, solving each problem one by one, so that everything went as planned".

葉女士補充說：「即時的多維度分析和上司的信任是成功籌辦兩次國際活動的關鍵。因應瀑布效應的風險、與會者的訴求和得着、工作人員的意願和能力，以及場地交通的彈性，我和團隊更改了行程和工作坊內容，以滿足各方要求。感謝上司信任和支持，讓我們圓滿完成活動，達成活動目標。」

Ms Yip added, "Real-time multidimensional analysis and the trust of supervisors were key to the success of organising the two international events. Having regard to the risks of cascading effects, attendees' desires and gains, staff's willingness and capabilities, as well as the flexibility of venue transportation, my team and I adjusted the itinerary and workshop content to meet the requirements of all parties. We are grateful for the trust and support of our supervisors, which enabled us to smoothly conclude the efficacious events and achieve their goals."

在短時間內成功籌辦兩項國際活動，令黃先生和葉女士大為鼓舞。兩人都慶幸參加者和機電署人員合作無間，共同應對區內的能源挑戰。是次活動不但為二人提供寶貴經驗，建立國際間的人脈網絡，更令他們了解有效溝通、團隊合作和適應能力的重要；這些技能將應用於推動香港的低碳能源發展。

Successfully organising two international events in a short time, Mr Wong and Ms Yip were greatly encouraged. Both of them were gratified by the collaboration between the participants and EMSD staff, who jointly met the energy challenges in the region. These events not only provided the two of them with invaluable experience and established international networks, but also deepened their understanding of of effective communication, teamwork and adaptability, which are the skills that will be applied to promote low-carbon energy development in Hong Kong.

他們充分發揮香港作為內地與國際社會之間超級聯繫人的職能，並向世界展示機電署「因時制宜」的能力。

They fully performing the function of Hong Kong to serve as a super-connector between the Mainland and the international community, and showcasing the EMSD's ability to take timely and appropriate actions.

提升公眾機電安全及節能意識
RAISING PUBLIC AWARENESS OF E&M SAFETY AND ENERGY CONSERVATION

作為機電安全的規管者，我們不但監管業界，採取「安全為先」的方針建設香港，還擁抱創新科技(創科)，以提升能源效益，積極發展智慧城市。與此同時，我們致力提升業界和公眾對機電安全和節約能源的意識，共同構建可持續的未來，推動香港邁向碳中和。

As the regulator of electrical and mechanical (E&M) safety, we not only oversee the industry to adopt the approach of "putting safety first" for building Hong Kong, but also embrace innovation and technology (I&T) to enhance energy efficiency and actively develop our smart city. At the same time, we are committed to raising the awareness of the industry and the public on E&M safety and energy conservation, working together to create a sustainable future and move Hong Kong towards carbon neutrality.

回望過去一年，機電署秉持「利民為本」的信念，持續加強與業界的聯繫以及公眾教育，並舉辦逾千項活動，讓社會人士更了解機電安全重要。

Looking back at the past year, the EMSD upheld the principle of "bringing benefits to the public", continuing to strengthen our connections with the industry and enhance public education, and organising over a thousand activities, to promote the understanding of the importance of E&M safety in society.

全面提升業界的安全意識

為了持續提升香港機電行業的整體安全水平，機電署在年內除了執行機電安全和能源效益方面的規管工作外，亦透過不同渠道廣泛宣傳安全守則與作業指南，深化交流和共享技術資源，從根本強化業界的安全和節能意識。

COMPREHENSIVE ENHANCEMENT OF SAFETY AWARENESS OF THE TRADE

To continuously enhance the overall safety standards of the E&M industry in Hong Kong, the EMSD, in addition to undertaking the regulatory work in respect of E&M safety and energy efficiency, engaged in extensive promotion of safety codes and operational guidelines through various channels, deepened exchanges and shared technical resources to fundamentally strengthen the awareness of the industry on safety and energy conservation during the year.

策略一：積極聯繫業界

過去一年，極端天氣愈發頻繁，對機電安全構成一定的潛在風險。因此，機電署與業界保持緊密聯繫，透過即時通訊軟件、組成工作小組和發布通訊等方式，敦促各持份者做好預防措施，共同應對挑戰。

Strategy 1: Proactively Engaging with the Trade

Over the past year, extreme weather has become increasingly frequent, posing certain potential risks to E&M safety. In response to that, the EMSD has maintained close communication with the trade through instant messaging software, the formation of working groups, and the issuance of newsletters, urging stakeholders to take preventive measures to collectively address these challenges.

機電署於2023年9月27日舉辦「氣體業界暨創科論壇」，共有250名氣體業界持份者參與，包括職業訓練局、註冊氣體供應公司和相關工會代表，以及註冊氣體裝置技工。論壇旨在促進業內溝通和交流，推動業界提升安全水平，並鼓勵業界善用創新技術實現可持續發展。

On 27 September 2023, the EMSD held the "Gas Trade cum I&T Forum", with the participation of 250 stakeholders of the gas trade, including representatives from the Vocational Training Council, registered gas supply companies (RGSCs) and the relevant trade unions, as well as registered gas installers (RGIs). The forum was aimed at facilitating communication and exchange within the trade, encouraging the trade to enhance safety standards, and promoting the adoption of innovative technologies for sustainable development.

「氣體業界暨創科論壇」匯聚不同持份者交流和討論氣體安全和創科應用等重要議題，更鼓勵業界善用創科，從而推動行業的創科發展。

The "Gas Trade cum I&T Forum" brought together various stakeholders to exchange views and discuss about important topics, including gas safety and I&T applications, and encouraged the sector to make good use of I&T, thereby promoting the development of I&T in the industry.

論壇不僅為氣體業界提供交流和討論的平台，探討行業的發展趨勢和創科應用，更透過頒發「優秀註冊氣體裝置技工比賽2023」的獎項，表彰前線技工在維護氣體安全方面的貢獻，讓業內骨幹和新血得以薪火相傳，攜手迎接未來的挑戰。

Not only did the forum provide a platform for the gas trade to exchange views and discuss the development trends and I&T applications in the trade, but it also recognised the contribution of frontline RGIs in maintaining gas safety by presenting awards under the RGI Awards Scheme 2023, fostering the passing of knowledge and skills from veteran professionals to newcomers to the trade to meet future challenges together.

此外，機電署於2023年9月聯同港九電器工程電業器材職工會和香港電器工程商會舉辦「電力規例研討會」。受疫情影響，電力規例研討會自2020年起以網上直播的形式進行。隨着社交距離措施放寬，本年度的研討會恢復以實體形式進行，共有逾900名註冊電業工程人員參加。機電署透過研討會鼓勵註冊電業工程人員進行持續專業進修，並在會上講解電動車充電設施的供電和安全考慮等議題。

In addition, the EMSD organised the Annual Technical Seminar jointly with the Hong Kong & Kowloon Electrical Engineering & Appliances Trade Workers Union and the Hong Kong Electrical Contractors' Association in September 2023. Due to the epidemic, the seminar had been conducted in the form of live webcast since 2020. With the relaxation of social distancing measures, the seminar this year, resumed in physical form, and over 900 registered electrical workers (REWs) participated. Through this seminar, the EMSD encouraged REWs to pursue continuing professional development (CPD), and elaborated on topics such as power supply and safety concerns for electric vehicle charging facilities in the seminar.

提升公眾機電安全及節能意識
RAISING PUBLIC AWARENESS OF E&M SAFETY AND ENERGY CONSERVATION

機電署亦與物業管理業監管局於年內攜手舉辦「樓宇機電安全及能源效益講座」，參加人數高達231人。有關講座讓持牌物業管理公司的從業員了解如何透過推動節能綠建實現碳中和，並認識樓宇電力安全、升降機及自動梯數碼工作日誌、住宅大廈的氣體安全，以及安裝和維修R32家用冷氣機等。

During the year, the EMSD also collaborated with the Property Management Services Authority to organise the Property Management Seminar, which was attended by 231 participants. This seminar enabled practitioners of licensed property management companies to understand how carbon neutrality could be achieved through the promotion of energy saving and green buildings, and to gain knowledge on electrical safety in buildings, the Digital Log-books for Lifts and Escalators, gas safety in residential buildings, and the installation and maintenance of R32 household air-conditioners.

鑑於現時建築物佔全港用電量約九成，機電署積極向物業管理公司推廣節能綠建，以期大幅節省用電量，加快香港實現碳中和。

Given that buildings account for approximately 90% of Hong Kong's total electricity consumption, the EMSD actively promotes energy saving and green buildings to property management companies, with a view to significantly reducing energy consumption and accelerating the pace to achieve carbon neutrality in Hong Kong.

年內，機電署與廣東省科學技術協會合辦「綠色創科日2023」，本署並派出代表團前往廣州出席此大型活動。活動吸引了超過200名來自大灣區的創科和機電業、大學及公營機構等界別的人士親臨參與，以及逾十萬人次觀看網上直播。

This year, the EMSD partnered with the Guangdong Provincial Association for Science and Technology to organise the Green I&T Day 2023, and a delegation from EMSD attended this large-scale event in Guangzhou. The event attracted over 200 participants from various sectors, including the I&T and E&M trades, universities and public institutions within the Greater Bay Area, as well as over 100 000 views for the live broadcast.

綠色創科日設有多場研討會，邀請兩地專家就「綠色轉型」和「邁向碳中和」分享利用創科減碳的經驗。活動亦匯聚15家香港和內地參展商，展示他們在節能和可再生能源方面的創科成果。另外，機電署在活動中與廣東省建築科學研究院集團股份有限公司和廣東省建設科技與標準化協會簽訂《建築機電系統綠色智慧技術及人工智能標準合作備忘錄》，旨在協同三方研究和編製技術標準，深化人工智能技術的應用，建設綠色智慧的數字生態文明，共同為建設更宜居和可持續發展的大灣區獻力。

Various seminars were held during the Green I&T Day, where experts from the two regions were invited to share their experience in using I&T to reduce carbon emissions under the themes of "green transformation" and "journey to carbon neutrality". The event also brought together 15 exhibitors from Hong Kong and the Mainland to showcase their I&T achievements in energy conservation and renewable energy. Furthermore, the EMSD signed a Memorandum of Co-operation on Green Intelligent Technology and Artificial Intelligence Standards for Electrical and Mechanical Systems of Buildings with the Guangdong Provincial Academy of Building Research Group Co., Ltd. and the Guangdong Province Construction Technology and Standardization Association at the event, aiming to facilitate research of the three parties and development of technical guidelines, deepen the application of artificial intelligence technologies, and develop green intelligent and digitalisation technologies, so as to contribute together to building a more liveable and sustainable Greater Bay Area.

此外，為鼓勵業界發展創科方案，以更安全高效的方式進行日常作業，機電署積極鼓勵各部別在規管工作中開發並採用創科方案，進而將技術推展至業界。不同職級的員工均主動參與發展創科方案。在2023/24年度，有18個創科項目的研發工作已經完成，另有28個創科方案則正在推展中。在該46個創科方案中，有4個在第49屆日內瓦國際發明展上獲得獎項。

Moreover, to encourage the trade to develop I&T solutions for safer and more efficient daily operations, the EMSD actively promoted the development and adoption of I&T solutions in the regulatory work across our divisions, which in turn extended the technologies to the trade. Our staff members at all levels have taken the initiative to participate in the development of I&T solutions. In 2023/24, the development work of 18 I&T projects had been completed and that of 28 I&T solutions were in progress. Among the 46 I&T solutions, four of them received awards at the 49th International Exhibition of Inventions of Geneva.

機電署持續推動創科方案的應用，令受規管者也積極採用創科項目，包括「自動故障檢測和診斷太陽能發電系統狀況的人工智能工具」、「氣體管道健康智能預測模型」等。由此可見，機電署積極採用創科，為業界樹立榜樣，並鼓勵業界主動創新，有關措施已取得初步成效。我們期望未來的創科發展日益蓬勃，令本港逐步發展為智慧城市。

With our continuous drive for the application of I&T solutions, regulatees have also been actively adopting I&T projects, including an AI Tool for Automatic Fault Detection and Diagnosis of Photovoltaic Systems and Gas Pipe Health AI Prediction Model. This demonstrates that the EMSD has been actively embracing I&T to set an example for the trade while encouraging proactive innovation within the trade, and these measures have proven initial effectiveness. We hope the future I&T development in Hong Kong will continue to flourish so that Hong Kong will gradually evolve into a smart city.

提升公眾機電安全及節能意識
RAISING PUBLIC AWARENESS OF E&M SAFETY AND ENERGY CONSERVATION

策略二：推展持續專業進修和認可安排

機電署於2019年推出「機電行業通」流動應用程式，為註冊電業工程人員、註冊升降機/自動梯工程師、註冊升降機/自動梯工程人員、註冊氣體裝置技工和註冊車輛維修技工提供安全貼士、工作守則、培訓課程等方面的資訊。

此外，我們於2022年推出「VM加分站」，讓車輛維修技工可以隨時隨地學習車輛維修的知識及相關安全準則，並通過在網上閱讀教材和進行測驗取得進修時數，以達到自願註冊計劃的持續專業進修要求。車輛維修技工亦可透過「VM加分站」管理其持續專業進修記錄，以及上載其他機構頒發的持續專業進修證書，讓他們足不出戶便可完成車輛維修技工的註冊申請。截至2024年，已有2 400名車輛維修技工使用「VM加分站」，並在平台上完成超過30 000小時的持續專業進修課程，可見業界積極提升安全和技術水平。

Strategy 2: Promoting Continuing Professional Development and Recognition Arrangement

The EMSD launched the mobile application "E&M Connect" in 2019 to provide information on codes of practice, training courses and safety tips, etc. to REWs, registered lift/escalator engineers, registered lift/escalator workers, RGIs and registered vehicle mechanics.

In addition, we introduced the VM Learning Station in 2022, allowing vehicle mechanics to learn about vehicle maintenance and related safety standards anytime and anywhere, and earn CPD hours by reading materials and taking tests online to meet the CPD requirements of the voluntary registration scheme. Vehicle mechanics can also manage their CPD records through the VM Learning Station and upload CPD certificates issued by other organisations. That means they can complete their registration applications from home. As at 2024, 2 400 vehicle mechanics have used the VM Learning Station and completed over 30 000 hours of CPD courses on the platform, demonstrating the enthusiasm of the trade for enhancing safety and technical standards.

「VM加分站」為車輛維修技工提供一站式學習平台，讓他們可以隨時隨地學習車輛維修的知識，以及在網上管理持續專業進修記錄，方便申請註冊。

The VM Learning Station provides a one-stop learning platform for vehicle mechanics, allowing them to acquire knowledge on vehicle repair anytime and anywhere and manage their CPD records online, thereby facilitating their registration application.

除了推動前線從業員進行持續專業進修外，機電署亦於年內積極為業界舉辦各項比賽，包括「優秀註冊氣體裝置技工比賽2023」、「2023年度表現優異註冊電業承辦商比賽」等，以嘉許表現傑出的工程人員和承辦商，樹立行業典範，從而持續提升業界從業員的安全意識和技術水平，推動機電工程的安全文化。

策略三：為持份者進行氣體裝置快速檢查

鑑於有不少食肆使用燃氣煮食，機電署於2023年為餐飲業推出「快速檢查」計劃。在計劃下，註冊氣體供應公司免費為其客戶的氣體裝置進行快速檢查，以盡早發現和處理安全隱患，確保氣體安全。年內，我們根據風險為本的原則，為600家指定食肆完成快速檢查，並獲得正面回應。因此，我們決定於2024年推出「快速檢查」計劃的第二階段，目標於年底前完成另外600家食肆的氣體裝置快速檢查，並向餐飲業推廣氣體安全資訊和定期進行安全檢查的重要，以提升餐飲業的氣體安全水平。

除了餐飲業外，機電署亦積極透過「快速檢查」計劃向洗衣業推廣氣體安全。為確保洗衣店的氣體安全，我們走訪逾400家洗衣店，以找出當中使用瓶裝石油氣作為乾衣機燃料的店鋪，並在註冊氣體供應公司的支持下，於年內為200家使用石油氣乾衣機的洗衣店進行快速檢查。此外，我們就「快速檢查」計劃的結果和數據進行分析，以全面審視和更新《工作守則：氣體應用指南之十三：商用氣體乾衣機》，從而提升洗衣業的氣體安全水平。更新版本預計會在完成業界諮詢後發布。

Apart from promoting CPD for frontline practitioners, the EMSD actively organised various competitions for the trade this year, including the RGI Awards Scheme 2023 and the Outstanding Registered Electrical Contractors Competition 2023, to recognise engineering personnel and contractors with remarkable performance, and set good examples for the trade, and thereby continuously enhancing the safety awareness and technical skills of trade practitioners, and fostering a culture of safety in E&M engineering.

Strategy 3: Conducting Quick Checks on Gas Installations for Stakeholders

In view of the large number of restaurants using gas for cooking, the EMSD launched a "Quick Check" scheme for the catering trade in 2023. Under the scheme, RGSCs conducted quick checks on gas installations for their clients free of charge, aiming to identify and address potential safety hazards as early as possible to ensure gas safety. During the year, we completed quick checks for 600 selected restaurants on a risk-based principle, and received positive feedback. Therefore, we have decided to launch the second phase of the "Quick Check" scheme in 2024, with the goal of completing quick checks for another 600 restaurants by the end of the year. We will also promote gas safety information and the importance of regular safety inspections to the catering trade, thereby enhancing gas safety standards in the trade.

In addition to the catering trade, the EMSD has also actively promoted gas safety to the laundry trade through the "Quick Check" scheme. To ensure gas safety, we visited over 400 laundry shops to identify those using cylinder liquefied petroleum gas (LPG) as fuel for their dryers. With the support of RGSCs, quick checks were conducted for 200 laundry shops using LPG dryers during the year. Furthermore, we have analysed the results and data of the "Quick Check" scheme to comprehensively review and update the Code of Practice GU 13: Commercial Gas Dryer, in order to enhance gas safety standards in the laundry trade. The updated version is expected to be released after consultation with the trade.

提升公眾機電安全及節能意識
RAISING PUBLIC AWARENESS OF E&M SAFETY AND ENERGY CONSERVATION

加強公眾教育及宣傳

要實現城市「零意外」和碳中和，提高公眾的機電安全和節能意識是不可或缺的條件。機電署一直致力以全方位及多管齊下的方式進行公眾教育和宣傳，透過舉辦多元化的活動和推出教材套，加深市民的機電安全和節能意識。我們希望與市民攜手努力，在邁向碳中和的路上同行。

策略一：舉辦比賽和公眾活動

機電署於2023年12月2日至3日舉辦「機電75周年同樂日」，主題為「傳承創新 同心惠民」。我們聯同業界伙伴舉辦攤位遊戲、STEAM（科學、科技、工程、藝術和數學）工作坊、機械人編程工作坊、虛擬實境遊戲、機電創科專區和啟德區域供冷系統一號廠房導賞團、政府車輛展示等，讓市民了解機電署的日常工作和優質服務，並加深他們對機電安全、節能減排和創新科技應用的認識。

政府致力爭取於2050年前實現碳中和，以及在2035年前把香港的碳排放量從2005年的水平減半。為鼓勵工商界、專業人士和青少年開始深度減碳，環境及生態局和機電署於2023/24年度啟動「全民節能減碳2023」運動，推動各方攜手節能減碳，加快香港的低碳轉型。

STEPPING UP PUBLIC EDUCATION AND PUBLICITY

To foster an incident-free city and achieve carbon neutrality, raising public awareness of E&M safety and energy conservation is integral. The EMSD has always been committed to adopting a holistic and multi-pronged approach in conducting public education and promotion. By organising diverse activities and launching educational kits, we aim to enhance public awareness of E&M safety and energy saving. We hope to work hand in hand with the public as we journey together towards carbon neutrality.

Strategy 1: Organising Competitions and Public Events

On 2 and 3 December 2023, the E&M 75th Anniversary Fun Day was held under the theme of "Serving the Community with Heart and Innovation". Together with our industry partners, we organised booth games, STEAM (Science, Technology, Engineering, Arts and Mathematics) workshops, robot coding workshops, a virtual reality game, guided tours of the E&M InnoZone and the Kai Tak District Cooling System Plant No.1, a showcase of government vehicles, etc., for the public to learn about the daily work and quality services of the EMSD, as well as deepening their understanding of E&M safety, energy efficiency, emission reduction and I&T application.

The Government is striving to achieve carbon neutrality over 2050 and reduce Hong Kong's carbon emissions by 50% before 2035 as compared to the 2005 level. To encourage the commercial and industrial sectors, professionals and the youth to embark on a deep decarbonisation journey, the Environment and Ecology Bureau (EEB) and the EMSD launched the Energy Saving and Decarbonisation for All 2023 Campaign in 2023/24 to encourage various parties to save energy and reduce carbon emissions, thereby accelerating the low-carbon transformation of Hong Kong.

「全民節能減碳2023」運動由環境及生態局和機電署舉辦，內容包括推廣《節能約章2023》和《4T約章》，以及舉行「慳神大比拼2023」。

The Energy Saving and Decarbonisation for All 2023 Campaign, jointly organised by the EEB and the EMSD, comprised the promotion of the Energy Saving Charter 2023 and the 4T Charter, and the organisation of the Energy Saving Championship Scheme 2023.

「全民節能減碳2023」運動包括推廣《節能約章2023》和《4T約章》，以及舉行「慳神大比拼2023」。就《節能約章2023》而言，超過3 200個參與者為其處所簽署該約章，承諾在2023年6月至9月期間把平均室內溫度維持在攝氏24至26度；關掉無需使用的電器及系統，並採購具能源效益的產品；與員工、學生和租客共同實踐以上節能措施；推廣能源數據的透明度，並分享節能措施和成果；以及促進既有建築節能改造。在《4T約章》方面，超過750個場所簽署該約章，承諾訂立節能目標和時間表，確保節能成果和建築物能源數據的透明度，以及鼓勵全民（如員工/學生/住戶/租客）共同參與達成節能目標。「慳神大比拼2023」設有「家居節能大比拼」和「新世代慳神大比拼3.0」兩項節能比賽，前者旨在推動公眾參與「全民節能減碳2023」運動；後者的目標是啟發年輕人的創造力和想像力，通過節能和更廣泛地採用可再生能源，在2050年前實現碳中和。

為推廣節能減碳和可再生能源，我們於年內舉辦多項公眾教育活動，包括外展講座、主題展覽和巡迴展覽。在2023年4月至2024年3月期間，我們在學校舉辦了87場講座，並在老人中心舉辦了44場講座，參與者多達16 557人。其中於2024年夏季舉行的兩場「能源效益及節約暨可再生能源講座」更涵蓋能源效益標籤計劃、建築物能源效益與管理、可再生能源技術、綠色創新科技等多個範疇，共有超過630名參加者出席。

The campaign comprised the promotion of the Energy Saving Charter 2023 and the 4T Charter, and the organisation of the Energy Saving Championship Scheme 2023. For the Energy Saving Charter 2023, more than 3 200 participants signed up to it for their premises, pledging to maintain an average indoor temperature between 24°C and 26°C from June to September 2023; switch off electrical appliances and systems when not in use, and procure energy-efficient appliances and systems; engage staff, students and tenants to adopt the above energy saving practices together; promote energy data transparency, and share energy saving measures and achievements; and promote building energy saving retrofit. As for the 4T Charter, over 750 participants joined in for their premises by pledging to set an energy saving target with a timeline, ensure transparency of energy saving results and building energy data, and encourage inhabitants (staff, students, occupants and tenants) to work together on the above energy saving target. Under the Energy Saving Championship Scheme 2023, two energy saving competitions, the Competition for Households and the Competition for Students, were launched. The former was aimed at promoting public participation in the Energy Saving and Decarbonisation for All 2023 Campaign, while the latter sought to inspire the creativity and imagination of the young people towards achieving carbon neutrality before 2050 through energy saving and the wider adoption of renewable energy.

To promote energy saving and carbon reduction, as well as renewable energy, we organised multiple public education activities throughout the year, including outreach talks, thematic and roving exhibitions. From April 2023 to March 2024, we conducted 87 talks in schools and 44 talks in elderly centres, with as many as 16 557 participants. Two Public Seminars on Energy Efficiency & Conservation and Renewable Energy were conducted in 2024 summer. The topics covered energy efficiency labelling schemes, building energy efficiency and management, renewable energy, green innovation and technology. Over 630 participants attended the seminars.

提升公眾對節能減碳和使用可再生能源的意識對實現碳中和十分重要。機電署於年內舉辦多項公眾教育活動，包括外展講座、主題展覽和巡迴展覽，例如在學校舉行的87場講座，以及在老人中心舉行的44場講座。

Raising public awareness of energy conservation and carbon reduction, as well as the use of renewable energy is essential to achieving carbon neutrality. In the year, the EMSD organised various public education activities, including outreach seminars, thematic and roving exhibitions. For example, we have conducted 87 and 44 talks in schools and elderly centres respectively.

提升公眾機電安全及節能意識
RAISING PUBLIC AWARENESS OF E&M SAFETY AND ENERGY CONSERVATION

此外，為向本港不同種族的人士推廣節能，我們出版的《家居節能小貼士》小冊子除了備有中文、英文、印尼文和菲律賓文版本外，今年更增設六種少數族裔語言的版本，包括印度文、尼泊爾文、越南文、泰文、旁遮普文和烏爾都文，為更多少數族裔人士提供實用的節能資訊。

Additionally, to promote energy saving to people of different ethnicities in Hong Kong, our booklet "Energy Saving Tips for Home" originally available in Chinese, English, Indonesian and Filipino, was provided in six more ethnic minority languages, including Hindi, Nepali, Vietnamese, Thai, Punjabi and Urdu this year, offering practical information on energy saving to more ethnic minorities.

《家居節能小貼士》小冊子在今年增設六種少數族裔語言的版本，包括印度文、尼泊爾文、越南文、泰文、旁遮普文和烏爾都文，為更多少數族裔人士提供實用的節能資訊。

This year, "Energy Saving Tips for Home" was published in six more ethnic minority languages, including Hindi, Nepali, Vietnamese, Thai, Punjabi and Urdu, offering practical information on energy saving to more ethnic minorities.

為推廣電力安全，我們參與消防處和民政事務總署在各區舉辦的防火嘉年華，並在活動中設置攤位和舉辦機電安全講座，教育市民正確使用電氣產品，提高他們的安全意識，以免發生電力事故或火災。

To promote electrical safety, we participated in fire safety carnivals organised in various districts by the Fire Services Department and the Home Affairs Department by setting up booths and conducting E&M safety talks to educate the public on the proper use of electrical products and raise their awareness of safety risks, so as to avoid electrical incidents or fires.

另外，為加強公眾的節能意識，我們於2024年3月1日舉行「淡水冷卻塔和建築物能源效益的規管及實務技術研討會」，向業界推廣淡水冷卻塔計劃，並講解建築物能源效益，重新校驗和可再生能源的最新發展，吸引超過200名業界人士和機電署人員出席。我們希望政府與社會各界通力合作，實施節能減排措施，以加快低碳轉型的步伐，協助香港於2050年前達致碳中和。

Moreover, to strengthen public awareness of energy conservation, we held the Technical Forum on Control and Practice of Fresh Water Cooling Towers (FWCT) and Buildings Energy Efficiency on 1 March 2024 to promote the FWCT scheme to the industry, and introduce the latest developments of building energy efficiency, retro-commissioning and renewable energy, which attracted over 200 trade practitioners and EMSD officers. We look forward to the concerted effort of the Government and all sectors of society in implementing energy saving and emission reduction measures, with a view to expediting low-carbon transformation and helping Hong Kong achieve carbon neutrality by 2050.

策略二：推動校本宣傳和青少年教育

為了從小培養學生在日常生活中省電節能的良好習慣，以及機電安全意識，機電署成立了外展隊，向幼稚園學生灌輸正確的電力及氣體安全知識，並希望他們向家人傳遞相關信息。自2023年12月成立外展隊以來，共有超過18 800名學生參加我們的外展活動。在外展活動中，我們與機電署吉祥物一同走進校園，以互動教學和故事劇場的形式向學生傳遞電力安全信息，學生的反應十分熱烈。我們亦舉辦「港鐵安全體驗天地」參觀活動，向幼稚園學生推廣鐵路安全和正確使用自動梯，例如教育他們在港鐵站內使用自動梯時，須站穩並緊握扶手，以免發生意外。

Strategy 2: Promoting School-Based Publicity and Youth Education

To cultivate good habits of energy-saving in daily lives and E&M safety awareness among students from a young age, the EMSD established an outreach team to instil the correct knowledge of electrical and gas safety in kindergarten students, with a view to spreading the relevant messages to their family members through them. Since the establishment of the outreach team in December 2023, the EMSD has reached out to over 18 800 students. During the outreach activities, we visited schools together with the EMSD mascot and conveyed electrical safety messages to students through interactive teaching and story theatre, which received overwhelming responses of students. Also, by organising visits to the MTR Safety Experience Zone, we promoted railway safety and proper use of escalators among kindergarten students. For example, we educated them on the importance of standing firm and holding the handrail tightly when using escalators in MTR stations to avoid accidents.

自2023年12月機電署成立外展隊以來，共有超過18 800名學生參加我們的外展活動。

Since the establishment of the EMSD outreach team in December 2023, over 18 800 students have participated in our outreach activities.

年內，我們積極利用社交媒體平台推廣鐵路安全和正確使用自動梯，例如教育市民在港鐵站內使用自動梯時站穩並緊握扶手，免生意外。

Throughout the year, we actively made use of social media platforms to promote railway safety and proper use of escalators. For example, we educated citizens to stand firm and hold the handrail tightly when using escalators in MTR stations to avoid accidents.

此外，機電署於2023年舉辦了「啟德區域供冷系統」填色及繪畫比賽，鼓勵小學生就能源效益和節約能源以及可再生能源技術，展現創意和想像力，並讓他們認識區域供冷系統，進而了解區域供冷系統如何促進節能減排。

Besides, the EMSD held the "District Cooling System at Kai Tak Development" Colouring and Drawing Competition in 2023, encouraging primary school students to express their innovative and imaginative ideas on energy efficiency and conservation and renewable energy technologies, as well as familiarising them with DCSs and helping them understand how DCSs contribute to energy saving and carbon reduction.

提升公眾機電安全及節能意識
RAISING PUBLIC AWARENESS OF E&M SAFETY AND ENERGY CONSERVATION

為進一步推廣可再生能源，機電署更於年內聯同環境及生態局和教育局，編製「採電學社」中學STEAM教材套，介紹太陽能發電系統的科學原理和應用，並深入探討太陽能的發展，以增進學生對可再生能源的認識，從而向他們推廣低碳生活。

To further promote renewable energy, the EMSD collaborated with the EEB and Education Bureau in compiling the Solar Harvest STEAM educational kit for secondary schools, which introduces the scientific principles and applications of solar energy generation systems, and explores the development of solar energy in depth, with a view to enhancing students' knowledge on renewable energy, thereby promoting low-carbon living.

機電署轄下的機電青少年大使計劃在過去一年舉辦多項活動，旨在透過向青少年提供機電安全、能源效益及機電業知識，讓他們以機電青少年大使的身分推廣正確的訊息和良好習慣。在2023/24學年，我們推出「校園先導計劃」，透過STEAM活動、職業分享講座以及職場體驗活動，讓三十多間中小學以互動形式體會機電工程行業與日常生活息息相關。

The E&M Young Ambassador (EMYA) Programme under the EMSD organised a variety of activities in the past year to equip young people with knowledge on E&M safety, energy efficiency, and the E&M trade, as well as enabling them to promote accurate messages and good practices as E&M Young Ambassadors. In the 2023/24 academic year, we launched the "School Pilot Programme," and engaged over 30 primary and secondary schools in interactive activities such as STEAM workshops, career talks and wjob tasting events. These activities allowed students to gain more understanding towards the relationship between the E&M engineering trade and daily life.

二百多名會員及其親友出席機電青少年大使周年聚會2023。

More than 200 members and their relatives and friends attended the EMYA Annual Gathering 2023.

機電署於2023/24學年推出「機電青少年大使校園先導計劃」，共有34所學校參與。

The EMSD launched the "EMYA School Pilot Programme" in the 2023/24 School Year, with 34 schools participating.

策略三：加強網上宣傳及傳媒聯絡

機電署一直密切留意市場和業界發展，並積極透過各種平台發放機電安全的信息。除了傳統媒體和機電署網頁外，我們亦利用各個社交媒體平台，以文字、資訊圖表和短片等形式，向公眾和業界傳達重要的機電安全資訊。現時，我們每周都會在機電署吉祥物「機智啤啤」和「智析寶寶」的社交媒體專頁上載有關機電安全的帖文，務求以有趣生動的方式傳遞信息，拉近與市民的距離。

Strategy 3: Strengthening Online Promotion and Media Liaison

The EMSD has been closely monitoring market and industry developments while actively disseminating messages on E&M safety through various platforms. In addition to traditional media and the EMSD website, we also leverage different social media platforms to convey important E&M safety information to the general public and the industry in the form of text, infographics and short videos. Currently, we upload posts on E&M safety every week on the social media page of our mascots, Witty Bear and Knowbot, to drive home the messages in a lively and interesting way and engage with local communities.

機電署十分重視傳媒關係，我們積極與傳媒聯繫並主動發放部門資訊。在過去一年，我們舉行多場傳媒簡介會，向公眾介紹機電署的創新科技成果以及規管工作的發展，包括政府級物聯通(GWIN)試驗項目、日內瓦國際發明展獎項等。此外，我們主動聯絡多間傳媒機構，推廣機電安全及節能減碳訊息。

The EMSD places great importance on media relations. We proactively engage with media and disseminate departmental information. Over the past year, we organised a number of media briefings to showcase EMSD's I&T achievements and the developments of our regulatory work, including Government Wide IoT (GWIN) pilot project and awards received at the Geneva International Exhibition of Inventions. We also reached out to various media organisations to promote messages on E&M safety as well as energy conservation and carbon reduction.

機電署主動聯絡傳媒，以推廣創科方案、機電安全和節能減碳。

The EMSD reached out to the media for promoting I&T solutions, E&M safety, energy conservation and carbon reduction.

年內，機電署亦製作了一系列教育短片，深入淺出講解機電安全的知識，並宣傳各項活動。短片內容包括在跨境電商平台購買電氣產品時應注意的安全事項、《建築物能源效益條例》、「綠色社福機構」計劃、「綠色校園2.0－智能慳電」，以及啟德區域供冷系統一號廠房虛擬導賞遊等。

Throughout the year, the EMSD produced a series of educational videos to explain the knowledge of E&M safety in an easy-to-understand manner and promote various activities. The content includes the tips for purchasing electrical products on cross-border e-commerce platforms, the Buildings Energy Efficiency Ordinance, the "Green Welfare NGOs" scheme, "Green Schools 2.0 – Energy Smart", and a virtual tour of the Kai Tak DCS Plant No.1.

2024年年初，機電署獲政府新聞處邀請拍攝短片，向社會大眾介紹區域供冷系統，以及分享採用「機電裝備合成法」節省工程時間的經驗。我們亦應邀出席香港電台的《凝聚香港》，並在節目中介紹機電署在機電安全方面的規管角色和工作，例如監察海上液化天然氣接收站的氣體安全狀況。

In early 2024, the EMSD was invited by the Information Services Department to shoot a short video introducing DCSs and sharing our experience in adopting Multi-trade integrated Mechanical, Electrical & Plumbing (MiMEP) method to save construction time. We were also invited to the RTHK programme "Hong Kong United" to brief on our regulatory role and work on E&M safety, such as monitoring the gas safety condition of the offshore liquefied natural gas terminal.

未來，機電署會繼續透過不同渠道進行公眾教育和宣傳，務求向市民傳遞最新、最全面的機電安全信息。

In the future, the EMSD will continue to utilise various channels for public education and promotion, with a view to conveying the latest and most comprehensive E&M safety messages to the public.

機電署善用不同渠道進行公眾教育和宣傳，例如透過電視節目向市民推廣能源標籤和「GU」標誌的重要。

The EMSD leveraged various channels for public education and promotion, such as promoting the importance of energy labels and the GU mark to the public through television programmes.

機電工程營運基金報告
ELECTRICAL AND MECHANICAL SERVICES TRADING FUND REPORT

抱負 VISION

致力提供優質機電工程服務，精益求精，以提升市民的生活質素。

To improve the quality of life for our community through continuous enhancement of our electrical and mechanical engineering services.

使命 MISSION

客戶 CUSTOMER
提供優質的工程方案，以滿足客戶的需要。
Providing quality engineering solutions to satisfy our customers' needs.

員工 STAFF
建立一支卓越的員工隊伍，並維持和諧的工作環境。
Developing a competent workforce and maintaining a harmonious environment.

部門 ORGANISATION
擁抱創新及科技提供更佳服務。
Embracing innovation and technology for service enhancement.

信念 VALUES

誠信 INTEGRITY
我們秉持誠信，維持良好道德操守。
We uphold honesty and integrity to embrace an ethical culture.

出色服務 SERVICE EXCELLENCE
我們提供安全可靠、高效率、具成本效益及利惠環保的全面優質服務。
We provide comprehensive quality services that are safe, reliable, efficient, cost-effective and environment-friendly.

關懷 CARING
我們關懷員工、客戶和市民大眾，並重視環保。
We care for our staff, customers, community and the environment.

以客為本 CUSTOMER FOCUS
為滿足客戶的各種需要，我們盡心竭力，積極提供工程方案，以贏取客戶的信任和支持。
We focus on the needs of our customers and provide engineering solutions in a proactive and responsible manner to win their trust and support.

靈活創新 AGILITY AND INNOVATION
我們重視靈活及創新的企業文化。
We treasure our agile and innovative corporate culture.

承擔 COMMITMENT
我們言行一致，信守承諾。
We do what we promise.

常務委員會
EXECUTIVE BOARD

主席 CHAIRMAN

劉俊傑太平紳士
Mr Lau Chun-kit, Ricky, JP

發展局常任秘書長(工務)
Permanent Secretary for Development (Works)

成員 MEMBERS

何英傑太平紳士
Mr Ho Ying-kit, Tony, JP

發展局副秘書長(工務)3
Deputy Secretary for Development (Works) 3

潘國英太平紳士
Mr Poon Kwok-ying, Raymond, JP

機電工程營運基金總經理
(機電工程署署長)
General Manager, EMSTF
(Director of Electrical and Mechanical Services)

陳志偉太平紳士
Mr Chan Chi-wai, Richard, JP

機電工程署副署長/營運服務
Deputy Director/Trading Services, EMSD

秘書 SECRETARY

韋美珠女士
Ms Wai Mei-chu, Jenny

機電工程署主任秘書
Departmental Secretary, EMSD

* 周紹喜太平紳士出任發展局副秘書長(工務)3至2023年6月2日
Mr Chau Siu-hei, Francis, JP was Deputy Secretary for Development (Works)3 up to 2 June 2023

* 彭耀雄太平紳士出任機電工程營運基金總經理(機電工程署署長)至2024年3月30日
Mr Pang Yiu-hung, JP was General Manager, EMSTF (Director of Electrical and Mechanical Services) up to 30 March 2024

管理委員會
MANAGEMENT BOARD

主席 CHAIRMAN

01

潘國英太平紳士
Mr Poon Kwok-ying, Raymond, JP

機電工程營運基金總經理（機電工程署署長）
General Manager, EMSTF (Director of Electrical and Mechanical Services)

成員 MEMBERS

02

陳志偉太平紳士
Mr Chan Chi-wai, Richard, JP

機電工程署副署長 / 營運服務
Deputy Director/Trading Services, EMSD

03

李志良先生
Mr Lee Chi-leung, Eric

機電工程署助理署長 /1
Assistant Director/1, EMSD

04

楊秀權先生
Mr Yeung Sau-kuen, Sammy

機電工程署助理署長 /2
Assistant Director/2, EMSD

05

李學賢先生
Mr Lee Hok-yin, Arthur

機電工程署助理署長 /3
Assistant Director/3, EMSD

06

黃妍旻女士
Ms Wong Yin-man, Yammy

機電工程署總庫務會計師 / 財政管理
Chief Treasury Accountant/ Financial Management, EMSD

07

劉志偉先生
Mr Lau Chi-wai, Wilfred

機電工程署員工關係主任
Staff Relations Officer, EMSD

08

韋美珠女士
Ms Wai Mei-chu, Jenny

機電工程署主任秘書
Departmental Secretary, EMSD

秘書 SECRETARY

09

王瑩瑩女士
Ms Wong Ying-ying, Regina

機電工程署高級機電工程師 / 技術服務
Senior Engineer/Technical Services, EMSD

* 彭耀雄太平紳士出任機電工程營運基金總經理（機電工程署署長）至2024年3月30日
Mr Pang Yiu-hung, JP was General Manager, EMSTF (Director of Electrical and Mechanical Services) up to 30 March 2024

* 陳嘉聰先生出任機電工程署助理署長/1至2023年9月30日
Mr Chan Ka-chung was Assistant Director/1, EMSD up to 30 September 2023

* 李慧儀女士出任機電工程署總庫務會計師/財政管理至2023年12月12日
Ms Lee Wai-yee was Chief Treasury Accountant/Financial Management, EMSD up to 12 December 2023

業務回顧與前瞻
OPERATIONS REVIEW AND OUTLOOK

陳志偉太平紳士
Mr Chan Chi-wai, Richard, JP

機電工程署副署長 / 營運服務
Deputy Director/Trading Services, EMSD

機電工程營運基金在2023/24年度再錄得穩健增長，總收入由2022/23年度的89.11億港元增加至2023/24年度的92.81億港元，增幅為4.2%。收入回報率輕微下降至1.5%，符合我們收回成本的營運原則，讓客戶能把更多資源投放於公共服務。回報率下降的另一原因，是我們為客戶提供各項增值服務，包括免費的創新科技(創科)方案，以支援客戶在優化服務、數碼化和減碳方面的工作。

The Electrical and Mechanical Services Trading Fund reported another year of steady growth in 2023/24. The total revenue increased from HK$8,911 million in 2022/23 to HK$9,281 million in 2023/24, representing an increase of 4.2%. The return on revenue decreased slightly to 1.5%, aligning with our cost recovery principle to enable clients to devote more resources to public services. The decreased return was further attributable to our value-added service offerings, including free innovation and technology (I&T) solutions to support clients' service enhancement, digitalisation and decarbonisation work.

又一碩果纍纍之年

營運基金在2023/24年度取得豐碩成果，其中有幾項發展尤為突出。首先，我們與康樂及文化事務署簽訂全新的服務水平協議，為原先由私營承辦商進行維修保養的150部車輛提供維修保養服務，反映我們的服務優質，具競爭力。

另一項重要發展，是我們與醫院管理局(醫管局)就訂立服務水平協議展開討論。有關協議不僅涵蓋醫管局轄下所有新的附表1醫院，還適用於新的附表2醫院，讓我們可早在醫院項目的設計階段便開始提供服務，包括就智慧醫院功能提出建議、進行技術審核，以及支援醫院的測試和校驗工作，從而為日後的機電設施操作和維修服務作更佳準備。我們正進行有關討論，期待在2024年與醫管局達成新的服務伙伴關係。

作為政府的「創新促成者」，機電署最初以增值服務形式為客戶提供各項創科方案，如今已發展成商機。舉例而言，我們在荔枝角收押所重建計劃中，引進智慧監獄方案的元素，把老舊的收押所改造成現代化的懲教設施。現在很多客戶都視創科項目為部門未來發展的必要投資，證明我們的努力卓有成效。

ANOTHER YEAR OF OUTSTANDING ACHIEVEMENTS

Amidst a bumper harvest of achievements in 2023/24, several developments stood out. First, we have concluded a new Service Level Agreement (SLA) with the Leisure and Cultural Services Department for the maintenance and repair of 150 vehicles, which were formerly maintained by private contractors, reflecting our quality service and competitiveness.

Also significant was the initiation of dialogue with the Hospital Authority (HA) on drawing up an SLA, covering not only all of its new Schedule 1 hospitals, but new Schedule 2 hospitals as well. This will enable us to offer our services as early as the design stage of the hospital projects, including making recommendations on smart hospital features, carrying out technical audits, and supporting the testing and commissioning of the hospitals, with a view to better preparing for the future operation and maintenance (O&M) services of electrical and mechanical (E&M) facilities. Discussions are in the pipeline, and we are looking forward to foster a new service partnership with the HA in 2024.

Another development was that our I&T solutions, initially provided to clients as value-added services taking on our role as the Government's Innovation Facilitator, have become business opportunities in their own right. An example is the Smart Prison solution incorporated in the redevelopment of the Lai Chi Kok Reception Centre to transform the aged centre into a modern correctional facility. The fact that many clients now regard I&T projects as essential investments for future development proves our efforts fruitful.

年內我們再次贏得多個本地和國際獎項，涵蓋科技、工程、可持續發展和公共服務等範疇。值得一提的是，機電署的創科項目在2024年舉行的第49屆日內瓦國際發明展榮獲七項金獎、十項銀獎和四項銅獎。我們也獲得2023年香港最具創新力知識型機構大獎和2023年全球最具創新力知識型機構大獎，這是對機電署在推行知識管理和建立創新文化方面所作努力的肯定。

During the year, we won, once again, multiple local and international awards spanning technology, engineering, sustainability and public service. Of note, we clinched seven gold, ten silver and four bronze medals for our I&T projects at the 49th International Exhibition of Inventions of Geneva held in 2024. We also received top accolades in the Hong Kong Most Innovative Knowledge Enterprise (MIKE) Award 2023 and the Global MIKE Award 2023, which recognised our efforts in implementing knowledge management and fostering an innovation culture.

此外，2023年員工滿意度調查結果顯示，以10分為滿分，員工滿意度評分為7.7分，回覆率為55%，兩者同創新高。有句話說：「有滿意的員工，才有滿意的客戶。」我們會繼續努力，力求在2024年年底進行的下一次客戶意見調查，取得更高評分。

Furthermore, our 2023 Staff Satisfaction Survey reported a staff satisfaction rating of 7.7 on a scale of 10 and a response rate of 55%, both reaching record highs. It is said that satisfied employees lead to satisfied customers. We will endeavour to achieve higher ratings in our next Customer Opinion Survey scheduled for late 2024.

構建經濟蓬勃的智慧城市

營運基金致力協助實現《行政長官2023年施政報告》所提出「拼經濟謀發展 惠民生添幸福」的目標。我們的智慧城市項目和機電工程支援服務，既可提高客戶的運作效率，也可滿足社會需要。

BUILDING A SMART CITY WITH A VIBRANT ECONOMY

The EMSTF has strived to assist in realising the goal of building "a vibrant economy for a caring community" put forward in the Chief Executive's 2023 Policy Address. Our smart city projects and E&M support services have enhanced the operational efficiency of our clients while meeting community needs.

政府近年的首要工作是加快疫後經濟復蘇，其中一項舉措是舉辦吸引遊客和本地市民的活動。我們在年內為多項活動，包括於2024年2月在15個場地舉行的農曆年宵市場，提供臨時電力供應及照明設施、智能人流監察及管制系統，以及現場機電支援，確保活動得以順利舉行。2023年9月，我們為灣仔「海濱藝遊坊」活動提供緊急支援，解決攤檔的供電問題。我們亦為在其他地區舉行的「香港夜繽紛」活動提供技術支援，協力締造熱鬧氣氛，振興本港夜間旅遊經濟。

Expediting post-epidemic economic recovery has been the Government's priority in recent years, and one of the initiatives was organising activities to attract tourists and local visitors. During the year, we provided for various events, including the Lunar New Year fairs held at 15 venues in February 2024, temporary electricity and lighting supply, intelligent footfall monitoring and crowd control systems, and on-site E&M support to ensure smooth implementation of the events. We also provided emergency support to the Waterfront Carnival in Wan Chai in September 2023 by resolving a power supply issue for stalls. Technical support was provided to other Night Vibes Hong Kong events in several districts to help create a dynamic atmosphere and boost Hong Kong's night-time tourist economy.

對駕駛者而言，2023年5月起實施的「易通行」系統是政府在各條收費隧道落實不停車繳費的一大突破。我們協助確保系統準確穩定，把本港行車隧道的運作效率和使用者體驗提升至新水平。

For motorists, the HKeToll system launched since May 2023 was a breakthrough in implementing free-flow tolling at various government-tolled tunnels. We assisted in ensuring the accuracy and stability of the system, taking the city's vehicle tunnel operational efficiency and user experience to a new level.

其他智慧城市項目亦為市民和基建設施帶來更佳保障。其中，「政府物聯通」已成為各物聯網系統的骨幹，有關物聯網系統包括監察行人隧道水浸情況及向行人發出警報的智慧渠務方案；監測海面水位變化和洪水狀況以保護重要基礎設施免受極端天氣影響的智慧防洪監察系統；以及保障工人安全的安全智慧工地系統。此外，為拯救生命，我們建立遠足人士安全系統，利用「政府物聯通」基建設施傳送身處偏遠地區的行山人士所發出的緊急信號和位置數據。我們也運用無人機巡視偏遠地區及檢查設於高處的基建設施和設備，以提高工作效率及降低前線人員的風險。

Other smart city projects have brought better safeguards for people and infrastructure. The Government-Wide Internet of Things (IoT) Network (GWIN) has become the backbone for deploying various IoT systems. These IoT systems include a Smart Drainage solution that monitors flooding in subways and alerts pedestrians; the Smart Flood Monitoring System that monitors sea-level changes and flood conditions to protect critical infrastructure facilities from extreme weather; and worker safety solutions for the Smart Site Safety System. In addition, the Hiker Safety System that we developed with the aim of saving lives uses the GWIN infrastructure to transmit emergency signals and location data from hikers in remote areas. Unmanned aerial vehicles, or drones, are also now being deployed to patrol remote areas and inspect infrastructure and equipment at height to boost efficiency and reduce the risk of frontline personnel.

我們已在「機電創科網上平台」增設名為「機電創科彙集」的新平台，介紹上述多個項目，協助客戶和業界迅速找到他們所需的實證有效方案。「機電創科彙集」目前展示逾50個成功項目，有助扶植初創企業、完善香港的創科生態圈，以及擴展創科市場。

Many of these projects have already been featured on a new platform called E&M InnoCatalogue, which has been added onto our E&M InnoPortal to help clients and the trade quickly find the proven solutions they need. The E&M InnoCatalogue, which currently showcases over 50 successful projects, can help expedite the growth of start-ups, enhance Hong Kong's I&T ecosystem and expand the I&T market.

人工智能在策略計劃中舉足輕重

營運基金第三個五年策略計劃的目標是實現「機電3.0 — 智能機電」，2023/24年度是第三個計劃的首年。我們欣然報告計劃進展良好，提前實現部分里程碑。

AI ASSUMING KEY ROLE IN STRATEGIC PLAN

2023/24 was the first year of the EMSTF's third Five-year Strategic Plan, which aims to achieve "E&M 3.0 – Intelligent E&M". We are delighted to report on the good progress, with some milestones reached ahead of schedule.

事實上，我們於2022年已觀察到人工智能崛起，並把其納入第三個五年策略計劃作為必要部分。人工智能會在大量機電系統中發揮重要角色，以優化能源效益、實現預測性維修保養和加強眾多其他客戶服務。年內，我們的人工智能督導小組推出《人工智能行動綱領》，以「知、行、合、一」為四大支柱：即提升員工能力、落實試點項目、促進各種協作，以及制訂標準與指引。我們也成立了新的人工智能小組，協助各策略業務單位在維修保養服務中融入人工智能。此外，我們順利舉行首屆「節能AI大比拼」員工比賽，並促成28個試點項目，成績令人鼓舞。隨着人工智能在全球迅速發展，我們相信人工智能方案和其他新技術的應用必定會不斷增加，為邁向智能機電創造良好條件。

In fact, having seen the emergence of artificial intelligence (AI) in 2022, we included it in our third Five-year Strategic Plan as an integral part. AI will take on a key role in myriad E&M systems for energy optimisation, realisation of predictive maintenance and a wide range of other client service enhancements. During the year, our AI Steering Group launched the AI Master Action Plan with a four-pillar framework, namely enhancing staff competence, implementing trial projects, fostering collaboration of all kinds, as well as formulating standards and guidelines. We have also set up a new AI team to help all Strategic Business Units incorporate AI into their O&M services. Besides, the first staff AI Competition for Energy Efficiency and Conservation was successfully completed, bringing about 28 trial projects with highly encouraging results. With the rapid development of AI around the globe, we believe that applications of AI-enabled solutions and other new technologies will only keep increasing, paving the way for intelligent E&M.

深化合作

我們歷來與本港及內地多所大學和研究機構簽訂多份合作備忘錄，在2023年更再接再厲，簽訂兩份新的合作備忘錄，一是與深圳市科學技術協會建立新的策略伙伴關係，二是與廣東省建築科學研究院集團股份有限公司和廣東省建設科技與標準化協會共同推動綠色建築機電系統技術和人工智能標準的發展。

DEEPENING COLLABORATION

Following our memoranda of co-operation (MoC) with various local and Mainland universities and research institutes, we signed two new MoC in 2023, one with the Shenzhen Association for Science and Technology to establish a new strategic partnership, and another with the Guangdong Provincial Academy of Building Research Group Co., Ltd. and the Guangdong Province Construction Technology and Standardisation Association to jointly promote the development of green building E&M systems technology and AI standards.

目前，我們與內地的合作集中在技術培訓和創科方面，但我們亦會就內地擁有優勢的其他範疇尋求合作，包括電動車、氫燃料汽車、電池、太陽能板和其他可再生能源。此外，內地有不少設備完善的「機電裝備合成法」工廠，亦是我們的合作對象。

While most of our current collaboration with the Mainland focuses on technical training and I&T, we will also seek co-operation in other areas where the Mainland has the edge. These include electric vehicles (EVs), hydrogen fuel cell vehicles, batteries, photovoltaic panels and other renewable energy. There are also many well-established Multi-trade integrated Mechanical, Electrical and Plumbing (MiMEP) plants in the Mainland, which are our target for co-operation.

人工智能是內地另一擁有優勢的範疇，我們希望與大灣區的機構在人工智能和數據分析發展方面深化合作。我們的人員亦於年內到訪巴塞羅那、日內瓦和墨爾本等城市，參與當地的尖端科技會議和比賽，分享香港的成功故事，並學習世界各地的經驗。

AI is another area of strength of the Mainland, and we look forward to deepening our collaboration with Greater Bay Area entities on AI and data analytics development. Meanwhile, our officers have visited and participated in conferences and competitions on cutting-edge technologies in cities such as Barcelona, Geneva and Melbourne during the year to share Hong Kong's success stories and learn from global experience.

愛護環境 以人為本

CARING FOR THE ENVIRONMENT AND PUTTING PEOPLE FIRST

節能減碳繼續是我們的另一重點工作範疇，目標是協助香港於2050年前實現碳中和；具體工作包括為政府建築物內的機電設施落實更多節能項目，以及為政府車隊添置更多電動車。我們更於2023年成為政府氫燃料重型汽車試驗計劃的技術顧問，協助把新能源汽車引入香港。

Energy saving and decarbonisation continued to be our another focus work area, with the objective of assisting Hong Kong in achieving carbon neutrality before 2050. Examples of our work include implementing more energy-saving projects for E&M facilities in government buildings and procuring more EVs for the government fleet. We even became the Government's technical advisor in 2023 for a trial project on the use of hydrogen fuel cell heavy vehicles, assisting in introducing new-energy vehicles to Hong Kong.

運用人工智能優化能源效益的方案在年內取得良好進展。例如我們自行開發了ChillStream®系統，應用於公共衞生檢測中心及醫管局轄下醫院的製冷機組，為客戶節省大量能源。此外，為保護環境，我們逐漸把使用高全球變暖潛能值雪種的冷凍設備，更換成使用低全球變暖潛能值雪種的設備。我們也嘗試使用再生雪種，以減少浪費。在可再生能源方面，機電署總部大樓會參與財政司司長在最新一份財政預算案提出的太陽能發電建築先導計劃，該計劃探討在政府建築物幕牆應用太陽能發電技術和物料，以助香港實現碳中和。

AI-enabled energy optimisation solutions gained momentum in the year: for instance, our in-house-developed ChillStream® was applied to chillers at the Public Health Laboratory Centre and HA hospitals, generating significant energy savings for our clients. Furthermore, to protect the environment, we have been gradually replacing refrigeration equipment that uses refrigerants with high global warming potential (GWP) with those using low GWP refrigerants. We have been also trialling the use of reclaimed refrigerants to reduce waste. On the part of renewable energy, the EMSD Headquarters Building will participate in a pilot scheme on Building-integrated Photovoltaics outlined in the Financial Secretary's latest Budget Speech, while the scheme will explore the applications of photovoltaic technology and materials on the facades of government buildings to help Hong Kong realise carbon neutrality.

要建立「惠民生添幸福」的社會，必須以市民所需為先；這一直是我們研發上述各種智慧城市項目的優先考慮，其中一個立竿見影的例子就是中央援港應急醫院。醫院於2023年成功推出放射診斷、內視鏡檢查、睡眠測試和微生物化驗服務，大幅縮短醫管局病人的輪候時間。我們協助進行相關機電工程，讓醫院能按時推出新服務，造福市民。

To build a caring community, we have to put people's needs first. This has always been a priority during our planning of various smart city projects mentioned above. A good example offering immediate benefits took place at the Central Government-aided Emergency Hospital, which successfully launched radiology, endoscopy, sleep test and microbiology services in 2023, and significantly shortened the wait time of HA patients. We assisted in the E&M works that enabled the hospital to launch the new services on time and serve the public good.

2024/25年度展望

OUTLOOK FOR 2024/25

營運基金計劃在2024/25年度，透過應用創科等措施把生產力提高百分之一，從而減低客戶收費。在業務增長方面，我們感到樂觀。營運基金期待與醫管局達成服務水平協議，為醫管局新建和重建的醫院提供技術諮詢服務，並延長服務水平協議，涵蓋隨後的操作和維修保養，以及諮詢服務。此外，香港國際機場的三跑道系統及其相關的基建設施將於2024/25年度開始逐步投入服務，並帶來新的商機。我們的團隊也會為2025年11月舉行的第十五屆全國運動會提供技術支援，屆時香港會承辦八項賽事。我們會協助為全港的運動場地及設施進行優化工程，為這項盛事作好準備。

The EMSTF aims to raise productivity, through initiatives such as application of I&T, in 2024/25 by one per cent, to reduce the fees paid by our clients. On the business growth, we are optimistic. The EMSTF looks forward to concluding an SLA with the HA on providing technical advisory services for its new and redeveloped hospitals and extending the SLA to cover O&M and advisory services later on. Moreover, the Three-runway System at the Hong Kong International Airport and its associated infrastructures will progressively commence operation from 2024/25, opening up new business opportunities. Our team will also give technical support to the 15th National Games to be held in November 2025, with Hong Kong co-hosting eight competition events. We shall help upgrade the city's sports venues and facilities in preparation for this grand event.

一如以往，我們的見習技術員會繼續參與世界級賽事。機電署兩名見習技術員分別於「空調製冷」和「電氣安裝」項目獲選為香港代表，並會於今年九月赴里昂參加第47屆世界技能大賽。此外，因應人工智能和「機電裝備合成法」等新技術的應用日益增加，我們正計劃更新機電署八份《優良操作和維修作業手冊及指引》。

As in the past years, our Technical Trainees (TTs) will continue to compete in world-class competitions. Two TTs of the EMSD have qualified for representing Hong Kong in the Refrigeration and Air-conditioning and Electrical Installations trades, and will enter the 47th WorldSkills Competition in Lyon this September. Meanwhile, we are planning to upgrade our eight Operation and Maintenance Best Practices Booklets and Handbooks in view of the increasing application of AI, MiMEP and other new technologies.

感恩與謝忱

GRATITUDE AND APPRECIATION

我於1995年加入機電署，多年來有幸見證營運基金轉型成為一個既成功又以客為本的機電服務提供者，並肩負政府的「創新促成者」角色。營運基金的成功蛻變和持續穩定表現，實在有賴常務委員會和各個決策局的指導、員工的出色工作，以及各商會、業界伙伴、學術界、專業團體、培訓及研究機構等的鼎力支持，我們對各位深表謝意。我們亦衷心感謝客戶的信任，以及本港、內地及海外合作伙伴的支持。

Since joining the EMSD in 1995, I have been privileged to have witnessed the EMSTF's transformation into a successful, customer-oriented E&M service provider and the Government's Innovation Facilitator over the years. Vital to our turnaround and our ongoing steady performance has been the guidance of the Executive Board and policy bureaux, the excellent work of our staff, and the full support of trade associations, industry partners, academia, professional bodies, training and research institutions, and many others. We owe them our heartfelt gratitude. We also sincerely thank our clients for their trust and our partners in Hong Kong, the Mainland and overseas countries for their support.

我很感恩及榮幸有機會為營運基金服務，謹祝營運基金在第三個五年策略計劃下再創高峯，不負公眾期望。

I am grateful and honoured for the opportunity to have served the EMSTF, and I wish the EMSTF scaling new heights under the third Five-year Strategic Plan and living up to public expectations.

陳志偉
機電工程署副署長 / 營運服務

Chan Chi-wai, Richard
Deputy Director/Trading Services, EMSD

營運服務
TRADING SERVICES

智慧城市加速發展

機電工程營運基金於2023年4月推出第三個五年策略計劃，以提升服務水平及實現「機電3.0 — 智能機電」的目標，並把智慧城市發展列為工作重點之一。營運基金大力支持《香港智慧城市藍圖2.0》，不僅完成了該《藍圖》內的八個智慧城市項目，還在2023/24年度推出新措施，務求令本港城市生活質素更上層樓。

SMART CITY GATHERS MOMENTUM

The Electrical and Mechanical Services Trading Fund launched the third Five-year Strategic Plan in April 2023 to enhance our services and attain the goal of "E&M 3.0 – Intelligent E&M", with smart city development as one of the priorities. Being a staunch supporter of the Hong Kong Smart City Blueprint 2.0, the EMSTF has completed eight smart city projects under the Blueprint and introduced new initiatives in 2023/24, with a view to taking urban life in Hong Kong to a new level.

機電署為港珠澳大橋香港口岸的車輛自動清關支援系統進行升級，優化車輛通關流程。我們更為口岸的區域供冷系統開發人工智能技術，根據客流數據調節製冷水流量、送風量和溫度，節省能源。

The EMSD upgraded the Automatic Vehicle Clearance Support System for the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port, optimising the vehicle clearance process. Additionally, we developed an AI technology for the district cooling system at the Port to adjust the chilled water flow rate, supply air volume and temperature according to passenger traffic data for energy saving.

香港是國際樞紐和進入內地的大門，加強智慧基建對鞏固此等地位至為重要。我們在2023年5月為港珠澳大橋香港口岸(口岸)實施多項創新科技(創科)措施，以支援智能過境、智能資產管理、碳中和及「港車北上、粵車南下」。有關措施包括為各個車輛通關系統進行升級，便利大灣區駕駛人士通關；以及在旅檢大樓運用人工智能和影像分析技術實時監察客流量，協助客戶部門利用實時數據加強保安和人流管制。我們又在口岸多棟建築物和多個地點應用智能方案，加強監察照明、升降機及自動梯等機電資產的運作；以及進一步運用人工智能提升口岸區域供冷系統的能效表現。

Enhancing our smart infrastructure is vital to reinforcing Hong Kong's position as an international hub and gateway to the Mainland. We launched a number of innovation and technology (I&T) initiatives for the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port (the Port) in May 2023 to support smart crossing, intelligent asset management, carbon neutrality and Northbound/Southbound Travel for Hong Kong, Mainland and Macao Vehicles. These initiatives entail upgrading of various systems for vehicle clearance to enable smooth passage for drivers in the Greater Bay Area (GBA), and deploying artificial intelligence (AI) and image analytics for real-time passenger flow monitoring at the Passenger Clearance Building to assist client departments to strengthen security and crowd control with real-time data. Intelligent solutions have also been applied at various buildings and locations at the Port to enhance the monitoring of the operation of E&M assets including lightings, lifts and escalators. AI has been further used to optimise the energy performance of the Port's district cooling system.

營運基金運用創科簡化海關查驗工作，包括深受香港海關歡迎的智能違禁品偵測方案。多個邊境管制站已引進最新的電腦掃描檢查系統，並具有自動偵測違禁品的功能，全方位偵測違禁品，可提升海關檢查效率，並有助香港海關落實「智慧海關藍圖」。

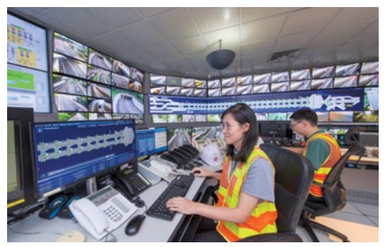
Innovative technologies are deployed to streamline customs inspection work, including smart solutions for detecting contraband, which are well received by the Customs and Excise Department (C&ED). Latest model of computed tomography scanners had been implemented at several boundary control points with automated contraband detection function, which can provide comprehensive contraband detection, improve inspection efficiency and facilitate the accomplishment of the C&ED's Smart Customs Blueprint.

本地運輸系統亦在2023年邁進新里程。多條政府收費隧道在5月至12月相繼實施「易通行」，包括海底隧道(紅隧)、東區海底隧道(東隧)、西區海底隧道(西隧)、城門隧道、獅子山隧道、大老山隧道、香港仔隧道，以及青沙管制區內的三條隧道，即尖山隧道、沙田嶺隧道及大圍隧道，讓駕駛者無須在收費亭停車付費。這個不停車繳費系統由營運基金與多個客戶部門及承辦商共同開發、實施及維修保養。我們也為紅隧、東隧和西隧實施「分時段收費」提供技術支援。此外，機電署憑藉「易通行」系統於2023年4月在第48屆日內瓦國際發明展贏得銀獎。

On local transport system, a milestone development took place in 2023 when the HKeToll was successively launched at various government-tolled tunnels between May and December. Covering Cross-Harbour Tunnel (CHT), Eastern Harbour Crossing (EHC), Western Harbour Crossing (WHC), Shing Mun Tunnel, Lion Rock Tunnel, Tate's Cairn Tunnel, Aberdeen Tunnel and the three tunnels within the Tsing Sha Control Area (i.e. Eagle's Nest Tunnel, Sha Tin Heights Tunnel and Tai Wai Tunnel), the new system eliminates the need for motorists to stop and pay at toll booths. The EMSTF collaborated with multiple client departments and contractors to develop, implement and maintain the free-flow tolling system together. We also provided technical support for the implementation of the Time-varying Tolls at the CHT, EHC and WHC. Moreover, the EMSD won a silver medal for the HKeToll system at the 48th International Exhibition of Inventions of Geneva in April 2023.

年內，我們協助運輸署為多條政府收費隧道設計和安裝「易通行」系統，並進行不停車繳費服務的試行運作測試。此外，我們就2023年12月實施的三條過海隧道「分時段收費」系統提供技術意見。

We designed and installed the HKeToll system, and carried out commissioning tests for the free-flow tolling service at various government-tolled tunnels for the Transport Department during the year. Also, we provided technical advice on the system of the Time-varying Tolls at three Road Harbour Crossings implemented in December 2023.



東區海底隧道的新交通管制及監察系統能讓客戶實時監察隧道的交通情況。每當有惡劣天氣或緊急事故，系統會提出應變方案，協助客戶更有效地管理交通。

The new Traffic Control and Surveillance System at Eastern Harbour Crossing allows the client to monitor tunnel traffic in real time. If severe weather or an emergency occurs, contingency plans will be proposed to enable the client to manage the traffic more effectively.

營運基金持續為全港各行車隧道和管制區更換交通管制及監察系統，並在有關工作中應用創科方案，使系統更智能化。例子之一是我們把全球定位系統的覆蓋範圍擴展至中環灣仔繞道的隧道段。另外，我們在獅子山隧道、香港仔隧道、大老山隧道及青馬管制區的交通管制及監察系統更換工程中，採用建築信息模擬技術，令隧道行政大樓控制室的設施設計視像化，以優化系統遷移的流程。

As part of our ongoing replacement work for the Traffic Control and Surveillance Systems (TCSSs) at various road tunnels and control areas in Hong Kong, we have applied I&T solutions to make them smarter. One example was the project to extend the coverage of Global Positioning System to the tunnel section of the Central-Wan Chai Bypass. Building Information Modelling (BIM) technology was also deployed in the TCSS replacement works at Lion Rock Tunnel, Aberdeen Tunnel, Tate's Cairn Tunnel and Tsing Ma Control Area for design visualisation of the facilities in control rooms of tunnel administration buildings to optimise the system migration process.

營運服務
TRADING SERVICES

善用數碼化、物聯網和建築信息模擬等技術提供醫療服務，是智慧城市的特點之一。在這方面，我們在瑪麗醫院、威爾斯親王醫院、東區尤德夫人那打素醫院和醫院管理局大樓，安裝了節能照明系統和智能無線照明控制系統。我們亦協助為北區社區健康中心等新場地建立和使用建築信息模擬模型。

Health services that make good use of digitalisation, Internet of Things (IoT) and BIM technologies are among the hallmarks of smart cities. In this connection, we installed energy-efficient lighting systems and Smart Wireless Lighting Control Systems at Queen Mary Hospital, Prince of Wales Hospital, Pamela Youde Nethersole Eastern Hospital and the Hospital Authority Building. We also supported the development and use of BIM models at new venues, such as the North District Community Health Centre.

機電署採用「機電裝備合成法」為醫院管理局更換瑪嘉烈醫院的空氣處理機組。與傳統方法相比，採用「機電裝備合成法」不但可簡化安裝過程，還可提高更換工程的效率，從而減低對醫院日常運作的影響。

The EMSD took the MiMEP approach to replace an air-handling unit at the Princess Margaret Hospital for the Hospital Authority. When compared to the traditional approach, using the MiMEP method can not only simplify the installation process, but also enhance the efficiency of replacement works, thereby reducing the impact on daily operation of the hospital.

我們繼續為政府首個十年醫院發展計劃提供技術支援，從機電系統操作和維修的角度為新公立醫院的設計提供意見。除了方便日後為工程系統進行操作和維修工作，以助確保系統具應變能力、可供使用、易於維修和質素良好之外，我們亦着重廣泛利用數碼化與人工智能，支援智慧醫院運作和實現高效資產管理。

We continued to provide technical support to the Government's First Ten-year Hospital Development Plan by offering input to the design of new public hospitals from the perspective of operation and maintenance (O&M) of E&M systems. In addition to facilitating easy access to engineering systems for future O&M work, which will help ensure their resilience, serviceability, maintainability and quality, our focus is to support the wider use of digitalisation and AI for smart hospital operation and effective asset management.

我們為東區尤德夫人那打素醫院的智能無線照明控制系統進行改善工程。該系統可以透過平板電腦和無線控制台操作，隨時調節照明亮度和區域分布，並收集能源消耗數據作分析。

We carried out improvement works on the Smart Wireless Lighting Control System at the Pamela Youde Nethersole Eastern Hospital. The system can be operated through tablet computers and wireless consoles to adjust brightness and zoning of lighting anytime, and collect energy consumption data for analysis.

與此同時，我們深知與大灣區機構合作，會為智慧醫療服務帶來長遠利益。因此，我們善用大灣區作為生產基地的優勢，加快在醫院資產更換工程中應用「機電裝備合成法」，例如更換空氣處理機組和製冷機組，以大幅縮短施工期。另一個最新項目，是結合區域數碼監控中心技術和人工智能，增強遙距監察及優化醫院內機電系統的運作效能，為香港未來的智慧醫院提供寶貴參考。

Meanwhile, we are fully aware of the long-term benefits of co-operation with entities in the GBA for smart health services. Therefore, we take advantage of the GBA as a manufacturing base to expedite the adoption of Multi-trade integrated Mechanical, Electrical and Plumbing (MiMEP) technology in hospital asset replacement projects, such as replacement of air-handling units and chillers, to significantly reduce works duration. Another cutting-edge project which integrates the Regional Digital Control Centre technology with AI to enhance the remote monitoring of E&M systems in hospitals and optimise their operational efficiencies is being developed. This will provide a valuable reference for future smart hospitals in Hong Kong.

在智慧城市的發展過程中，政府建築物和場地必須更智能化。年內，我們在秀茂坪警署成功試用智慧緊急照明測試系統，另外兩個場地的測試則預計於2024/25年度完成。該系統利用物聯網技術，偵測緊急照明燈電池發生故障前的先兆。根據消防處的要求，緊急照明燈須定期進行測試，包括電池放電及續航力測試。這自動化測試系統既能取代傳統人手測試，使電池測試和更換工作更有效率，亦有助推廣消防服務優良操作和維修作業模式，以提升工作安全。

Smart city development also entails making government buildings and venues more intelligent. We successfully completed a trial project for adoption of Smart Emergency Lighting Testing System at Sau Mau Ping Police Station during the year, and expected that the trials at other two venues will be completed in 2024/25. The system uses IoT technique to detect portents of battery failure of emergency lights before any failure occurs. As required by the Fire Services Department, it is necessary to conduct routine testing of emergency lights, including battery discharge and life tests. This automatic testing system can not only replace traditional manual tests, making both the tests and replacement of battery more efficient, but also help promote O&M best practices of fire services to enhance safety at work.

我們在警局內試行智慧緊急照明測試系統，以偵測獨立電池燈有否發生故障。該系統採用物聯網技術，實時收集和分析緊急照明系統的運作數據，一旦偵測到潛在問題便會作出警示。

We are trialling a Smart Emergency Lighting Testing System in police stations to detect self-contained battery lighting failure. The system uses IoT technology to collect and analyse real-time operational data of the emergency lighting system, and issues warning signals once potential problems are identified.

機電署的中央數碼監控中心將於2024/25年度投入服務，屆時我們能為全港300多幢主要政府建築物進行數據分析，加強維修保養服務。

With the commissioning of the EMSD Departmental Digital Control Centre in 2024/25, we will be able to analyse data collected from over 300 major government buildings across Hong Kong for enhancing maintenance services.

此外，我們繼續與懲教署合作推展智慧監獄項目，其中智慧維生及健康感測系統於2024年4月在第49屆日內瓦國際發明展上獲得銀獎。智慧監獄系統最新引進智能床墊，以監測在囚人士的主要生命體徵，保障其安全。我們亦正在測試機械巡邏犬，務求把監獄圍牆和偏遠地區的巡查工作自動化，以及巡邏記錄數碼化，從而減輕懲教人員的工作量。

Besides, we continue to collaborate with the Correctional Services Department on the promoting of the Smart Prison initiative, among which the Smart Health Sensing System won a silver award at the 49th International Exhibition of Inventions of Geneva in April 2024. An intelligent mattress has been recently introduced to this system. It can detect the main vital signs of inmates and helps safeguard their lives. Also, the trial of a robot patrol dog is underway, with a view to automating inspections of prison walls and remote areas, as well as digitalising patrol records, and thereby reducing the workload of correctional officers.

營運服務
TRADING SERVICES

從市民角度而言，智慧城市必須令日常生活更方便、更愉快，而這也是我們提升康樂及文化事務署(康文署)轄下各類場館的一貫原則。以元朗劇院為例，我們年內完成的舞台系統翻新工程涉及升級多項設施，包括電動吊杆系統、綜合旋轉及活動舞台和舞蹈彈性地板系統、電動升降樂隊池驅動系統和一體化操作系統等，為元朗及周邊社區帶來最頂尖的戲劇體驗。

From the public's perspective, a smart city must enable more convenient and enjoyable daily life. This has been our guiding principle in upgrading the diverse venues of the Leisure and Cultural Services Department (LCSD). For instance, the stage system refurbishment project of the Yuen Long Theatre, completed during the year, involved the upgrading of a number of facilities, such as an electric fly system, an integrated revolve, wagon and sprung floor system, an electrically-operated orchestra pit drive system and an all-in-one operating system, all to bring state-of-the-art theatrical experiences to communities in and around Yuen Long.

機電署與康文署合力為元朗劇院升級多項設施，包括綜合旋轉及活動舞台和舞蹈彈性地板系統、電動吊杆系統，以及全套燈光效果控制器，大大提升了表演的視覺效果和觀眾的觀賞體驗。

The EMSD collaborated with the LCSD to upgrade a number of facilities at the Yuen Long Theatre, including an integrated revolve, wagon and sprung floor system, an electric fly system, and a comprehensive set of lighting controllers, which have dramatically enhanced the visual impact of performance and the experience of audience.

市民到訪康文署高爾夫球中心時，或許會發現新的高爾夫球撿球機械人正在運作。我們在年內引進這台機械人，運用實時動態定位技術進行路線規劃，並使用三維光學雷達偵測障礙物。如有需要，機械人可改以人手操作，並用於修剪草坪。此外，我們為康文署在多個體育館及表演場地的無障礙洗手間試用跌倒偵測系統，運用物聯網傳感器和紅外線熱影像技術來偵測洗手間使用者的身體活動，在有人跌倒時就會發出警報。

Visitors to LCSD's golf centres may find a new golf ball picking robot in operation. Introduced during the year, the robot uses real-time kinematic positioning for route planning and three-dimensional Light Detection and Ranging (LiDAR) for obstacle detection. It can be driven manually when necessary and used for lawn mowing too. We also conducted for the LCSD a pilot test of a Fall Detection System at the accessible toilets in various sports centre and performing venues, using IoT sensors and infrared thermography to detect the body movement of toilet users and trigger an alarm when somebody falls down.

我們為康文署設計、採購和改裝的高爾夫球撿球機械人，能按照預設路線自動駕駛，並收集練習場地的高爾夫球，提高工作效率。另外，機械人更配備剪草功能，大大減輕職員的工作量。

The golf ball picking robot we designed, procured and modified for the LCSD, can navigate autonomously along its preset route and collect balls on golf driving ranges, thus enhancing work efficiency. It is also equipped with a lawn mowing function, which greatly reduces the workload of staff.

我們亦為食物環境衞生署(食環署)提供各種創科方案，例如豬隻屠體追蹤系統，利用物聯網技術實時監控豬隻屠體，提高屠房效率。我們又為食環署小販事務隊提供隨身攝錄機，用以協助執法、蒐證和調查工作。這項目的挑戰是要在短時間內完成安裝25套區域性攝錄資料存取管理系統，購置900多部前線人員佩戴的隨身攝錄機並連接到該管理系統。隨身攝錄機大幅減少執法過程中的潛在衝突，保障各方安全，深受食環署人員歡迎。

Various I&T solutions were provided for the Food and Environmental Hygiene Department (FEHD), such as a Pig Carcass Tracking System that uses IoT technology to monitor pig carcasses in real time to enhance the efficiency of slaughterhouses. We also supplied the FEHD Hawker Control Teams with body worn video cameras to facilitate law enforcement, evidence gathering and investigation work. The challenges of this project were to complete the installation of 25 regional evidence management systems within a short timeframe, as well as procurement of more than 900 video cameras worn by frontline personnel connecting to these systems. The body worn video cameras proved highly popular with FEHD officers and have significantly reduced potential conflicts during law enforcement, enhancing the safety of all parties concerned.

我們因應小販事務隊的運作需要，為他們提供隨身攝錄機。在採購過程中，我們仔細考慮到器材的影像穩定度、電池重量與持久度、待機模式時的預錄功能等因素。使用隨身攝錄機令衝突事件顯著減少，成效有目共睹。

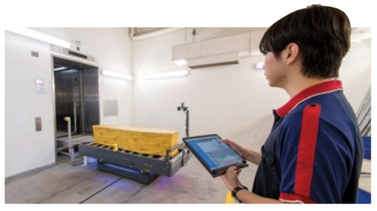
In response to the operational needs of the Hawker Control Teams, we supplied body worn video cameras to the teams, taking into account factors such as image stability, weight and durability of battery, and pre-recording function in standby mode during the procurement process. The use of body worn video cameras has significantly reduced conflicts, proving its effectiveness.

高效率的火葬服務能為離世者家屬解憂消愁。年內，我們為鑽石山火葬場引進棺木調遣自主移動機械人和火化流程智能管理系統。該管理系統利用特製的數碼應用程式來追蹤和管理整個火葬過程，從棺木登記、火化，至把骨灰交給先人家屬。我們又探索利用無人機，配合人工智能影像辨識的技術，協助食環署人員巡邏和合石墳場和偵測未經授權的掘墳工程。

Highly-efficient cremation services can relieve worries of and bring peace of mind to families of the deceased. During the year, we introduced for the Diamond Hill Crematorium an Autonomous Mobile Robot for Coffin Manoeuvring and a Cremation Queue and Smart Management System. The latter uses a tailor-made digital application to track and manage the entire cremation process, from coffin registration at the crematorium through cremation to handing over the ashes to the families of the deceased. We also helped FEHD explore the adoption of unmanned aerial vehicles, or drones, and AI-based image recognition technology, to assist FEHD staff patrol the Wo Hop Shek Cemetery for detection of unauthorised exhumation works.

我們在鑽石山火葬場引進智能管理系統，配合無線射頻識別標籤，確保棺木上的資料準確無誤，並實時追蹤棺木在火化流程中的狀況。此外，我們利用棺木調遣自主移動機械人，讓流程進一步自動化，有效提升運作效率。

We introduced a Smart Management System with Radio Frequency Identification tags at the Diamond Hill Crematorium to ensure the accuracy of the information on the coffins and provide real-time tracking of the condition of the coffins throughout the cremation process. Additionally, the use of Autonomous Mobile Robots for Coffin Manoeuvring automates the process further, thus enhancing operational efficiency.



與內地交流方面，在2023年11月，我們獲食環署誠邀加入食環署管理層率領的跨部門代表團一同訪問上海，了解當地管理綠色火葬及殯葬設施和服務的經驗。這對本港正進行的火葬場重建工程和未來的火葬場項目極具參考價值。

As part of our exchange activities with the Mainland, the EMSD was invited to join an inter-departmental delegation led by the FEHD management and visited Shanghai in November 2023 to learn from the city's experience in the management of green crematoria and funeral facilities and services. The visit was of great reference value for the ongoing crematorium reprovisioning projects and future crematorium projects in Hong Kong.

在國際層面，機電署人員於2024年2月出席在巴塞羅那舉行的世界移動通訊大會，並參與由加泰羅尼亞貿易投資局舉辦的創新公開大挑戰，分享應用最新科技的經驗。

On the international level, the EMSD officers attended the Mobile World Congress in Barcelona in February 2024 and participated in the Open Innovation Challenge organised by the Catalonia Trade and Investment to share experience in the application of the latest technology.

營運服務
TRADING SERVICES

就市民的餘暇活動，我們測試了偏遠地區遠足人士的定位追蹤系統(又稱戶外活動遠足人士安全系統)以及系統的追蹤手帶，測試結果良好。我們計劃把該系統應用於水上活動和滑翔傘事故的救援服務，同時會探索新的向上傳輸技術，包括運用無人機建立流動遠程網絡系統，以增強系統的定位追蹤能力。

On the leisure life of the public, we have tested the Location Tracking System for Hikers at Remote Areas, also known as the Hiker Safety System for Outdoor Activities, and the tracking wristbands of the system, and obtained pleasing results. There is also a plan to use the system in rescue services for incidents relating to water sports and paragliding activities. Meanwhile, we are exploring new uplink technology, including the use of drones to provide a mobile long-range network system, to enhance the tracking ability of the system.

偏遠地區定位追蹤裝置利用「政府物聯通」傳送資料，並配備求救按鈕。佩戴裝置的人員於海上遇險時，追蹤系統可確定人員位置，以便救援隊伍迅速展開搜救行動。

The remote area location tracking device utilises Government-Wide IoT Network for transmission of information and is equipped with an SOS button. In case personnel wearing the devices encounter danger at sea, the tracking system can locate them, thus enabling rescue teams to quickly initiate search and rescue operations.

我們在賽馬會黃石水上活動中心安裝人工智能遠程視頻分析系統，該系統可透過拍攝所得的影像，準確識別船隻翻倒和人體求救姿勢，讓救生員可即時應對並開展救援行動，從而提升水上活動安全。

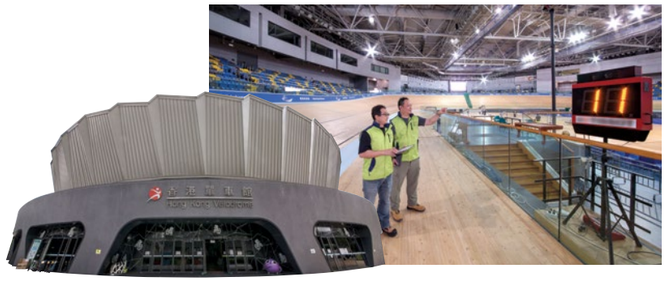
The AI-powered Long-range Video Analytics System installed at the Jockey Club Wong Shek Water Sports Centre can accurately identify capsized boats and human distress signals through the images captured, so that lifeguards can respond and initiate rescue operations immediately, and thereby enhancing the safety of aquatic activities.

為支持數碼政府服務和「智方便」應用程式的發展，我們推出了150多種電子表格，讓業界和市民可透過機電署網上系統遞交各類申請(例如續期申請)，無需親身前往機電署辦理。我們亦推出「數碼機電牌照」，供八類工程人員使用，讓他們可以在網上檢視其註冊資料及向公眾出示其「數碼機電牌照」。我們會繼續優化部門的電子服務，例如新增「轉數快」電子支付服務，方便市民繳費。

To support the development of digital government services (e-government services) and the iAM Smart application, we have launched more than 150 e-forms to enable the trade and the public to submit various applications (e.g. renewal applications) through the EMSD's online system without having to visit our offices in person. We also have launched "Digital E&M Licences" for eight types of practitioners, allowing them to view their registration information online and show their "Digital E&M Licences" to the public. We will continue to improve our electronic services, such as introducing the Faster Payment System e-payment service to enable the public to make payments more conveniently.

另外，我們已展開全國運動會(全運會)的籌備工作，全運會將於2025年11月至12月舉行，屆時香港會籌備多項賽事和大型活動。我們持續參與全國運動會統籌辦公室轄下的策導委員會及各個統籌委員會，其中一項職責是在15個運動場館進行設施升級工程及提供機電服務。能夠為全運會這項體育盛事獻力，我們深感高興。

In addition, we have begun the preparation work for the National Games to be held between November and December 2025 when Hong Kong will arrange a number of competition events and mass participation events. We have been participating in the steering committee and a number of co-ordination committees as organised by the National Games Co-ordination Office. One of our roles is to carry out facility upgrade works and provide E&M services for a total of 15 sports venues. We are delighted to have the opportunity to contribute to this mega sports event.



機電署已就將於2025年舉行的第十五屆全運會展開籌備工作，並為香港單車館的設備，包括音響、閉路電視和計時系統，以及電子計分牌等，進行升級工程。專業計時系統在瑞士生產，具備高規格並經反覆測試，確保可為單車賽事精準計時。

The EMSD has started the preparation work for the 15th National Games to be held in 2025, and carried out upgrade works for a range of equipment at the Hong Kong Velodrome, including audio, closed-circuit television and timing systems, and electronic scoreboards. Manufactured in Switzerland, the professional timing system is built to high specifications and has undergone repeated testing to ensure accurate timing for cycling races.

交通里程碑：實施香港首個不停車繳費服務
MILESTONE IN TRANSPORTATION: IMPLEMENTATION OF HONG KONG'S FIRST FREE-FLOW TOLLING SERVICE

機電署團隊多年來努力耕耘、詳細籌劃，作好全面的技術準備，成就本港首個不停車繳費系統投入服務。且聽邊境及運輸工程部葉偉良先生娓娓道來該系統背後的故事。

After years of hard work and meticulous planning, the EMSD team made comprehensive technical preparation and enabled the launch of Hong Kong's first free-flow tolling system. Mr Yip Wai-leung of the Boundary Crossing Facilities and Transport Services Division unveiled the story behind the system.

由2023年5月7日上午五時起，香港首個不停車繳費系統「易通行」在青沙管制區的三條隧道正式實施。高級工程師葉偉良先生在2018年加入邊境及運輸工程部，過去數年一直協助運輸署開發「易通行」系統；項目由設計至實施，他都全力參與，重點工作包括評估標書、測試系統和進行演練。

Starting from 5 a.m. on 7 May 2023, HKeToll, Hong Kong's first free-flow tolling system, was implemented at the three tunnels within the Tsing Sha Control Area (TSCA). Mr Yip Wai-leung, a senior engineer who joined the Boundary Crossing Facilities and Transport Services Division in 2018, has assisted the Transport Department (TD) over the past few years in developing the system and participated in the project, from design to implementation, focusing on tender assessment, systems tests and drills.

葉先生詳細說明「易通行」的運作原理。該系統有三種偵測通過車輛的方法：一是透過現場設備，配合無線射頻識別技術，讀取張貼於車輛擋風玻璃上的繳費貼；二是採用自動車牌識別技術擷取車輛的車牌影像，以辨識車輛登記號碼；三是採用光學雷達技術，識別車輛類別和尺寸。「易通行」系統善用這些技術偵測車輛，實現遙距收取隧道費，讓駕駛人士無須再在收費亭排隊及停車繳費。

Mr Yip explained in detail how HKeToll works. A passing vehicle is detected in three ways. First, the field equipment using the Radio Frequency Identification technology, reads a toll tag affixed to the windscreen of a vehicle. Second, the automatic number plate recognition technology is employed to capture the images of a vehicle's number plate for automatic recognition of the vehicle registration mark. Third, the Light Detection and Ranging technology is used for identifying the class and dimension of a vehicle. The system makes good use of these technologies to detect vehicles and collect tolls remotely, so that motorists do not have to queue up and stop at toll booths for payment.

2023年5月6日晚上十一時，葉先生與團隊成員抵達青沙管制區行政大樓。現場設備的伺服器設於行政大樓內，用於偵測車輛、產生交易記錄，以及把相關資料上載至「易通行」後端系統。為確保新系統運作順暢，200多名政府人員，包括葉先生及其團隊，以及顧問和承辦商，在青沙管制區、緊急事故交通協調中心和「易通行」後端系統的辦公室密切監察系統的運作情況。他補充說：「青沙管制區於2023年5月7日凌晨二時至五時臨時封閉，好讓我們進行最後階段的準備工作，以及最後的設備和系統測試。」清晨五時正，青沙管制區重新開放通車，「易通行」亦投入運作。

Mr Yip and his team arrived at 11 p.m. on 6 May 2023 at the TSCA Administration Building, where the servers of the field equipment were housed for detecting vehicles, generating transaction records and uploading data to the HKeToll Back-end System (BES). To ensure the smooth operation of the new system, more than 200 government officers, including Mr Yip and his team, as well as consultants and contractors closely monitored the operation of the system at the TSCA, the Emergency Transport Co-ordination Centre and the BES Back Office. "The TSCA was temporarily closed from 2 a.m. to 5 a.m. on 7 May 2023 to allow us to carry out the final stage of preparation work, and final tests on equipment and systems," he added. At 5 a.m. sharp, the TSCA was re-opened to traffic and HKeToll was put into operation.

2023年12月，所有政府收費隧道已採用「易通行」。由於大欖隧道的「建造、營運及移交」專營權將於2025年5月屆滿，營運基金團隊正為大欖隧道引入「易通行」作準備。葉先生說：「我們非常重視推出系統前的演練，因此在每條隧道啟用系統前的幾個星期內，會進行至少兩次演練。」除了「易通行」外，運輸署亦於2023年12月17日在海底隧道、東區海底隧道和西區海底隧道實施「分時段收費」，按不同時段收取不同隧道費，藉此把交通分流，紓緩繁忙時段的過海交通擠塞情況。葉先生與團隊就此項目向運輸署提供鼎力支援，確保系統運作穩定。

In December 2023, HKeToll had been rolled out at all government-tolled tunnels. With the Build-Operate-Transfer franchise of the Tai Lam Tunnel due to expire in May 2025, the EMSTF team is currently preparing for the introduction of HKeToll at the tunnel. "We attach great importance to the drills before launching the system, so at least two drills will be carried out for each tunnel in the weeks before the respective commissioning dates," stated Mr Yip. In addition to HKeToll, the TD implemented Time-varying Tolls at the Cross-Harbour Tunnel, Eastern Harbour Crossing and Western Harbour Crossing on 17 December 2023. Different toll levels are charged at different time slots, in order to divert traffic and alleviate cross-harbour traffic congestion during peak hours. Mr Yip and his team offered staunch support to the TD on this project to ensure the stability of the system.

葉先生總結道：「衷心感謝同事盡心竭力工作，使『易通行』得以順利推行。這個不停車繳費系統改變市民的駕駛習慣，並提高行車隧道的運作效率。我們很高興能參與這個重要的項目。」

Mr Yip concluded, "I would like to thank my colleagues for their dedicated work in making the implementation of HKeToll possible. This free-flow tolling system has changed the driving habits of the public, and improved the operational efficiency of the road tunnels. We are glad to be part of this important project."

善用創科 力臻卓越

創新科技(創科)近年成為營運基金追求卓越的動力，並鞏固了我們作為政府「創新促成者」的角色。事實上，提供以客為本的創新服務，是我們於2023年4月推出的第三個五年策略計劃中的重要支柱策略。各個策略業務單位運用人工智能、「機電裝備合成法」和建築信息模擬技術，以及綜合樓宇管理系統等，積極開發各種創科方案，實踐這項策略。

2023年下半年，機電署的人工智能督導小組和「機電裝備合成法」督導小組，分別推出《人工智能行動綱領》和《機電裝備合成法行動綱領》，成為部門發展的里程碑。兩個行動綱領以「知、行、合、一」，即「培訓、行動、協作和標準化」作為框架，推動兩項技術的廣泛應用。我們在人工智能方面的工作有三大重點，包括提高機電運作的能源效益、研究可提升機電安全的人工智能方案和促進客戶機電資產的預測性維修。2023年2月，我們成立了新的人工智能分部和人工智能工作小組，由具備資訊科技和人工智能建模知識的資深工程師組成，協助所有策略業務單位把人工智能融入客戶的新項目和操作與維修工作。

為促進大灣區的人工智能發展，我們會與廣東省建築科學研究院集團股份有限公司合作制訂一套《機電設備人工智能數據標準化指南》，以供在大灣區使用。

與此同時，發展局正推廣使用「開放式建築信息模擬」技術，提倡透過採用開放標準增加靈活度和方便協作。為配合此倡議，我們現正研究在機電署的資產管理和交接工作流程中應用「開放式建築信息模擬」技術。

「機電創科網上平台」為客戶、初創企業、大學及研究機構配對創科方案，一直深受歡迎，在2024年2月，其下的全新互動平台「機電創科彙集」初步推出。「機電創科彙集」目前展示逾50個成功項目供客戶和業界參考，方便他們根據其特定需要迅速找到實證有效的創科方案。

機電署團隊在第49屆日內瓦國際發明展再創佳績，勇奪七項金獎、十項銀獎及四項銅獎，合共二十一個獎項。

The EMSD team once again achieved spectacular results at the 49th International Exhibition of Inventions of Geneva, winning a total of twenty-one awards including seven gold, ten silver and four bronze medals.

LEVERAGING INNOVATION AND TECHNOLOGY TO ACHIEVE EXCELLENCE

Innovation and technology (I&T) have been the driving force of the EMSTF's quest for excellence in recent years, and have strengthened our role as the Innovation Facilitator of the Government. Indeed, providing customer-oriented innovative services is a key pillar strategy of our third Five-year Strategic Plan launched in April 2023, manifested as our Strategic Business Units (SBUs) actively engaged in the development of I&T solutions using artificial intelligence (AI), Multi-trade integrated Mechanical, Electrical and Plumbing (MiMEP) as well as Building Information Modelling (BIM) technologies, and the integrated Building Management System (iBMS), just to name a few.

A milestone in our development was the launch of the AI Master Action Plan and MiMEP Master Action Plan respectively by our AI Steering Group and MiMEP Steering Group in the second half of 2023. Based on the "training, action, collaboration and standardisation" framework, both plans support wider use of the technologies. Regarding our work on AI, our triple focuses are to raise energy efficiency in E&M operation, explore AI solutions for enhancing E&M safety, and facilitate predictive maintenance of clients' E&M assets. In February 2023, we set up the new AI Sub-division and AI Working Group comprising experienced engineers with information technology and AI-based modelling expertise to assist all SBUs in incorporating AI in new projects and operation and maintenance (O&M) work for clients.

To facilitate AI development in the Greater Bay Area (GBA), we will be working with the Guangdong Provincial Academy of Building Research Group Co., Ltd. to draft an E&M AI Data Standardisation Guideline for use in the GBA.

Meanwhile, to dovetail with the Development Bureau's initiative to promote the use of openBIM technology, which adopts open standards for improved flexibility and collaboration, studies on our application of openBIM technology in asset management and handover workflows are underway.

The E&M InnoPortal, our highly popular I&T solution matching platform for clients, start-ups, universities and research institutes, soft launched a new interactive platform called E&M InnoCatalogue in February 2024. The E&M InnoCatalogue currently showcases over 50 successful projects for reference by clients and the trade, enabling them to quickly find the proven I&T solutions according to their specific needs.

我們採取以客為本的創新方法，以此作為訂立各項創科策略和尋求技術發展的基礎，也藉此為客戶開發了無數獲獎的創科方案。一如往年，機電署於2024年4月舉行的第49屆日內瓦國際發明展(日內瓦發明展)中取得佳績，憑藉多個支援政府服務、推進智慧城市發展和促進碳中和的創科方案，奪得二十一個獎項，包括七項金獎、十項銀獎及四項銅獎。

在第49屆日內瓦發明展榮獲金獎的其中一個項目，是把全球定位系統的覆蓋範圍擴展至中環灣仔繞道隧道段的方案。此外，我們與廣東省科學院和香港機場管理局合作研發的機場跑道助航燈自動維護機械人，在第49屆日內瓦發明展獲得銀獎，該機械人現正於廣州廠房進行試驗。

至於智能防污海水濾網，是營運基金另一項得獎創科方案，先於2023年第三屆亞洲創新發明展覽會一香港榮獲金獎，再獲頒2024年香港工程師學會大獎優異獎。這項發明大大減少取出濾網進行檢查和清洗的需要，可節省八成人力成本，同時減低工人的安全和健康風險。

Underpinning all our various I&T strategies and technologies is a customer-oriented approach to innovation that has seen us create many award-winning solutions for clients. As in previous years, the EMSD achieved excellent results at the 49th International Exhibition of Inventions of Geneva (Geneva Exhibition) held in April 2024, winning twenty-one awards including seven gold, ten silver and four bronze medals for I&T solutions that support government services, smart city development and carbon neutrality.

An example was the project to extend the coverage of Global Positioning System to the tunnel section of the Central-Wan Chai Bypass, which won a gold medal at the 49th Geneva Exhibition. The Autonomous Airfield Ground Lighting Cleaning and Inspection Robot, co-developed with the Guangdong Academy of Sciences and the Airport Authority Hong Kong, was also a notable project which won a silver medal at the 49th Geneva Exhibition. Trials of the robot are being held at a Guangzhou workshop.

The Smart Antifouling Seawater Screen was another award-winning I&T solution by the EMSTF, bagging a gold medal at the 3rd Asia Exhibition of Innovations and Inventions Hong Kong in 2023 and a Certificate of Merit at the Hong Kong Institution of Engineers (HKIE) Grand Award 2024. The invention significantly reduces the need for the screens to be lifted for inspection and cleaning, saving as much as 80% of labour costs while reducing safety and health risks to workers.

由機電署研發的智能防污海水濾網，利用超聲波技術及設有智能污垢指數分析功能，可清潔海水濾網和防止生物膜在濾網上形成。該項目在第三屆亞洲創新發明展覽會－香港上獲得金獎。圖為時任機電工程署署長彭耀雄先生(左五)與獲獎團隊。

Developed by the EMSD, the Smart Antifouling Seawater Screen adopts the ultrasound technology and has a smart fouling index analysis function for cleaning seawater screens and averting the formation of biofilm on them. The project won a gold medal at the 3rd Asia Exhibition of Innovations and Inventions Hong Kong. Pictured are Mr Pang Yiu-hung, the then Director of Electrical and Mechanical Services (5th left), and the winning team.

(左)生物污垢積聚在濾網上；
(右)應用該方案後的清潔效果。

(Left) Accumulation of biofouling on a seawater screen, and (right) the cleaning effect after application of the solution.

營運服務
TRADING SERVICES

機電署與消防處共同研發的資產管理系統，運用5G和無線射頻識別技術，實時監察消防車上救火工具和救援設備的可用情況、狀態和存放位置，有助有效管理大量不同類型的資產，以及提高消防員的職業安全和健康水平。

With the adoption of 5G and RFID technologies, the asset management system co-developed by the EMSD and FSD monitors the real-time availability, status and storage location of the fire-fighting tools and rescue equipment on fire appliances. It enables effective management of a wide variety of assets, and enhances the occupational safety and health of firefighters.

在協助保安客戶部門提升運作效率和推動數碼化轉型方面，科技擔當關鍵角色。以消防處為例，消防員每天都要檢查和盤點每輛消防車上過百件救火工具及救援設備。為了簡化這個耗時耗力的工序，我們與消防處合作開發消防車救火工具及救援設備資產管理系統，運用5G和無線射頻識別技術，實時偵測、監察和記錄各消防車上相關工具與設備的可用情況和狀態，並向消防員發出提示。在2024年日內瓦發明展，這項創新方案亦獲得金獎殊榮。

Technology plays a vital role in enhancing operational efficiency and driving digital transformation for our security client departments. Take the Fire Services Department (FSD) as an example. Firefighters undertake daily checking and stocktaking of more than 100 fire-fighting tools and pieces of rescue equipment on each fire appliance. To streamline this time-consuming and labour-intensive process, we collaborated with the FSD to develop a solution for Management of Fire-fighting Tools and Rescue Equipment on Fire Appliances. Using 5G and Radio Frequency Identification (RFID) technologies, the system can detect, monitor and record the real-time availability and status of tools and equipment on each fire appliance, for which firefighters will be alerted. This innovative solution was also recognised with a gold medal at the Geneva Exhibition in 2024.

年內，我們與康樂及文化事務署合作，在荃灣大會堂和屯門大會堂安裝地下海水冷卻水管網絡的智能漏水監察系統。該一體化解決方案齊集遙距監控、數據收集和分析功能於一身，協助有關人員把地下冷卻水管保持在最佳狀態，以及確保兩個場館的空調服務穩定。我們也在香港鐵路博物館安裝了製冷機組水管漏水遙距監察系統，以監測製冷系統的水壓波動，找出可能發生的漏水問題。

During the year, we collaborated with the Leisure and Cultural Services Department to install a Smart Water Leakage Detection System for Underground Seawater Cooling Main at Tsuen Wan Town Hall and Tuen Mun Town Hall. This all-in-one solution enables remote monitoring, data collection and analysis, assisting personnel concerned to keep underground cooling mains in optimal condition and ensure stable air-conditioning service at the two venues. We also installed a Chiller Pipe Leakage Remote Monitoring System at the Hong Kong Railway Museum to monitor the fluctuation of water pressure in the chiller system to detect potential leaks.

我們自行研發的ChillStream®作為「分析即服務」方案，是以人工智能進行醫療基建資產管理的一大重點成就。該解決方案能遙距監察和最佳化控制製冷機組系統，以實現最佳的運作和能源效益。ChillStream®系統位於機電工程署總部大樓內的部別級區域數碼監控中心，運用實時天氣及樓宇運作數據，透過混合遺傳算法與粒子羣算法預測冷量需求，並優化目標製冷機組的調控工作。ChillStream®已在公共衞生檢測中心進行試驗，結果顯示該系統有助騰出部分製冷機組操作人員，以調配至其他工作；該系統每年更可為製冷機組節省約5%的耗電量。我們計劃未來數年，會在醫院管理局其他聯網醫院及不同的政府處所，更廣泛使用該系統。

A highlight of our AI achievements in healthcare infrastructure asset management is ChillStream®, an in-house-developed scalable Analytics-as-a-Service solution that enables remote monitoring and optimised control of chiller systems for optimal operational and energy performance. Hosted at the divisional Regional Digital Control Centre at the EMSD Headquarters, ChillStream® predicts the cooling demand to optimise control of the target chiller plant through a hybrid Genetic Algorithm-Particle Swarm Optimisation algorithm based on real-time weather and building operation data. A trial project at the Public Health Laboratory Centre indicated that it could release some chiller operation manpower for deployment to other duties, and achieve annual energy savings of about 5% of chiller electricity consumption. We plan to widely use the system in other cluster hospitals of the Hospital Authority as well as other government premises in the coming years.

衞生工程服務的維修保養工作流程也受惠於創科技術。我們於2022年開始試用醫療儀器維修表格電子平台。截至2023年9月，已有33類醫療儀器的維修保養表格遷移至該電子表格平台，真正實現無紙化工作流程，大大提升效率。我們計劃擴展電子表格平台以涵蓋手術室設備，長遠更會囊括所有電氣、機械和空調設備，全面簡化維修保養工作流程。

Maintenance workflow in the health sector services also benefits from I&T. We initiated a trial of the Biomedical Engineering Services e-form platform in 2022. As at September 2023, 33 types of biomedical equipment maintenance forms had been migrated to the e-form platform, making our workflow truly paperless and greatly improving efficiency. We plan to extend the e-form platform to cover operating theatre equipment and, in the long run, all electrical, mechanical and air-conditioning equipment, so as to streamline the maintenance workflow holistically.

在政府大樓的機電操作及維修保養方面，人工智能等創新技術亦發揮重要作用。我們在60部升降機的主要部件上安裝了物聯網傳感器，收集運作數據以進行預測性維修保養，涵蓋的建築物包括金鐘道政府合署、長沙灣政府合署和海港政府大樓。此外，我們的人工智能實時升降機門巡查系統，在第三屆亞洲創新發明展覽會 — 香港上榮獲銀獎。另一個名為「使用建築信息模擬、建築信息模擬 — 資產管理和綜合樓宇管理系統大規模構建語義建模」的人工智能項目，則於2024年3月在政府資訊科技總監辦公室舉辦的「人工智能創新應用」創科比賽獲得三獎。

Innovative technologies, such as AI, have also played a key role in our E&M O&M work in government buildings. We installed Internet of Things sensors on the major components of 60 lifts to collect operational data for predictive maintenance, covering buildings such as Queensway Government Offices, Cheung Sha Wan Government Offices and Harbour Building. Moreover, our AI Real-time Lift Door Inspection System won a silver medal at the 3rd Asia Exhibition of Innovations and Inventions Hong Kong. Another AI project, titled Mass Deployment of Semantic Modelling using BIM, BIM-AM and iBMS, was the second runner-up in the "Innovative Application with AI" Innovation Competition organised by the Office of the Government Chief Information Officer in March 2024.

為符合公共衞生檢測中心對室內溫度和濕度的嚴格要求，我們在中心試用自行研發的ChillStream®人工智能製冷機組優化系統，自動調節製冷機組的運作模式，從而節省能源。

To meet the stringent indoor temperature and humidity requirements of the Public Health Laboratory Centre, we trialled our self-developed ChillStream®, an AI-based chiller plant optimisation system, at the centre to automatically adjust the operational mode of its chillers for saving energy.

營運服務
TRADING SERVICES

為支持公共工程實行「建造業2.0」，以及更廣泛地使用「機電裝備合成法」，我們在機電工程署總部的空氣處理機組更換工程項目中採用了「機電裝備合成法」，把九天的工期大幅縮短至三天。這項目展示了「機電裝備合成法」在空氣處理機組和製冷機組等更換工程的巨大潛力，對醫院及其他不能長時間中斷服務的場地尤其重要。

To support the implementation of Construction 2.0 in public projects and the wider adoption of MiMEP technology, we adopted the MiMEP approach in an air-handling unit (AHU) replacement project at the EMSD Headquarters, significantly reducing work duration from nine to three days. The project demonstrates the great potential of MiMEP technology in AHU and chiller replacement works, which is particularly important to hospitals and other venues where services cannot be interrupted for a long time.

我們首次在機電署總部大樓應用「機電裝備合成法」更換地下大堂的空氣處理機組，以減少現場安裝工序，大幅節省施工時間，為職員及訪客帶來空氣流通的環境。

For the first time, we adopted the MiMEP approach to replace the air-handling unit for the lobby on the ground floor of the EMSD Headquarters Building, enhancing indoor ventilation at the venue for staff and visitors. The MiMEP method streamlined the on-site installation process and shortened the works period substantially.

在黃大仙獅子山公園辦事處，我們也利用「機電裝備合成法」安裝靈活的模組化太陽能發電系統。這種模組化的太陽能板可靠自身重量穩固在指定位置，在惡劣天氣下也能抵禦強風，無論安裝或重用都更容易，因而大大減少屋頂安裝工程的需要。

A modular flexible photovoltaic (PV) system using the MiMEP approach has been installed at the office building in Lion Rock Park, Wong Tai Sin. This kind of modular PV panels can rely on their own weights to stay in a fixed position and resist strong winds during adverse weather. This makes their deployment and reuse much easier, thus minimising the need for installation works on the rooftop.

我們在獅子山公園辦事處的太陽能發電系統安裝工程中，採用「機電裝備合成法」預先在場外組裝模件，大大減省施工時間。該模組化太陽能板能以自身重量穩固地設置在建築物屋頂上，同時可抵禦強風。

During the installation works of PV system at the office building in Lion Rock Park, we adopted the MiMEP technology to pre-assemble the modules off-site, which greatly reduced the duration of works. The modular PV panels can be stably installed on the rooftop of the building with their own weights, as well as resisting strong winds at the same time.

隨着香港在2023年年初解除防疫措施，我們與內地的交流活動全面復常。我們除了與多間本地及內地大學和科研機構再度簽訂合作備忘錄外，還在今年簽訂了兩份新的合作備忘錄，包括在2023年7月與深圳市科學技術協會簽訂合作備忘錄，建立新的策略伙伴關係；以及在2023年9月與廣東省建築科學研究院集團股份有限公司和廣東省建設科技與標準化協會簽訂合作備忘錄，推動建築機電系統的綠色智慧技術和人工智能標準的發展。

Our exchange activities with the Mainland have fully resumed after the lifting of Coronavirus Disease 2019 restrictions in early 2023. In addition to renewing the existing memoranda of co-operation (MoC) with various local and Mainland universities and research institutes, the EMSD also signed two more MoC during the year: one with the Shenzhen Association for Science and Technology in July 2023 to establish a new strategic partnership; and another with the Guangdong Provincial Academy of Building Research Group Co., Ltd. and the Guangdong Province Construction Technology and Standardisation Association in September 2023, to promote the development of green intelligent technology and AI standards for E&M systems of buildings.

此外，我們正與內地及海外的研究和學術機構商討加強合作伙伴關係，以協助創科方案「落地」，利惠市民。

In addition, discussions are underway with research and academic institutions on the Mainland and overseas for strengthening partnerships to facilitate the implementation of I&T solutions in real life and bring benefits to the general public.

我們的人員亦積極參與地區和國際活動，以推進交流協作，包括與香港生產力促進局和美國供暖製冷及空調工程師學會香港分會於2024年4月合辦建築資料獲取、資料本體及建模領域國際會議。我們相信交流合作對推動創科發展十分重要，未來亦會繼續參與這類活動。

To foster exchange and collaboration, our officers have been engaged in regional and international events, including the International Conference on Building Data Acquisition, Ontology and Modelling jointly organised with the Hong Kong Productivity Council and the American Society of Heating, Refrigerating and Air-Conditioning Engineers Hong Kong Chapter in April 2024. We believe in the importance of exchange and co-operation in advancing I&T development and shall continue to take part in similar activities in the future.

為推動創科發展，我們舉辦多項活動，包括「機電創科日2023」和「綠色創科日2023」。我們在活動中更與不同內地機構分別簽署《創新及科技交流合作備忘錄》和《建築機電系統綠色智慧技術及人工智能標準合作備忘錄》，促進兩地交流合作。

To drive I&T development, we organised various events, including the E&M I&T Day 2023 and the Green I&T Day 2023. During the events, we also signed the Memorandum of Co-operation on Innovation and Technology Exchange and the Memorandum of Co-operation on Green Intelligent Technology and Artificial Intelligence Standards for Electrical and Mechanical Systems of Buildings respectively with different Mainland institutions, to promote mutual exchanges and co-operation.

營運服務
TRADING SERVICES

人工智能開啟智能機電新時代
AI: OPENING THE DOOR TO THE NEW ERA OF INTELLIGENT E&M

機電工程營運基金在2023年推出《人工智能行動綱領》，為邁向智能機電創下新的里程碑。高級工程師黃偉達先生(左二)與團隊全力以赴推展綱領的工作，且聽黃先生闡釋綱領下的策略和行動，以及該綱領如何引領我們進入機遇處處的新時代。

The launch of the EMSTF's AI Master Action Plan in 2023 marked a new milestone towards Intelligent E&M. Mr Wong Wai-tat, Timothy, a senior engineer (2nd left) and his team, have been dedicated to the implementation of the plan. Mr Wong now explains the strategies and actions of the plan, and how the plan ushers us into a new age of plentiful opportunities.

機電署人工智能督導小組於2023年8月推出部門的《人工智能行動綱領》。數碼科技部高級工程師黃偉達先生表示，機電工程營運基金的第一個和第二個五年策略計劃已奠定良好基礎，因此在現時第三個五年策略計劃下進一步推動人工智能發展更得心應手。

黃先生於2002年加入機電署，多年來累積豐富的資訊科技項目經驗，並於2018年加入當時新成立的數碼科技部，與該部人員攜手開展人工智能研發工作。2023年2月，他協助組建部門層面的人工智能團隊，支援機電署在優化能源效益、操作和維修保養，以及機電安全等方面的多個人工智能項目。

《人工智能行動綱領》建基於「知、行、合、一」四大支柱框架，即「培訓、行動、協作和標準化」。「培訓」包含四個級別的課程，目標是提高員工在人工智能方面的能力。第一級是人工智能入門課程；之後是人工智能編程，繼而為有關人工智能嵌入式系統的培訓，第四級則是建構人工智能模型。截至2024年3月底，約900人已報讀相關課程。與此同時，部門亦舉辦人工智能工作坊和研討會，以及有關人工智能的職務考察和會議。

「行動」指落實項目累積經驗，現時員工激勵計劃下有28個人工智能項目，黃先生甚感欣慰。部門已發出《人工智能項目開發指引》，引導員工以安全和合乎道德的方式進行專案開發。在「協作」方面，部門的「機電人工智能實驗室」網站為機電署50多個本地、區域和內地合作伙伴提供分享經驗的平台；而與業界和大灣區人工智能專家的其他合作，也取得良好進展。

至於「標準化」方面，黃先生指出機電署與廣東省兩個合作伙伴共同制訂的《機電設備人工智能數據標準化指南》文獻綜述版已經完成。這套通用標準徹底改變現狀，使在不同系統和平台轉移和應用人工智能變得更容易。標準化也讓我們避免過份依賴單一供應商及/或品牌，從而減少在供應鏈、安全和其他方面的風險。機電署還推出「人工智能混合雲平台」先導版，把部門的人工智能項目上載至該平台，為客戶和業界示範提高風險意識和減低風險的最佳做法。

黃先生總結道：「相較以往數十年，現今的硬件性能更佳，運算力更強，使用案例也更多。現在是時候大展拳腳，利用人工智能實現智能機電，為人們帶來更美好的生活。」

The EMSD's Artificial Intelligence (AI) Steering Group launched the departmental AI Master Action Plan in August 2023. Mr Wong Wai-tat, Timothy, a senior engineer of the Digitalisation and Technology Division (DTD), stated that the EMSTF's first and second Five-year Strategic Plans had laid a good foundation, which made it easier to further AI development under the current third Five-year Strategic Plan.

Since joining the EMSD in 2002, Mr Wong has gathered rich experience in information technology projects over the years. In 2018, he joined the then newly established DTD and worked together with his team to take on AI development work. In February 2023, he helped set up a departmental-level AI team to support the EMSD in various AI projects on optimisation of energy efficiency, operation and maintenance, and E&M safety.

The AI Master Action Plan is based on the four-pillar framework of "training, action, collaboration and standardisation". "Training" encompasses four levels of courses to enhance staff competence in AI. Level one is an introductory course in AI. Next is AI programming, followed by training in AI-embedded systems, while Level four is about AI modelling. As at the end of March 2024, about 900 persons have enrolled in the courses. Meanwhile, the EMSD also held AI workshops and seminars, as well as organising AI duty visits and conferences.

"Action" means implementing AI projects to gain experience. Mr Wong is particularly pleased about the current 28 AI projects under the Staff Motivation Scheme. AI Project Development Guidelines have been issued to guide our staff to conduct the development of projects in a secure and ethical manner. On "collaboration", the E&M AI Lab website provides a platform for over 50 local, regional and Mainland partners of the EMSD to share experience. Other collaborations with AI experts in the trade and the Greater Bay Area have also made good progress.

As for "standardisation", Mr Wong pointed out that the literature review version of the E&M AI Data Standardisation Guideline, jointly developed with two partners in Guangdong, has been completed. The common standards will be a game-changer in facilitating the portability and applicability of AI across systems and platforms. Standardisation also allows us to avoid over-reliance on a single vendor and/or brand, thus reducing risks in supply chain, security and other aspects. Moreover, the EMSD has rolled out a pilot AI Hybrid Cloud Platform and uploaded our AI projects to the platform, showcasing the best practices for enhancing risk awareness and mitigating risks for clients and the trade.

"Hardware today has better performance, stronger computing power and more user cases than in previous decades, so now is the time to flex our muscles, using AI to achieve Intelligent E&M and a better life for all," he concluded.

CHILLSTREAM® — 自行研發人工智能重塑機電資產運行模式
CHILLSTREAM® - SELF-DEVELOPED AI RESHAPING OPERATION MODE OF E&M ASSETS

近年人工智能發展突飛猛進，啟迪了衞生工程部人員自行研發ChillStream®人工智能製冷機組優化系統。研發團隊再次聚首一堂，分享他們的研發心得。

The rapid developments of AI in recent years have inspired officers of our Health Sector Division to develop ChillStream®, an AI-based Chiller Plant Optimisation System, in-house. The team reunited to share their research and development experiences.

ChillStream®是部署於機電工程署總部區域數碼監控中心的人工智能系統，能遙距優化客戶場地的製冷機組運作。系統收集並分析天氣狀況、建築物冷負荷和製冷機組運行等實時數據，從所有可行參數中挑選最佳的製冷機組運作設定，以提升其能源效益。

「這是機電署首次嘗試在區域數碼監控中心的現有基礎上，結合人工智能力量來優化機電資產。」衞生工程部時任高級工程師林鑫駿先生說。團隊於2023年5月開展ChillStream®項目，一開始已決定自行研發演算法，以期掌握人工神經網絡和進化演算法等核心技術，為未來擴展項目鋪路。開發人工智能需要跨學科協作，涵蓋的專業範疇包括生物醫學、資訊科技、電子、機電和屋宇裝備等工程領域，而過程中前線人員的支援和配合也不可或缺。

2023年9月，團隊在衞生署轄下的公共衞生檢測中心進行首次試驗，成功以ChillStream®遙距優化七台製冷機組的運作。團隊認為公共衞生檢測中心的要求極高，如果ChillStream®能夠在該場地表現良好，在任何場地都能遊刃有餘。ChillStream®預計可節省3%至5%的空調耗電量。衞生工程部高級工程師趙偉略先生和時任工程師余穎君女士表示：「我們正向醫院管理局推廣這方案，未來也會推介給所有政府場地，以減少碳排放，最終實現碳中和。」

「我們還向前線人員說明ChillStream®穩健可靠，包括當系統違反任何安全規則，製冷機組會自動切換到傳統樓宇管理系統的控制模式。」趙先生說。ChillStream®的另一優點，是釋放了寶貴的人力來處理其他工作，例如承辦商管理和監督等。

ChillStream®已取得專利和註冊商標，並在第49屆日內瓦國際發明展上榮獲銅獎。今年7月，團隊也獲邀出席全球最大的計算智能技術盛會—在日本舉行的電機暨電子工程師學會2024年世界計算智能大會，並發表有關人工智能演算法的技術論文。衞生工程部高級工程師藍永鴻先生總結道：「ChillStream®由一個人工智能實驗發展為成功『落地』的項目，並於一年多時間內備受國際認可，令我們喜出望外，而這也是團隊成員羣策羣力的成果。」

Deployed at the Regional Digital Control Centre (RDCC) in the EMSD Headquarters, ChillStream® is an AI system capable of remotely optimising the operation of chiller plants at clients' sites. The system collects and analyses real-time data such as weather conditions, building cooling loads, and chiller plant operations, and then selects the best operational settings for chiller plants from all feasible parameters to improve their energy efficiency.

"This is the EMSD's first attempt to integrate the power of AI with the existing foundation of the RDCC to optimise E&M assets," said Mr Lam Kam-chun, Tommy, the then senior engineer of the Health Sector Division (HSD). From the outset of the ChillStream® project that started in May 2023, the team had decided to develop the algorithms in-house in order to grasp core technologies like artificial neural networks and evolutionary algorithms, and pave the way for future expansions. AI development requires cross-disciplinary collaboration, encompassing expertise in domains such as biomedical engineering, IT, electronics, E&M engineering, and building services engineering. The support and co-ordination of frontline staff are also integral to the process.

In September 2023, the team conducted its first trial at the Public Health Laboratory Centre (PHLC) under the Department of Health, and successfully optimised the operation of seven chillers remotely with ChillStream®. The team believes that if ChillStream® can perform well in the PHLC given its highly demanding requirements, it can perform well anywhere. It is estimated that ChillStream® can save 3-5% of air-conditioning electricity consumption. "We are promoting this solution to the Hospital Authority and will recommend it to all government venues in the future to reduce carbon emissions and ultimately achieve carbon neutrality," stated Mr Chiu Wai-leuk, Vincent, senior engineer, and Ms Yu Wing-kwan, Safiya, then engineer, of the HSD.

"We also explained ChillStream®'s robustness and reliability to frontline staff, including its automatic switch to the control mode of traditional building management system should the new system violate any safety rules," said Mr Chiu. Another advantage of ChillStream® is that it frees up precious manpower to handle other tasks like contractor management and supervision.

Not only was ChillStream® patented and registered as a trademark, but it also won a bronze medal at the 49th International Exhibition of Inventions of Geneva. Moreover, the project team was invited to attend the 2024 Institute of Electrical and Electronics Engineers World Congress on Computational Intelligence, the world's largest technical event on computational intelligence, held in Japan this July, and present a technical paper on the AI algorithm. "We are overjoyed that ChillStream® had leaped from an AI experiment into a successfully implemented project, gaining international recognition within just over a year. It is the fruit grew out of the concerted efforts of our team members," concluded Mr Lam Wing-hung, Ray, senior engineer of the HSD.

全天候服務社羣

多年來，機電署都在超強颱風、疫情等緊急和重大事故中，提供堅實的人力和技術支援。我們的全天候服務對客戶至關重要，每當遇到緊急情況，我們都會為客戶搶修受損的機電設施，讓公共服務盡快恢復，減輕對基礎設施和市民日常生活的影響。

2023年，香港接連出現極端天氣事件，包括9月初的超強颱風「蘇拉」，以及一周後的世紀大暴雨，當時黑色暴雨警告生效超過16小時。颱風和暴雨導致多區出現嚴重水浸，並為公共服務帶來嚴峻挑戰。在「蘇拉」襲港之前，我們已啟動機電署的緊急事故控制中心，在颱風期間全程監察全港主要公共機電設施的運作。其後發生特大暴雨時，我們再次迅速啟動控制中心密切監測情況。

SERVING THE COMMUNITY WITH ROUND-THE-CLOCK SUPPORT SERVICES

Over the years, the EMSD has provided staunch manpower and technical support during emergencies and major incidents such as super typhoons and epidemics. Our round-the-clock services are crucial to our clients. In case of emergency, we quickly repair damaged E&M facilities for prompt resumption of public services, to minimise the impacts on infrastructures and the daily lives of the public.

A series of extreme weather events occurred in Hong Kong in 2023, including Super Typhoon Saola in early September and the once-in-a-century severe rainstorm just a week later when the black rainstorm signal was hoisted for more than 16 hours. Both events caused severe flooding in many districts and posed serious challenges to public services. We had activated the EMSD's Emergency Control Centre (EMCC) even before the arrival of Saola and monitored the operation of major public E&M facilities across Hong Kong throughout the typhoon. During the subsequent extremely heavy rainstorm, the EMCC was swiftly activated again.

2023年9月，超強颱風「蘇拉」和世紀暴雨接連襲港，機電署兩度啟動緊急事故控制中心，在惡劣天氣期間無間斷地支援公共機電設施(例如損毀的交通燈控制器)的搶修工作。

In September 2023, Hong Kong was hit by Super Typhoon Saola and the subsequent once-in-a-century rainstorm. The EMSD activated its Emergency Control Centre twice, providing non-stop support for the emergency repairs of public E&M facilities, such as damaged traffic light controllers, under adverse weather conditions.

公務員事務局優化政府的動員機制，增設「全政府動員」級別，預先制訂各部門指定人員名單，確保需要大量人手處理的重大事故發生時，能立即動員公務員應急隊伍。2023年2月，政府進行首次「全政府動員」級別演練。同年9月，在超強颱風「蘇拉」和世紀暴雨襲港後，我們已準備就緒，運用部門預先制訂的員工輪值表和12小時「候命」輪值編排，展開動員行動，到多區支援善後工作。

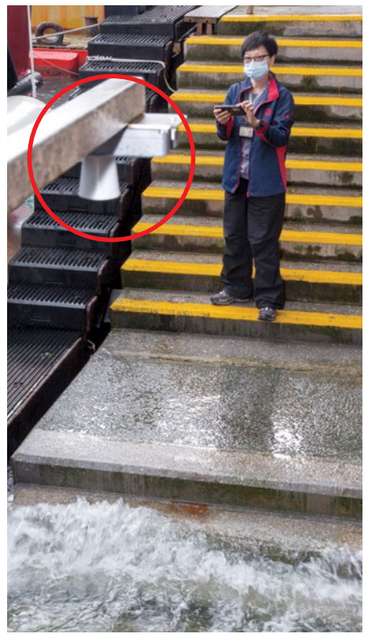
To enhance the mobilisation protocol, the Civil Service Bureau introduced a "government-wide mobilisation" level, under which a list of designated personnel from various departments was drawn up in advance to ensure that a quick response unit formed by civil servants could be mobilised promptly during major incidents requiring considerable manpower support. The Government conducted the first drill under the "government-wide mobilisation" level in February 2023. In September 2023, we were well-prepared for the real-life mobilisation operations for the recovery work at various districts after the passage of Super Typhoon Saola and the torrential rain, using our staff roster and a 12-hour "stand-by" shift schedule prepared in advance.

極端天氣期間，營運基金亦迅速派員為客戶進行搶修工作。超強颱風「蘇拉」襲港期間，我們的人員努力不懈，維修了過百組受損的交通燈設施。暴雨導致位於紅磡溫思勞街的行車隧道，以及政府飛行服務隊啟德分部辦公室和飛機庫出現嚴重水浸，我們的團隊盡心竭力，迅速完成復修工作。我們亦為其他受影響的政府建築物和場地提供緊急支援服務。

During extreme weather, the EMSTF promptly dispatches staff to carry out emergency repair works for our clients. When Super Typhoon Saola hit Hong Kong, our officers repaired over 100 damaged traffic light facilities strenuously. The rainstorm heavily flooded a vehicular underpass at Winslow Street in Hung Hom, as well as the office and hangar of Kai Tak Division, Government Flying Service (GFS). Our team's undaunted efforts and dedication enabled the swift completion of the emergency repair works. We also offered emergency support services for other affected government buildings and venues.

極端天氣不僅影響城市生活，也影響偏遠地區的重要設施。2023年6月，海事處爛角咀雷達站的設備因持續惡劣天氣及雷暴影響，造成損毀，可能導致雷達服務中斷，影響香港西部水域、珠海和澳門的船隻航行安全和海上交通。我們的團隊在政府飛行服務隊總部候命，待天氣好轉後，隨即乘坐直升機趕往現場進行緊急搶修工作，在短時間內恢復設備正常運作。

Extreme weather affects not only city life but also critical facilities in remote areas. In June 2023, the equipment of the Marine Department's Black Point Radar Station was damaged by severe weather, as well as thunder and lightning. This could disrupt radar services and affect the navigational safety of vessels and marine traffic in Hong Kong's western waters, Zhuhai and Macau. Our team stood by at the GFS Headquarters and took the helicopter to carry out emergency repairs on site once the weather conditions improved. The equipment resumed normal operation in a swift manner afterwards.



我們為重要基礎設施安裝智慧防洪監察系統，實時偵測場地的水位變化，所得的數據會傳輸到後端系統進行分析。當發現水位出現異常，系統會以電郵和短訊通知相關場地負責人員，以便及早應變。

We installed the Smart Flood Monitoring System at critical infrastructures for real-time monitoring of water level changes. The data will be transmitted to the back-end system for analysis. Once an abnormal water level is detected, emails and messages will be sent to notify corresponding site staff for early responses.

日趨頻繁的極端天氣對建築物和基礎設施的影響引起公眾關注。為了增強香港應對氣候變化的能力，我們開發了智慧防洪監察系統，保護重要基礎設施，如位處沿海或低窪地區的機房。系統透過「政府物聯通」和超聲波傳感器，協助客戶部門實時監測重要基礎設施的水位情況，以便及早應變。

Public concern has been aroused over the impacts of more frequent extreme weather events on buildings and infrastructures. To enhance Hong Kong's resilience to climate change, we have developed the Smart Flood Monitoring System for the protection of critical infrastructures, such as plant rooms located in coastal or low-lying areas. With the Government-Wide Internet of Things Network and ultrasonic sensors, the system facilitates client departments' real-time monitoring of the water levels in critical infrastructures and early responses.

營運服務
TRADING SERVICES

即使面對極端天氣情況，機電署的服務從不間斷。2023年4月19日凌晨，香港島發生停電事故，多區居民飽受斷電困擾。機電署人員馬上為百多組受影響的交通燈進行搶修，為港島各主要醫院維修機電設施，使其恢復運作，並確保政府總部及其他政府建築物的照明、升降機和其他機電系統盡快恢復服務。

The EMSD's services remained nonstop in the face of extreme weather conditions. A power outage occurred on Hong Kong Island in the small hours of 19 April 2023, and residents in many areas were troubled with a blackout. Our officers promptly carried out emergency repairs to over 100 affected traffic lights, repaired the E&M facilities of major hospitals on Hong Kong Island to resume their operation, and made sure that the lighting, lifts and other E&M systems of the Central Government Offices and other government buildings resumed service as soon as possible.

我們的全天候服務也涵蓋盛事活動。2024年2月，我們支援2019冠狀病毒病疫情後首次舉辦的15個農曆年宵市場及其他兩個市集，即車公誕市場和大埔林村放馬莆新春市場，提供臨時電力供應和照明予場地及攤檔、設置人流監察和人羣管控系統，以及安排機電人員在現場候命。

Our round-the-clock service covers mega events too. In February 2024, we supported 15 Lunar New Year (LNY) fairs and two other fairs, namely the Che Kung Festival Fair and Fong Ma Po New Year Fair at Lam Tsuen in Tai Po, held for the first time after the Coronavirus Disease 2019 (COVID-19) epidemic, by providing temporary electricity supply and lighting for the venues and individual stalls, setting up footfall monitoring and crowd control systems, as well as deploying E&M personnel to stand by at the scenes.

2023年9月至11月在灣仔海濱舉行的「海濱藝遊坊」是「香港夜繽紛」活動之一，我們同樣為該活動提供支援。在藝遊坊開幕當日，營運基金應發展局要求，緊急處理停電問題。團隊憑藉多年來處理農曆年宵市場臨時供電的經驗，迅速找出停電原因，向承辦商提供建議，並派員到現場候命。場地很快恢復供電，藝遊坊得以順利進行。

Likewise, we provided support for the Waterfront Carnival held at Wan Chai harbourfront from September to November 2023 as part of the Night Vibes Hong Kong campaign. The EMSTF received a request from the Development Bureau to urgently address a power outage on the opening day of the Carnival. With extensive experience in managing temporary power supply for LNY fairs over the years, our team promptly identified the cause of the outage, advised the contractor and deployed standby staff on site. Power supply was soon restored and allowed the Carnival to proceed smoothly.

在2023年9月舉行的「海濱藝遊坊」活動中，機電署迅速調配資源，處理緊急供電問題，最終活動得以順利進行。在基本電力供應恢復後，我們繼續跟進分配電源的電力裝置加裝事宜，讓各熟食攤檔營運順暢，市民可以好好享受活動的歡樂氣氛。

At the Waterfront Carnival held in September 2023, the EMSD promptly mobilised resources to resolve the emergency power supply issue, ultimately enabling the smooth running of the event. After restoring basic electricity supply, we continued to follow up on the installation of additional power distribution equipment, so that food stalls could operate smoothly and citizens could fully enjoy the event.

2023年11月，我們參加代號「舞鳳」的跨部門重大事故演習，內容包括模擬灣仔發生大停電的桌上演練，以及隨後在跑馬地東華東院進行的實體演習。該次演習的目的是增強各方在協作、預防事故和緊急應變方面的能力。

In November 2023, we participated in an inter-departmental major incident exercise codenamed "PHOENIXSPIN". The exercise comprised a tabletop exercise simulating a major power outage in Wan Chai, followed by a practical simulation at the Tung Wah Eastern Hospital in Happy Valley. The drills were aimed at enhancing the collaboration, incident prevention and emergency response capabilities of all parties concerned.

2023年11月，機電署參與跨部門重大事故演習「舞鳳」，模擬發生大規模停電。我們與醫院管理局、消防處、香港警務處等協調，並為機電設施及系統提供緊急支援和維修服務，以盡量減低可能造成的影響。

In November 2023, the EMSD participated in "PHOENIXSPIN", an inter-departmental major incident exercise, which simulated a large-scale power outage. We co-ordinated with the Hospital Authority, Fire Services Department, Hong Kong Police Force, etc., and provided emergency support and maintenance services for E&M facilities and systems to minimise possible impacts.

我們於2024年1月與中華電力有限公司(中電)進行另一次演習，模擬屯門醫院發生停電事故，以測試團隊的緊急應變能力。在該次演習中，我們更出動特定機電團隊(電力)。

In another drill exercise with the CLP Power Hong Kong Limited (CLP) in January 2024, we simulated a power outage incident at Tuen Mun Hospital to test our team's emergency response capabilities. We also deployed our Special Duty Unit (Electrical) in this drill.

2024年1月，機電署聯同醫管局和中電在屯門醫院手術室擴建大樓進行緊急復電演練，模擬區內發生大規模停電，以加強各方協調和應急處理的能力。

In January 2024, the EMSD, HA and CLP jointly conducted an emergency supply restoration drill at the Tuen Mun Hospital Operating Theatre Extension Block. Stimulating a large-scale power outage in the area, the drill was aimed at enhancing the co-ordination and emergency response capabilities of the parties involved.

我們在過去幾年竭力協助醫院管理局(醫管局)、衞生署及其他部門對抗2019冠狀病毒病疫情，及後亦繼續在公共衞生事務上為醫管局和政府提供緊急支援。

Further to our relentless efforts to help the Hospital Authority (HA), the Department of Health and other departments fight the COVID-19 epidemic in the past few years, we have continued providing urgent support for the HA and the Government in public health issues.

營運服務
TRADING SERVICES

其中一個好例子，是我們為位於落馬洲河套區的中央援港應急醫院（應急醫院）提供全面支援。應急醫院原為應付2019冠狀病毒病疫情而建，之後轉型提供其他服務，首先推出的是「日間放射診斷服務先導計劃」。機電署在計劃開展前進行各種緊急檢查和改善工程，確保所有機電設施準備妥當，可支援提供醫療放射診斷服務。這項先導計劃非常成功，大幅縮短病人輪候時間，紓緩公立醫院的壓力。我們又進行多項機電工程，讓應急醫院得以在2023年10月成功推出新服務，包括微生物化驗、內視鏡檢查和睡眠測試服務。

A good example is the comprehensive support we have given to the Central Government-aided Emergency Hospital (Emergency Hospital) in Lok Ma Chau Loop, originally a hospital dedicated to cope with the COVID-19 epidemic. The Emergency Hospital underwent transformation later to provide other services, among which the first was the Ambulatory Diagnostic Radiology Service Pilot Programme. Before the programme commenced, the EMSD carried out various urgent checking and improvement works to ensure that all E&M facilities were in place for the provision of medical radiology diagnosis services. The programme has been highly successful, significantly shortening patients' waiting time while relieving the pressure on public hospitals. We also conducted a number of E&M works, leading to the successful launch of new services at the Emergency Hospital in October 2023, including microbiology testing, endoscopy and sleep test services.

在落馬洲河套區應急醫院啟用的新服務中，我們為睡眠測試部的機電設施，例如空氣淨化機和抽風系統，提供維修保養服務，並為微生物化驗室完成各項必要的調校和測試工作。

Among the new services launched at the Emergency Hospital in Lok Ma Chau Loop, we have provided maintenance services for the E&M facilities such as air purifiers and the ventilation system of the Sleep Study Unit, and completed various essential adjustments and testing work for the Microbiology Laboratory.

2023年10月，《行政長官2023年施政報告》又提出在應急醫院二座設立「大灣區國際臨床試驗所」，為醫藥研發機構提供一站式臨床試驗支援平台。我們正與醫務衞生局合作落實此專案項目。

In October 2023, the Chief Executive's Policy Address 2023 also put forward the setting up of a Greater Bay Area International Clinical Trial Institute in Block 2 of the Emergency Hospital for providing a one-stop clinical trial support platform for medical research institutions. We have been working with the Health Bureau to implement this specific project.

營運基金在衞生服務範疇累積了豐富的機電操作和維修經驗，使我們在預防公立醫院事故方面極具優勢。醫管局就2023年年初發生的數宗事故，於2023年3月成立「檢視醫療儀器及設施保養維修事宜委員會」（檢視委員會），檢視公立醫院醫療儀器和設施的維修及保養情況，並邀請機電署協助調查事故。

The rich experience accumulated in E&M operation and maintenance (O&M) in the health sector has given the EMSTF an edge in incident prevention at public hospitals. In answer to several incidents occurred in early 2023, the HA set up a Review Committee on Medical Equipment and Facility Maintenance (Review Committee) in March 2023 to review the repair and maintenance of medical equipment and facilities in public hospitals, and invited the EMSD to assist in incident investigation.

2023年4月，機電署代表獲邀出席檢視委員會的會議，分享營運基金在醫療儀器維修保養方面的經驗和專業知識，特別是醫療儀器的生命周期管理，包括採購、驗收、安全管理、維修保養、承辦商管理，以至更換規劃等各個環節。

In April 2023, EMSD representatives were invited to a meeting of the Review Committee, in which they shared the EMSTF's experience and professional knowledge of medical equipment maintenance, in particular the life cycle management of medical equipment from procurement, acceptance, safety management, maintenance and contractor management to replacement planning.

2023年9月，東區尤德夫人那打素醫院（東區醫院）一名病人感染退伍軍人病，調查發現病人曾入住的病房有水龍頭和花灑噴頭受到污染。同年10月，該院另一名病人據報也感染了退伍軍人病，原因可能是曾在病房使用未經過濾的水。我們隨即向醫管局提供實地技術支援，並與東區醫院醫護人員合作，為熱水系統進行緊急消毒，減低院內感染的風險。

In September 2023, an investigation into how a patient at Pamela Youde Nethersole Eastern Hospital (PYNEH) had contracted Legionnaires' Disease (LD) found a tap and a shower head in the ward where the patient had stayed were contaminated. In October of the same year, another PYNEH patient was reported to have contracted LD too, probably because of using unfiltered water in the ward. We immediately provided on-site technical support to the HA and worked with PYNEH clinical staff to carry out urgent disinfection of the hot water system, to mitigate the risk of infection in the hospital.

農曆新年假期期間，深圳灣管制站實施特別通關安排，以疏導跨境人流和車流，機電署提供支援，協助客戶部門保持口岸運作暢順。

During the Lunar New Year holidays, special boundary-crossing arrangements were implemented at the Shenzhen Bay Control Point to facilitate cross-boundary passenger and vehicular movements. The EMSD rendered its support to help the client department to maintain the smooth operation of the control point.

我們向東區尤德夫人那打素醫院的醫護人員簡介消毒措施，並為熱水系統進行消毒，以減低退伍軍人病在醫院內傳播的風險。

We briefed the clinical staff of Pamela Youde Nethersole Eastern Hospital on disinfection measures and disinfected the hot water system to reduce the transmission risk of Legionnaires' Disease in the hospital.

在其他方面，營運基金與選舉事務處合作，為2023年12月舉行的區議會一般選舉提供機電支援。我們動員約1 500名機電署員工和承辦商人員，在極短時間內為全港681個投票站和618個點票站安裝和測試所有必需的機電設施，包括供電設施、照明和閉路電視系統。我們更設立緊急應變中心，使用自行開發的數碼化管理系統，監控各票站的機電設備安裝進度，以便及時調派人手和提供緊急支援。

In other aspects, the EMSTF worked with the Registration and Electoral Office (REO) to provide E&M support for the District Council Ordinary Election held in December 2023. We mobilised about 1 500 EMSD officers and contractor staff to install and test all necessary E&M facilities, including power supply, lighting and closed-circuit television systems, at all the 681 polling stations and 618 counting stations across Hong Kong within a very short timeframe. We also set up an Emergency Response Centre with an in-house-developed digital management system to monitor the installation progress of E&M facilities at each station for the timely deployment of manpower and provision of emergency support.

節日期間跨境交通往往激增，邊境口岸必須延長服務時間以確保客流暢通。在2024年農曆新年期間，我們支援深圳灣管制站實行24小時通關，以及羅湖管制站延長通關時間，確保口岸運作暢順，有關安排深受市民歡迎。

Cross-boundary traffic often surges during festive seasons, requiring extended services of border control points to ensure smooth passenger flow. During Lunar New Year 2024, we supported the implementation of 24-hour clearance at the Shenzhen Bay Control Point and the extension of clearance hours at Lo Wu Control Point for their smooth operation. The arrangements were much welcomed by the public.

隨着香港不斷發展，機電署會繼續堅定不移，全力以赴應付新挑戰，以確保本港基建和公共設施順利運作。

As Hong Kong continues to evolve, the EMSD will remain steadfast and go all out to meet emerging challenges, in order to ensure the smooth operation of the city's infrastructures and public facilities.

無懼世紀風雨 保護客戶資產服務社羣

PROTECTING CLIENTS' ASSETS AND SERVING THE COMMUNITY UNDER SEVERE RAINSTORM

2023年9月初，香港經歷了百年一遇的大暴雨，多區出現嚴重水浸，大量公共設施受損。市政工程部高級工程師劉繼忠先生(右三)帶領團隊，主動為客戶和市民提供緊急支援服務。服務該部別18年的一級監工鄭亞興先生(右一)，是其中一位在暴雨中奮戰的團隊成員。

Hong Kong was struck by a once-in-a-century rainstorm in early September 2023, which caused severe flooding in various districts and damages of numerous public facilities. Mr Lau Kai-chung, a senior engineer of the Municipal Sector Division (3rd right), led his team to proactively provide emergency supporting services for our clients and the public. Mr Chang Ah-hing, a Work Supervisor I (1st right), who has been working in the division for 18 years, was one of the team members who braved the rainstorm.

超強颱風「蘇拉」襲港，一星期後，又遭受特大暴雨襲擊，黑色暴雨警告信號生效超過16小時。在2023年9月8日早上，鄭亞興先生(興哥)接到故障報告，他迎難而上，主動冒着暴風雨返回工作崗位，提供緊急服務。

當時，鰂魚涌市政大廈因為附近的香港電燈有限公司(港燈)電掣房水浸而停電。興哥負責維修保養港島東區和南區市政場地的機電設施。他趕往現場，與港燈協調，並安排進行緊急檢查和維修。興哥說：「當天最大的挑戰是要在極短時間內組成維修隊伍，而隊員能夠安全前往現場。」幾經努力，他覓得兩位機電署人員和五位承辦商人員到現場工作。

停電期間，首先要確保市政大廈內有足夠的照明，因此要在每一層放置十多盞便攜式發光二極管應急燈，但是由於當時大樓內所有升降機已停止運作，興哥的團隊只好拾級而上逐層放置燈具。接着，團隊全面檢查系統後，確認系統並無異常，證明日常維修保養工作的質量十分高，讓大家感到很欣慰。

不過，約中午時分，興哥又接到通知，柴灣市政大廈地庫停車場出現嚴重水浸。團隊隨即兵分兩路，一隊留在鰂魚涌繼續監察復電情況，另一隊則趕往柴灣。興哥一行人到達柴灣市政大廈的停車場後，發現洪水沖來的碎石、沙粒和垃圾完全堵塞地台排水口。由於當時停車場水深及腰，所以他們決定穿上涉水褲，走到水中徒手清除堵塞排水口的雜物。經過多番努力，排水系統在晚上終於恢復暢通。兩支隊伍一直工作至翌日凌晨，成功使兩幢大廈的所有機電設施恢復正常運作。

總結經驗，興哥指出團隊精神非常重要，並感謝同事的鼎力支持。他又強調：「遇到緊急情況，最重要是保持冷靜，還要了解同事的能力，才能有效部署人手。」其後，他還提出了改善建議，例如利用擋水板保護升降機免受水浸威脅。「作為機電署的一員，能夠盡心服務社會，我們對此深感自豪。」他義不容辭道。

Just a week after Super Typhoon Saola hit Hong Kong, an extremely heavy rainstorm occurred when the black rainstorm warning signal was hoisted for more than 16 hours. On the morning of 8 September 2023, Mr Chang Ah-hing, also called Hing Gor, received a fault report. He rose to the challenges and proactively returned to work to provide urgent services under the extreme weather conditions.

At that time, a power outage occurred in the Quarry Bay Municipal Services Building due to a flooded switch room of the Hongkong Electric Company, Limited (HK Electric) nearby. Hing Gor, who is responsible for the E&M maintenance work of various municipal venues at the Eastern District and Southern District of Hong Kong Island, rushed over to the scene to co-ordinate with the HK Electric and arrange to carry out urgent checking and repairs. "The biggest challenge then was assembling a repair team, who could travel to the site safely, within an extremely short period," Hing Gor said. Upon some attempts, he confirmed that two EMSD colleagues and five contractor's staff members could work in the site.

During the power cut, they had to primarily ensure sufficient illumination in the municipal services building by placing more than ten portable light emitting diode emergency lights on each floor. However, as all lifts in the building had stopped operating, Hing Gor and his team could only climb the stairs to place the lights. After conducting thorough checks on the systems, the team was relieved to find no anomalies in them, which exemplified our high-quality routine maintenance works.

Nevertheless, around noon, Hing Gor was notified of a serious flooding incident in the basement carpark at the Chai Wan Municipal Services Building. The team was immediately split into two, one stayed in Quarry Bay to monitor the resumption of electricity, while another rushed to Chai Wan. Upon arrival at the carpark at the Chai Wan Municipal Services Building, Hing Gor's team found that the floor drains were blocked by gravel, sand and rubbish carried by flood water. As the water in the carpark then was already waist deep, the team decided to put on waders and manually remove all debris blocking the floor drains. Upon some hard work, the drainage system was cleared in the evening. The two teams worked non-stop until the early morning of the next day, enabling all E&M facilities in both buildings to resume normal operation.

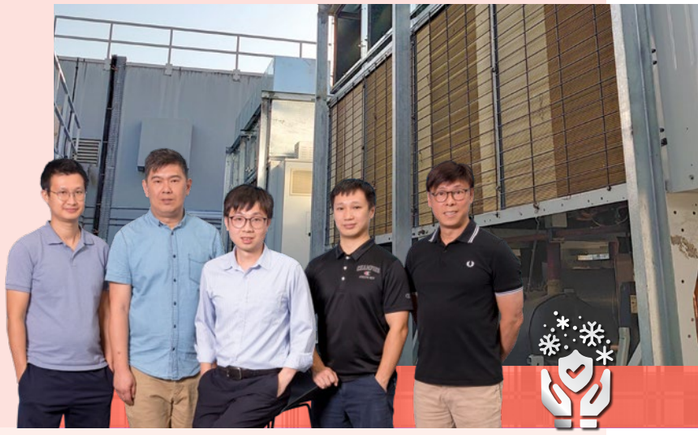
Learning from the experience, Hing Gor said that team spirit was vital and expressed his gratitude for the full support of his colleagues. "Staying calm is the most important thing to cope with emergencies, and knowing the abilities of our colleagues can help deploy manpower effectively," he also emphasised. After the mission, he also made improvement suggestions, such as using flood barriers to better protect lifts against flooding. "Being a member of the EMSD, we are proud to serve the community with heart and soul," he said enthusiastically.

非一般聖誕：日以繼夜保護客戶資產

AN EXTRAORDINARY CHRISTMAS: SAFEGUARDING CLIENT'S ASSETS ROUND-THE-CLOCK

仇永安先生(中)和團隊從未想過會在新界消防通訊中心的機房內度過冬至和聖誕，監控和確保空調系統維持無間斷運作；但他們憑藉拼搏精神，堅守崗位，不負所託。仇先生分享從事件所得的經驗和體會。

Mr Chio Yung-an (centre) and his team had never imagined that they would spend the Winter Solstice Festival and Christmas in the plant room of the New Territories Fire Services Communications Centre to monitor and control to ensure the uninterrupted operation of its air-conditioning system. Yet with their can-do spirit, they dedicated fully to their work and accomplished the unusual mission. He shares the experience and insights gained from the incident.



2023年的聖誕節對保安及車輛工程部工程師仇永安先生來說十分難忘，因為他和團隊要為新界消防通訊中心的空調系統提供緊急維修服務。該中心位於馬鞍山消防局內一棟新裝修的大樓，大樓雖然尚未投入服務，但其數據中心的伺服器已在試行，因此空調系統必須持續運作，以冷卻伺服器。

12月22日的早上格外寒冷，仇先生負責馬鞍山消防局的機電維修，大清早就收到故障報告電話，指新界消防通訊中心空調系統的製冷機組已停止運作，而數據中心也發出高溫警報。維修團隊很快發現，空調系統製冷機組的中央控制和監控系統(系統)有故障警示，原因是早一晚氣溫驟降，觸發了空調系統製冷機組的自我保護模式而自動關閉。不幸的是，系統的主製冷機組和後備製冷機組，全都無法按其設計自動重新啟動，這是由於系統軟件程式出現問題所致。仇先生表示：「我們立即要求供應商調整和完善系統的軟件，同時我們也須以人手全天候監控製冷機組。」

由於事發當天是冬至，緊接是聖誕假期，因此最大挑戰在於系統進行微調時，需要安排足夠人手全天候監控和操作空調系統；這表示部分同事不能在冬至晚上與家人聚餐，甚至要犧牲聖誕假期活動。「全賴團隊同事和承辦商的拼搏精神，我們成功制訂了一個24小時兩班制的輪更表，以在現場管理空調系統。」仇先生解釋說。當時空調系統只能以半自動模式運作，即每次自動關閉後，必須以人手重新啟動，因此需要作出這樣的人手安排。儘管通宵班飽受寒冬的煎熬，但團隊還是克盡厥職，保護好客戶場地的設備。

兩班制安排由12月22日持續至26日，隨後空調系統已回復至正常的全自動模式。不過，為策萬全，機電署自此在馬鞍山消防局派駐一隊維修人員，以便隨時應對突發事件。此外，團隊也從事件中汲取教訓，檢視了其他場地的同類型中央控制和監控系統，並按需要對其軟件進行微調。仇先生重申說：「我們的首要任務，是以客戶的利益為先，讓他們安枕無憂。」

The Christmas in 2023 was truly unforgettable for Mr Chio Yung-an, an engineer of the Security and Vehicle Services Division, as he and his team had to provide emergency repair services for the air-conditioning system of the New Territories Fire Services Communications Centre (FSCC), located in a newly refurbished building within the Ma On Shan Fire Station. While the building was not yet put into service, its data centre servers were already in trial use and the air-conditioning system had to operate constantly to cool the servers.

The morning of 22 December was exceptionally cold. Mr Chio, who was responsible for E&M maintenance of the Ma On Shan Fire Station, received a fault call early in the morning, which reported that the chiller of the FSCC air-conditioning system had shut down, setting off a high temperature alarm in the data centre. The maintenance team soon found that the Central Control and Monitoring System (CCMS) of the chiller of the air-conditioning system had a fault alert, because the sudden plunge in temperature overnight had triggered the chiller's self-protection mode to shut down automatically. Unfortunately, neither the duty chiller nor the standby chiller was able to restart automatically as designed. The failure was due to programming problems with the CCMS software. "We immediately asked the vendor to adjust and refine the CCMS software, and in the meantime, we also had to monitor the chiller manually round-the-clock," Mr Chio said.

As the incident occurred on the Winter Solstice Festival, followed by the Christmas holidays, the biggest challenge was to arrange enough manpower to monitor and operate the air-conditioning system round-the-clock while the CCMS was being fine-tuned. This meant that some colleagues were unable to have dinner with their families on the Winter Solstice evening, and even had to sacrifice their Christmas holiday activities. "Thanks to the can-do spirit of our colleagues and contractors, we successfully set up a 24x7, two-shift roster for managing the air-conditioning system on site," he explained. At that time, the system required manual reactivation after each automatic shutdown, as it could only operate in the semi-automatic mode. That's why such manpower arrangement was necessary. Although the overnight shifts went through the ordeal of the cold winter, the team still fully discharged its duties to safeguard the equipment at the client's venue.

The two-shift arrangement lasted from 22 to 26 December, after which the air-conditioning system was restored to its normal fully-automatic mode. However, taking no risk, the EMSD has since then stationed a maintenance team at the Ma On Shan Fire Station to respond to emergencies at any time. In addition, the team has also reviewed similar CCMSs at other venues and fine-tuned their software as necessary. "We give top priority to the clients' interests, and they can rest assured of their assets," Mr Chio reiterated.

營運服務
TRADING SERVICES

關心社會 以人為本

營運基金致力透過為客戶提供以客為本、創新及可持續發展的服務，造福社會。隨着全球日益重視把環境、社會與管治因素融入公營與私營機構的營運中，我們也加強了這方面的工作，秉持同心惠民的精神，竭力為市民提供更優質的服務。

我們其中一項首要工作，是運用科技減少環境損害、節約能源和加強工作安全。舉例而言，我們由2019年起持續興建「政府物聯通」的基礎設施，用以實時監察機電設備。截至2023年年底，我們在全港安裝的「政府物聯通」基站已超過500個。為協助消防處更清楚掌握其建築物的能源使用模式，我們把「政府物聯通」的覆蓋範圍擴展至90多間消防局，並安裝物聯網傳感器，收集各消防局內個別機電系統及樓層的能源消耗數據，為改善能源效益提供詳盡分析。

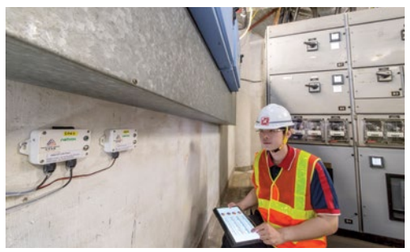
優化能源效益不但可為客戶帶來財務收益和提高生產力，還可保護環境，惠及大眾。因此，優化能源效益是我們在環境、社會與管治方面的工作重點。年內，我們繼續為多個客戶場地及設施推行能源優化及節能措施，包括為民航處總部的製冷機組安裝人工智能能源優化系統，該系統節省了3%的耗電量，並獲亞洲智能建築學會和英國屋宇裝備工程師學會(香港分會)頒發獎項。我們亦為路政署在全港行人天橋、行人隧道、有蓋行人道及公共運輸交匯處更換約1 900個照明裝置，把熒光燈更換為高效的發光二極管燈，以節省能源。此外，我們為香港警務處超過50間警署把熒光燈更換為具有較高能源效益的發光二極管燈。

ESG IN ACTION AND PEOPLE-ORIENTED SERVICES

The EMSTF aims to benefit the community through the provision of customer-oriented, innovative and sustainable services to clients. As the world attaches increasing importance to integrating Environmental, Social and Governance (ESG) factors into public and private sector operations, we have also stepped up our ESG efforts to better serve our citizens with heart and diligence.

A priority is using technology to reduce environmental hazards, save energy and enhance safety at work. For example, we have been building the Government-Wide Internet of Things (IoT) Network (GWIN) infrastructure since 2019 for real-time monitoring of E&M equipment. More than 500 GWIN gateways have been installed in a territory-wide network as at the end of 2023. To help the Fire Services Department (FSD) gain insight into the energy usage patterns in its buildings, we have extended GWIN coverage to over 90 fire stations and installed IoT sensors to collect energy consumption data of specific E&M systems and floors in the stations, providing detailed analysis for energy efficiency improvement.

Optimisation of energy efficiency is a focus of our ESG work as it yields not only financial and productivity gains for clients but also environmental benefits for all. During the year, we continued to implement energy optimisation and energy-saving measures at myriad client venues and facilities, including an artificial intelligence (AI) Energy Optimisation System for the chiller plant at the Civil Aviation Department Headquarters, which has saved 3% of energy consumption and won awards from the Asian Institute of Intelligent Buildings and the Chartered Institution of Building Services Engineers (CIBSE) (Hong Kong Region). For the Highways Department, we replaced about 1 900 lighting fittings at footbridges, subways, covered walkways and public transport interchanges across Hong Kong, switching from fluorescent luminaires to high-efficacy light emitting diode (LED) lights to reduce energy use. Besides, we have been replacing fluorescent luminaires with more energy-efficient LED lights at more than 50 police stations for the Hong Kong Police Force (HKPF).



機電署為消防處擴展「政府物聯通」的網絡覆蓋範圍，並在多間消防局安裝低功耗的遠程傳感器，以量度用電量、收集數據和尋找節能機會，提升能源效益，以及促進智慧城市的發展。

We have expanded the network coverage of GWIN for the FSD and installed low-power and long-range sensors at various fire stations to measure electricity consumption, collect data and identify energy-saving opportunities, thus promoting energy efficiency and smart city development.

我們為民航處總部製冷機組引入的人工智能能源優化系統，獲英國屋宇裝備工程師學會(香港分會)頒發「最佳數碼創新獎 — 優異獎」，團隊的努力獲得肯定。

Our efforts to introduce an AI Energy Optimisation System for the chiller plant at the Civil Aviation Department Headquarters was recognised, as evidenced by our receipt of the Best Digital Innovation Award - Merit from the CIBSE (Hong Kong Region).

邊境管制站、政府建築物及基礎設施蘊藏着許多優化能源效益的機會，我們正為港珠澳大橋香港口岸旅檢大樓開發的人工智能客流監測及影像分析系統就是一個好例子。該系統會向操作人員及人工智能整合系統提供實時客流統計數據，而人工智能會指示空氣處理機組就實時旅客分布情況應對，根據即時客流數據調節製冷水流量、送風量和溫度，從而改善空氣處理機組的能源消耗表現。

此外，我們已為深圳灣管制站的中央空調系統更換製冷機組，這有助提高能源效益。香園圍邊境管制站亦安裝了智能電掣櫃及電掣房監察系統，以監察電力設備的效能，便利操作和維修工作，以及找出優化能源效益的機會。此外，我們在各新舊政府處所，包括長沙灣庫務大樓及金鐘道政府合署，引進人工智能製冷機組優化方案，改善能源效益。

在醫療設施實現節能是我們另一重點工作。我們除了試行ChillStream®製冷機組優化方案，還在公立醫院完成了多個能源管理項目，包括更換老化的製冷機組和空氣處理機組。為配合政府逐步削減在香港生產及使用氫氟碳化物的措施，以落實《關於消耗臭氧層物質的蒙特利爾議定書》下的《基加利修正案》，我們逐漸以使用低全球變暖潛能值雪種的製冷設備，取代使用高全球變暖潛能值雪種的設備。以屯門醫院更換製冷機組的項目為例，新的製冷機組每年可節省約26%的耗電量。

Boundary control points, government buildings and infrastructures offer many opportunities for optimisation of energy efficiency. A good example is the AI Passenger Flow Monitoring and Image Analytics System being developed for the Passenger Clearance Building of the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port. The system will provide real-time passenger counting data to the operators and the AI integration system, and the AI will prompt air-handling units to respond to the real-time passenger distribution situation, by making adjustments to the chilled water flow rate, supply air volume and temperature subject to real-time passenger flow data to improve energy consumption performance of the air-handling units.

Meanwhile, replacement of the chiller at the central air-conditioning plant of Shenzhen Bay Control Point helps enhance energy efficiency. At the Heung Yuen Wai Boundary Control Point, a Smart Switchboard and Switch Room Monitoring System is now in place to monitor the performance of electrical equipment, facilitate operation and maintenance (O&M) work and identify energy-optimisation opportunities. Moreover, we have introduced for various new and old government premises, including the Treasury Building in Cheung Sha Wan and the Queensway Government Offices, AI chiller optimisation solutions to improve energy performance.

Achieving energy saving in healthcare facilities is another key focus for us. In addition to trialling our ChillStream® chiller-optimisation solution, we completed a wide range of energy management projects at public hospitals, including the replacement of aged chillers and air-handling units. To support the Government's initiative to phase down the production and consumption of hydrofluorocarbons (HFCs) in Hong Kong for implementation of the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, we are replacing refrigeration equipment that uses high global warming potential (GWP) refrigerants with those using low GWP refrigerants. A chiller plant replacement project at Tuen Mun Hospital has shown that the new chillers can save about 26% of annual electricity consumption.

機電署正為庫務大樓的製冷機安排人工智能優化系統安裝工程，透過數據分析提升能源效益；同時，我們致力在大樓內採用更環保的消防滅火劑。

Aiming to enhance energy efficiency through data analysis, the EMSD is currently arranging installation of AI optimisation system for the chiller at the Treasury Building. Meanwhile, efforts are underway to adopt greener fire suppressants throughout the facility.

我們把柴灣警署現有的照明燈具更換為節能的發光二極管燈。

We replaced the lighting at the Chai Wan Police Station with energy-efficient LED lights.

營運服務
TRADING SERVICES

屯門醫院的製冷機組設備使用低全球變暖潛能值的雪種，相比傳統雪種，新型雪種大大減低了對全球暖化的影響。

Low global warming potential refrigerants are used for the chiller equipment at the Tuen Mun Hospital. The new refrigerants significantly reduce the impact on global warming when compared to the traditional refrigerants.

為推廣使用可再生能源，我們為路政署在紅磡海底隧道東面入口的有蓋行人道安裝太陽能發電系統，以供應電力給接駁行人天橋的自動梯。

To promote the use of renewable energy, a photovoltaic system was installed at the covered walkway of the eastern portal area of the Cross-Harbour Tunnel in Hung Hom for the Highways Department, providing electricity for the escalators connected to the footbridge.

我們亦正嘗試在政府車隊和處所的空調系統，重用具有高全球變暖潛能值的再生雪種，以及尋找更環保的替代方案，取代使用高全球變暖潛能值滅火劑的滅火系統。這些措施會進一步減少政府車隊和處所的暖氣、通風和空調系統以及滅火系統使用氫氟碳化物。

Furthermore, we are trialling the reuse of reclaimed high GWP refrigerants in the air-conditioning systems of government fleets and premises, as well as replacing fire suppression systems that use high GWP fire suppressants with more environmentally-friendly alternatives. These initiatives will further reduce the use of HFCs in heating, ventilation, and air-conditioning systems, as well as fire suppression systems, in government fleets and premises.

此外，我們近年在多個市政場地完成52個節能工程項目，每年可節省952萬度電。我們也增加使用可再生能源，例如正在紅磡海底隧道東面入口的有蓋行人道安裝太陽能發電系統。

Moreover, we have completed 52 energy-saving works projects at various municipal venues in recent years, saving 9.52 million kWh electricity annually. Renewable energy (RE) deployment has increased too. For example, we are installing a photovoltaic system at the covered walkway of the eastern portal area of Cross-Harbour Tunnel in Hung Hom.

氫能冒起，被視為具發展潛力的潔淨能源，有助減少交通的污染物排放和推展政府的減碳工作。作為政府在氫燃料重型車試驗項目的技術顧問，機電署於2023年開展相關的市場研究、招標和合約管理工作。我們亦正與食物環境衞生署（食環署）、環境保護署、消防處和運輸署磋商，敲定試驗項目的推行細節。我們初步會引進三輛在內地特別訂製的氫燃料電池洗街車，供食環署使用。這批車輛預計於2024年第三季在香港試用，長遠可為社會帶來環境效益。

Hydrogen has emerged as a promising source of clean energy that can help reduce transport emissions and contribute to the Government's decarbonisation work. Being the Government's technical advisor in a trial project on hydrogen fuel cell heavy vehicles, the EMSD began work in 2023 on market research, tendering and contract management. We are also liaising with the Food and Environmental Hygiene Department (FEHD), Environmental Protection Department, FSD and Transport Department to finalise details of the trial implementation. We will initially introduce three hydrogen fuel cell street washing vehicles, which are custom-designed and manufactured on the Mainland, to be deployed by the FEHD. The trial of the vehicles in Hong Kong is expected to commence in the third quarter of 2024 and bring environmental benefits to the community in the long run.

除此以外，我們為政府引入的首輛特別用途電動車已於2023年第四季交付衞生署，用以推廣口腔健康。這部零排放車輛由機電署設計，並由電動巴士改裝而成，有效減少對其所到學校和社區造成的噪音和排放。

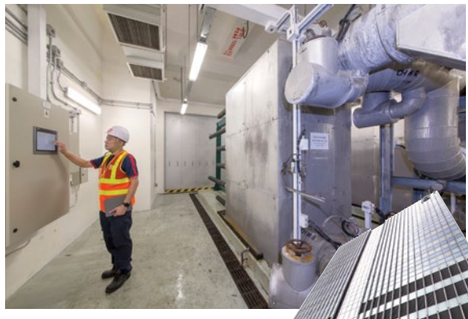
A related development was the Government's first specialised electric vehicle, which was handed over to the Department of Health in the fourth quarter of 2023 to promote oral health. Designed by the EMSD and retrofitted from an electric bus, the zero-emission vehicle reduces noise and emission impacts on the schools and communities it visits.

機電署的工作讓客戶的建築物獲得多個獎項殊榮和認證，成績斐然，由此可見我們在可持續發展方面實力非凡。例如，我們與建築署合作，為香港警務處重置樓高16層的東九龍總區總部及行動基地暨牛頭角分區警署；有關項目榮獲英國屋宇裝備工程師學會頒發2023年CIBSE香港大獎：公共建築物年度大獎，表彰項目善用可再生能源，並在建築物能源效益與可持續發展方面表現卓越。

The EMSD's capabilities in sustainability are demonstrated by our track record in helping clients obtain prestigious awards and certifications for their buildings. For example, the reprovisioning of the HKPF's 16-storey Kowloon East Regional Headquarters and Operational Base cum Ngau Tau Kok Divisional Police Station, a joint project by the Architectural Services Department and the EMSD, won the Project of the Year Award – Public Use Building in the CIBSE Hong Kong Awards 2023 presented by the CIBSE for its RE application and overall excellence in building energy efficiency and sustainability.

我們除了促使客戶建築物贏得獎項外，機電署總部大樓亦於2023年年底榮獲綠建環評既有建築2.0版最終鉑金級認證。這個最高評級是對可持續建築的重要肯定，足為社區樹立楷模。

In addition to assisting client buildings in earning awards, our own EMSD Headquarters was awarded the highest possible Final Platinum rating under BEAM Plus Existing Buildings V2.0 in late 2023, a major recognition for sustainable buildings, setting an example for the community.



為配合啟德發展區的可持續發展概念，機電署於東九龍總區總部及行動基地暨牛頭角分區警署融入可持續發展的元素，包括採用區域供冷系統和應用可再生能源技術，例如太陽能板和太陽能熱水系統。

In line with the concept of sustainable development of the Kai Tak Development Area, the EMSD has incorporated elements of sustainable development in the Kowloon East Regional Headquarters and Operational Base cum Ngau Tau Kok Divisional Police Station, including the adoption of a district cooling system and application of renewable energy technologies, such as photovoltaic panels and a solar water heating system.

由機電署和建築署合作發展的西九龍政府合署建築項目，憑藉其節省能源的空調系統，榮獲2023年美國供暖製冷及空調工程師學會第十三分區科技大獎的優異獎。

The building project of West Kowloon Government Offices, jointly developed by the EMSD and Architectural Services Department, was awarded a Certificate of Merit under the 2023 American Society of Heating, Refrigerating and Air-Conditioning Engineers Region XIII Technology Award for its energy-saving air-conditioning system.

營運服務
TRADING SERVICES

我們為康樂及文化事務署轄下的荔枝角公園游泳池引入再生介質過濾系統，以提升游泳池的過濾能力，優化池水水質。系統不但佔用的空間較小，而且可減少用水和用電量。

We introduced the Regenerative Media Filter System at the Lai Chi Kok Park Swimming Pool managed by the Leisure and Cultural Services Department to enhance the filtration capacity of the swimming pool and optimise the quality of pool water. The system not only takes up less space, but also reduces water and electricity consumption.

營運基金不斷探索新方法，以提升公共服務的質素。舉例而言，我們為康樂及文化事務署轄下的荔枝角公園游泳池引入再生介質過濾系統，提升游泳設施管理。新系統省卻了傳統沙缸過濾器採用的反沖洗流程，不單減少用水和用電量，而且體積細小，能節省高達八成空間。工作人員也無需在密閉空間工作，有關風險大大降低。

The EMSTF is constantly exploring new ways to enhance the quality of public services. Take an example, we introduced the Regenerative Media Filter System at the Lai Chi Kok Park Swimming Pool managed by the Leisure and Cultural Services Department to enhance the management of swimming facilities. As the new system eliminates the process for backwashing as adopted in the conventional sand filters, thus water and electricity consumption is reduced. The system is also highly compact, which could save up to 80% of space. In addition, workers no longer need to work in confined spaces, minimising the risk they faced.

過去一年，我們很高興能讓客戶部門拯救生命的工作精益求精，例如為消防處開發嶄新的無線電通訊方案。現時通訊系統的訊號往往受高樓大廈和地底結構阻擋，新系統突破現有限制，擴大無線電覆蓋範圍，提高通訊質素，有助保障消防員和公眾的安全。

Over the past year, we were pleased to help our clients enhance life-saving work. An example is a new radio communication solution we developed for the FSD. While the signals of the existing communication system is blocked by high-rise buildings and underground structures, the new system overcomes such limitations and expands radio coverage, providing better communication quality and hence can help safeguard the safety of firefighters and the public.

機電署為消防處引入嶄新的無線電通訊方案，協助消防人員有效處理火災現場複雜多變的情況。新系統配備無線手提轉發器，可在現場靈活配置，擴大覆蓋範圍和提高通訊質素。

The EMSD introduced a new radio communication solution for the FSD to enable firefighters to handle complex and ever-changing situations at fire scenes effectively. The new system is equipped with wireless portable repeaters, which can be flexibly deployed at the scene and enhance the coverage and quality of communication.

機電署會為新落成的哥連臣角新廈靈灰安置所內的先進機電設施，包括空調系統、水泵和化寶爐等，進行定期維修保養工作。在該等設施中，化寶爐採用空氣洗滌器和靜電除塵器，有效過濾微粒。

The EMSD will carry out regular maintenance of the sophisticated E&M facilities, including the air-conditioning system, water pumps and joss paper burners, etc., in the newly completed Cape Collinson-San Ha Columbarium. Among these facilities, the joss paper burner makes use of water scrubbers and electrostatic precipitators to effectively filter out particulates.

十二條連接新廈街至哥連臣角新廈靈灰安置所的自動梯於2023年重陽節期間開放予市民使用，方便他們登山拜祭先人。機電署專業團隊在重陽節當日到場當值，提供實地支援。

Twelve escalators, which connect San Ha Street with the Cape Collinson-San Ha Columbarium, were open for public use during the Chung Yeung Festival in 2023 to facilitate public access for paying respects to ancestors. Our professional team was on duty on the day of the festival to provide on-site support.

我們亦與消防處合作，在消防及救護學院安裝自動火警偵測及警報系統，以培訓新入職的消防處人員以及獲消防處認證的消防裝置技術員。相關培訓可提高相關從業員的專業水平，以及提升消防安全。

We also worked with the FSD to install the Automatic Fire Detection and Alarm System at the Fire and Ambulance Services Academy for training new FSD recruits and recognised fire service installation technicians. The training will enhance the professional standards of relevant practitioners and fire safety.

為方便市民，十二條連接新廈街與哥連臣角新廈靈灰安置所的新自動梯於2023年10月重陽節期間開放予市民使用。在這個登高掃墓的傳統時節，我們調派人員在現場提供支援，確保自動梯運作安全暢順，深受市民讚賞。

For the convenience of the public, twelve new escalators connecting San Ha Street and Cape Collinson-San Ha Columbarium were open for public use during Chung Yeung Festival in October 2023. Our staff members were deployed to provide on-site support to ensure the safe and smooth operation of the escalators during the traditional festival when people went hiking and visiting ancestral graves, winning appreciation from the public.

營運服務
TRADING SERVICES

機電署連續七年參與樂齡科技博覽暨高峰會，在2023年的展覽攤位展示多項樂齡科技創新方案，例如「認知能力訓練及評估混合實境眼鏡」。

Having participated in the Gerontech and Innovation Expo cum Summit for seven consecutive years, the EMSD showcased various gerontech and innovative solutions at its exhibition booth, such as the Mixed Reality Glasses for Cognitive Evaluation and Training, in 2023.

為提高長者的生活質素，我們在樂齡科技博覽暨高峰會2023展示多項創科方案，包括與東華東院合作開發的「智能床邊預防跌倒系統」和「認知能力訓練及評估混合實境眼鏡」。我們亦展示了「高精度快速長者定位及監察系統」，並進一步把系統引入伊利沙伯醫院，用以監察中風和創傷患者。

To enhance the quality of life of the elderly, we showcased a number of innovative solutions at the Gerontech and Innovation Expo cum Summit 2023, including the Intelligent Bed-side Fall Prevention System and Mixed Reality Glasses for Cognitive Evaluation and Training developed in partnership with Tung Wah Eastern Hospital, as well as the High Precision Fast Location and Monitoring System for Elderly. The use of the monitoring system was further extended to the monitoring of stroke and trauma patients in Queen Elizabeth Hospital.

提升醫院工程從業員的專業標準是我們其中一項衞生工程服務。目前，香港大學專業進修學院為業界提供生物醫學工程課程，機電署計劃與該學院合作，開辦涵蓋電氣、機械及空調範疇的醫院工程課程。

Upgrading the professional standards of hospital engineering practitioners is part of our health sector services. Currently, the University of Hong Kong School of Professional and Continuing Education (HKU SPACE) already offers a biomedical engineering course for the industry. The EMSD is planning to collaborate with the HKU SPACE and launch a hospital engineering course that covers the areas of electricity, mechanics and air-conditioning.

我們的團隊也很高興能參與九龍醫院A座外兩盞近百年歷史煤氣燈的活化工程。該兩盞燈於1925年醫院啟用時安裝。我們在2023年12月完成活化工程，把該兩盞已失靈的煤氣燈改裝為可使用電力和太陽能的混能燈，同時保留煤氣燈原有的歷史特色，以供市民觀賞。

Our team was also delighted to take part in the revitalisation works of two almost century-old gas lamps outside Block A, Kowloon Hospital. The lamps were installed in 1925 when the hospital opened. Completed in December 2023, the revitalisation works turned the defunct gas lamps into hybrid lights, which can use both grid electricity and solar energy, while preserving their historical features for public enjoyment.

機電署協助九龍醫院活化兩盞近百年歷史的煤氣燈，把其改裝成可使用電力和太陽能的混能燈，同時保留煤氣燈的歷史特色。

The EMSD helped the Kowloon Hospital to revitalise two nearly century-old gas lamps by converting them to hybrid lights that can use both electricity and solar energy, while preserving the historical features of the lamps.

我們也為另一盞歷史悠久的電燈重新接駁電源。

We also re-connected electricity supply to another historical lamp.

惠民為先 確保供水無間斷
PUTTING PEOPLE'S NEEDS FIRST BY MAINTAINING UNINTERRUPTED WATER SUPPLY

荔景紀律部隊宿舍共有三座，其中一座的居民可能還記得在2024年1月19日曾暫停供水數小時，傍晚卻隨即恢復供水。然而，他們不知道一支由綜合工程部朱豪賢先生(中)帶領的團隊，在隨後兩周馬不停蹄地默默耕耘，確保供水系統正常運作。

Residents in one of the three blocks of Lai King Disciplined Services Quarters might still remember that the water supply was suspended for several hours on 19 January 2024, but was resumed immediately that evening. Little did they know that a team led by Mr Chu Ho-yin of the General Engineering Services Division (centre) worked non-stop behind the scenes to ensure normal operation of the water supply system in the next two weeks.

綜合工程部工程師朱豪賢先生的職責之一，是監督政府產業署轄下宿舍的機電維修保養工作。1月19日上午，他接獲上述宿舍大樓的淡水上水泵組故障報告。負責團隊趕赴現場，很快便發現主泵組和備用泵組的自耦式變壓器起動器都已燒壞，並觸發火警警報。

One of the duties of Mr Chu Ho-yin, an engineer of the General Engineering Services Division, is to oversee E&M maintenance of quarters under the Government Property Agency. On the morning of 19 January, he received a fault call about the freshwater up-feed pump set in the building mentioned above. Upon rushing to the scene, his team soon found that the auto-transformer starters of both the duty and standby pump sets had been burnt out and triggered the fire alarm.

與其等候數天甚至數周時間來採購新的水泵起動器作更換，團隊決定馬上徵用鄰座宿舍備用泵組一個類似的自耦式變壓器起動器，作為臨時替代品。

Rather than waiting for days or weeks to source a new pump starter replacement, the team decided to promptly commandeer a similar auto-transformer starter from the standby pump set of a neighbouring block in the quarters as an interim replacement.

「我們知道此舉會增加兩幢宿舍大樓的風險，因為每幢大樓只能依賴一套正常運作的水泵組。但是在權衡利弊後，我們認為只要採取適當的控制措施，仍然值得冒險。」朱先生憶述。他指出借用鄰座宿舍的水泵組，可以使這座宿舍的供水快速恢復，讓居民盡早回復正常生活。在一月的寒夜，對於常要輪班和通宵工作的紀律部隊住客，熱水淋浴尤其重要。

"We knew this would increase the risk to both blocks of the quarters, as each could rely on only one functioning pump set. However, after weighing up the pros and cons, we believed that it was worth taking the risk if proper control measures were in place," Mr Chu recalled. He pointed out that commandeering the pump set from the other block could help resume the water supply to this block quickly, so that its residents could return to normal life as soon as possible. In the cold nights of January, hot showers were particularly important for disciplined force residents who often had to work shifts and overnight.

在裝上從鄰座借來的自耦式變壓器起動器後，上水泵組很快就恢復運作。可是，該泵組的自動控制功能卻不得不暫停，因為首先要找出故障的根本原因。經進一步調查後，團隊發現大廈天台水缸內的水位傳感器機件失靈，導致泵組在短時間內不斷異常開關。為了維持淡水無間斷供應，團隊別無選擇，只能手動控制上水泵組，以確保天台水缸內的水位適中。

After the auto-transformer starter borrowed from the neighbouring block was installed, the up-feed pump set soon resumed operation. Nevertheless, the automatic control function of the up-feed pump set had to be suspended for finding out the root cause of the fault first. Further investigation revealed that the water level sensors inside the roof water tank were malfunctioning, causing the pump set to abnormally switching on and off continuously within short periods of time. In order to maintain uninterrupted supply of fresh water, the team had no choice but to manually control the up-feed pump set to ensure an appropriate water level in the roof water tank.

故此，團隊必須輪班監察警報信號，並24小時人手操作水泵系統。通宵工作的人員要忍受一月的嚴寒天氣，午夜氣溫有時更降至攝氏四至五度；再者，由於泵房空間狹小，他們只能瑟縮門外，在寒風刺骨和無遮無擋的環境下工作。

Accordingly, the team had to work shifts to monitor the alarm signals and manually operate the pump system round-the-clock. Staff working overnight had to endure the extremely cold weather in January, with the temperature sometimes dropping to 4-5 degree Celsius at midnight. Also, as the pump room was cramped, they could only huddle outdoors, working in the bone-chilling wind and without any shelters.

系統最終在2月1日恢復正常自動運作。經徹底檢查後，臨時自耦式變壓器起動器也妥為交還鄰座宿舍。談及是次事件帶來的體會，朱先生表示在制訂關乎公共服務的決策時，必須把客戶需求和市民感受放在首位。「我們衷心感謝團隊每位成員，他們摩頂放踵，在嚴寒天氣下長時間工作，不辱使命。」他說。

The system finally resumed normal automatic operation on 1 February. The interim auto-transformer starter was duly returned to the neighbouring block after thorough checking. Talking about insights gained from this incident, Mr Chu said that customers' needs and people's feelings had to be accorded the first priority when public services related decisions were made. "We are truly grateful to everyone in the team for their dedication to public service, as they worked long hours in chilly weather to fulfil the mission," he said.

企業管理
CORPORATE STEWARDSHIP

在2023/24年度，機電署承先啟後，革故鼎新。我們迎來成立75周年的重要里程碑，並舉辦一系列活動與市民分享喜悅。同時，我們順利展開機電工程營運基金第三個五年策略計劃，為長遠發展奠下堅實基礎。

2023/24 was a transformative year for the EMSD, as we carried on our past achievements while embracing the opportunities that await us. This year marked our 75th anniversary, an important milestone that we commemorated by organising a series of activities to share the joy with the public. Meanwhile, we successfully launched the EMSTF's third Five-year Strategic Plan, laying a firm foundation for our long-term development.

在這一年，香港亦逐步走出新冠疫情的陰霾，營運基金全力支援客戶和業界，推動本港社會經濟全面復蘇。不論處理營運基金的日常工作，還是面對大型事故或突發情況，各策略業務單位和企業單位都悉力以赴，隨時候命，協助客戶應對挑戰，展現創新思維和執行力，更鞏固我們在機電業界的領導地位。

This year, as Hong Kong gradually emerged from the shadow of the COVID-19 epidemic, the EMSTF provided comprehensive support for clients and the industry, promoting the full recovery of Hong Kong society and economy. Be it handling routine work of the EMSTF or facing major incidents or emergencies, our Strategic Business Units (SBUs) and corporate units always went all out and stood by to help our clients meet the challenges, demonstrating innovative thinking and execution capabilities, and further consolidating our leading position in the electrical and mechanical (E&M) industry.

第三個五年計劃

為求與時並進，營運基金於十年前推出第一個五年策略計劃，支援客戶及業界，並推動新科技應用；在第二個五年策略計劃，我們朝「機電2.0」時代進發，加強數碼轉型。秉承過去兩個計劃的豐厚成果，我們於2023年4月展開第三個五年策略計劃（第三個計劃），提出四大創新策略，包括「提供以客為本創新服務」、「建構創新卓越團隊」、「創新業務流程」和「加強多方創新協作」，以及12個策略行動，引領營運基金邁向「機電3.0 — 智能機電」，提供智能化機電服務。

THIRD FIVE-YEAR STRATEGIC PLAN

To keep pace with the times, the EMSTF launched its first Five-year Strategic Plan a decade ago, to support our clients and the industry while promoting the application of new technologies. In the second Five-year Strategic Plan, we embarked on the era of "E&M 2.0" towards digital transformation. Building upon the fruitful results of the previous two Plans, we initiated the third Five-year Strategic Plan (3rd Plan) in April 2023 and introduced four innovative strategies, including "providing customer-oriented innovative services", "building an innovative and excellent work team", "innovating business processes" and "strengthening innovative collaboration between stakeholders", as well as 12 strategic tasks. All these serve to drive the EMSTF's journey towards "E&M 3.0 – Intelligent E&M" in delivering intelligent E&M services.

要成功落實第三個計劃的各項目標，員工的積極參與和團隊協作至關重要。我們於2023年11月舉行策略工作坊，讓同事深入了解第三個計劃的詳情、討論潛在的機遇和挑戰，以及加強多方協作。超過80名來自不同部別和職級的同事參加有關工作坊。

To achieve the goals of the 3rd Plan, active staff participation and teamwork are crucial. In November 2023, we held a Strategic Workshop for colleagues to learn about details of the 3rd Plan, discuss potential opportunities and challenges, and strengthen multilateral collaboration. Over 80 colleagues from different divisions and ranks participated in the workshop.

第三個五年策略計劃的策略工作坊於2023年11月舉行。同事先聽取策略行動負責人介紹各自的策略行動，再進行分組討論，探討各項策略行動之間的協作空間。

The Strategic Workshop of the third Five-year Strategic Plan was held in November 2023. After listening to the introductions to the strategic tasks presented by the respective persons-in-charge, colleagues participated in group discussions to explore the collaborative opportunities among different strategic tasks.

卓越客戶服務

支援大型活動 應付突發事件

機電署一直是各個政府部門的堅強後盾。去年本港經歷不少突發事件和極端天氣情況，其間我們全力支持客戶部門應對挑戰。2023年4月，港島區發生大停電，因此逾百組交通燈失靈，多間醫院和政府大樓的機電系統亦受影響。機電署團隊兵分多路通宵進行搶修，讓公共服務在短時間內大致回復正常。去年夏末，超強颱風和世紀暴雨在一星期內接連襲港，機電署兩度啟動緊急事故控制中心，全力配合特區政府抗災和善後。

除了處理天災和意外事故外，我們亦在大型公眾活動期間提供支援。2023年9月底，我們應發展局要求處理灣仔「海濱藝遊坊」活動的緊急供電問題。我們的團隊憑藉多年來處理年宵花市供電的經驗，指導承辦商為攤檔分配額外電力，夜市活動最終順利進行。其後在堅尼地城和觀塘舉行的「香港夜繽紛」活動，我們亦到場提供技術支援。

EXCELLENT CUSTOMER SERVICE

Supporting Large-scale Events and Handling Emergencies

The EMSD has always been strong backup for government departments. Last year, Hong Kong experienced various unforeseen incidents and extreme weather conditions, during which we fully supported client departments in rising to these challenges. In April 2023, a major power outage occurred on Hong Kong Island, resulting in the malfunctioning of over a hundred traffic lights and the disruption of E&M systems in a number of hospitals and government buildings. The EMSD teams worked tirelessly at multiple locations throughout the night to carry out emergency repairs, enabling the resumption of normal operations of public services within a short period. During the late summer last year, Hong Kong was hit by a super typhoon and once-in-a-century rainstorm within a week. The EMSD activated the Emergency Control Centre twice to support the Government in disaster response and post-disaster recovery efforts.

Apart from responding to natural disasters and accidents, we also provide support in large-scale public events. In late September 2023, at the request of the Development Bureau (DEVB), we resolved an emergency power supply issue at the Waterfront Carnival in Wan Chai. Leveraging our years of experience in handling power supply for Lunar New Year fairs, our teams instructed the contractors to allocate additional power supply to the stalls, enabling the smooth running of the event eventually. We also provided on-site technical support for the Night Vibes Hong Kong events in Kennedy Town and Kwun Tong later on.

（上）去年本港經歷不少突發事件和極端天氣情況，機電署迅速調配人手和資源，為客戶部門修復受損的機電設施，把對市民的影響減至最低。（下）我們亦為「香港夜繽紛」活動提供技術支援，協助處理供電問題。

(Top) Last year, Hong Kong encountered numerous unforeseen incidents and extreme weather conditions. The EMSD swiftly deployed manpower and resources to repair damaged E&M facilities for client departments, minimising the impact of the problems on the public. (Bottom) We also provided technical support for the Night Vibes Hong Kong activities, assisting in resolving power supply issues.

企業管理
CORPORATE STEWARDSHIP

為提升應對大型事故的能力，我們不時與其他機構進行聯合演練。2023年11月，我們與警務處、消防處、醫院管理局和香港電燈有限公司等進行代號「舞鳳」的跨部門重大事故演習，模擬灣仔區電力分站發生火警導致停電。同年12月，我們參與「全政府動員」級別的場地設置演練，模擬把中山紀念公園體育館設置為隔離中心。2024年年初，我們又參與屯門醫院手術室大樓新翼的緊急復電演練。

To enhance our ability to respond to large-scale incidents, we conduct joint exercises with other organisations from time to time. In November 2023, we collaborated with the Hong Kong Police Force, Fire Services Department, Hospital Authority, and Hongkong Electric Company, Limited to conduct an inter-departmental major incident exercise codenamed "PHOENIXSPIN". The exercise simulated a fire incident at a power substation in Wan Chai, which resulted in a power outage. In December 2023, we participated in a venue set-up drill at the "government-wide mobilisation" level, simulating the conversion of the Sun Yat Sen Memorial Park Sports Centre into a quarantine centre. In early 2024, we also took part in an emergency supply restoration drill at the Tuen Mun Hospital Operating Theatre Extension Block.

2023年12月，我們參與「全政府動員」級別演練，模擬把一所體育館改裝為隔離中心。

In December 2023, we took part in a drill at the "government-wide mobilisation" level, simulating the conversion of a sports centre into a quarantine centre.

創新服務流程

我們持續利用科技改善服務流程。第三個計劃的其中一項策略行動，是運用數碼科技及人工智能輔助技術，使客戶服務智能化，提升服務質素。年內，我們開始建立雲端客戶服務系統的「顧客為本電子平台客戶網站」，把客戶服務中心進一步數碼化；未來會加入語音機械人系統，並運用人工智能提升服務質素。

另外，為配合上年度推出的「部門運作支援系統」，我們正研究推出新的採購和倉存平台管理和存取貨物，以及全面採用電子採購訂單和電子收貨平台採購常用的消耗品。我們於2024年3月發表該兩個計劃的研究報告並舉行簡介會，超過250名人員參加。

Innovating Service Processes

We continuously improve our service processes with technology. One of the strategic tasks outlined in the 3rd Plan is to leverage digital technology and artificial intelligence-assisted technology to provide smart customer services and enhance service quality. During the year, a Customer Centric e-Platform Client Portal of the cloud-based customer service system was being developed to further digitalise our Customer Service Centre. We are also planning to incorporate a voicebot system and utilise artificial intelligence (AI) to enhance the quality of our customer service in the future.

Besides, to align with the Departmental Operation Supporting System introduced last year, we are studying the implementation of a new procurement and stock management platform for managing, storing and delivering supplies, and full adoption of the E-Purchase Order and Goods Receipt platforms for the procurement of commonly used consumables. In March 2024, study reports for both projects were released and a briefing session was conducted, with an attendance of over 250 officers.

屢獲殊榮 實至名歸

機電署的優質客戶服務備受各界肯定。在去年的第21屆國際傑出顧客關係服務獎頒獎禮上，我們獲得第一屆國際大灣區CRE創新領袖獎的三個獎項，包括2023年最佳人工智能科技服務(政府部門)、2023年最佳區塊鏈解決方案(政府部門)和2023年最佳物聯網項目(政府部門)；另外，兩名高級工程師和兩名工程師亦奪得個人獎項。

Winning Multiple Accolades

The EMSD receives widespread recognition for its excellent customer service. At the 21st International Customer Relationship Excellence (CRE) Awards Ceremony last year, we garnered three awards, namely the Best AI Technology Service of the Year 2023 (Government), the Best Blockchain Solutions of the Year 2023 (Government) and the Best Internet of Things Project of the Year 2023 (Government), of the 1st International Greater Bay Area CRE Innovation Leadership Awards. Additionally, two senior engineers and two engineers from our Department earned individual accolades.

2023年11月，本署兩名工程師獲頒2023年申訴專員嘉許獎公職人員獎；另外兩名人員則獲頒公務員事務局局長嘉許狀，表揚他們多年來盡忠職守，表現多次獲政府及客戶部門高度肯定。此外，本署一名退休人員獲頒授銅紫荊星章；另一名退休人員和現職人員則獲頒授2023年行政長官公共服務獎狀。

In November 2023, two engineers from our Department were presented with the Ombudsman's Awards 2023 for Officers of Public Organisations, while two other officers were honoured with the Secretary for the Civil Service's Commendation Awards. The awards commended them for their years of dedicated service, and that their performance won high recognition from the Government and client departments. Furthermore, a retired officer was awarded the Bronze Bauhinia Star, while another retired officer and a serving officer received the Chief Executive's Commendation for Government/Public Service 2023.

時任管理值班工程師鍾惠堅先生(左二)和一級監工葉冠偉先生(右二)獲頒公務員事務局局長嘉許狀，表揚他們多年來盡忠職守，以專業精神服務市民。

Mr Chung Wai-kin, the then Shift Charge Engineer (2nd left) and Mr Ip Koon-wai, a Works Supervisor I (2nd right), were presented with the Secretary for the Civil Service's Commendation Awards, in recognition of their years of dedicated service and professionalism in serving the public.

機電署工程師鄭文意女士(右二)和工程師梁嘉俊先生(左二)獲頒2023年申訴專員嘉許獎公職人員獎，以表揚其傑出表現。

Ms Cheng Man-yee (2nd right) and Mr Leung Ka-chun (2nd left), both engineers of the EMSD, were honoured with the Ombudsman's Awards 2023 for Officers of Public Organisations in recognition of their outstanding performance.

連繫業界 推動創科

要持續推動本港創新科技(創科)的發展，必須集合政府、業界和學界的力量。2023年7月，我們聯同香港科技園公司和深圳市科學技術協會舉辦「機電創科日」，為業界提供平台展示最新的智慧建築創科方案。2023年9月，我們與廣東省科學技術協會在廣州舉辦「綠色創科日2023」，邀得兩地專家就「綠色轉型」和「邁向碳中和」分享創科經驗。

Collaborating with the Industry to Promote I&T

To continuously drive innovation and technology (I&T) development in Hong Kong, it is essential to bring together the strength of the Government, industry, and academia. In July 2023, we collaborated with the Hong Kong Science and Technology Parks Corporation (HKSTPC) and the Shenzhen Association for Science and Technology to organise the E&M I&T Day, providing a platform for the industry to showcase the latest I&T solutions in smart construction. In September 2023, we partnered with the Guangdong Provincial Association for Science and Technology to hold Green I&T Day 2023 in Guangzhou, inviting experts from both places to share their I&T experience under the themes of "green transformation" and "journey to carbon neutrality".

為進一步促進創新科技產業化，我們在現有的「機電創科網上平台」上新增「機電創科彙集」，重點介紹機電署在不同範疇的優秀創科試驗項目，例如「政府物聯通」、「智能貨倉」和「戶外活動遠足人士安全系統」。新平台讓用戶按需要把多個創科項目編製成一份彙集，令產品資訊一目了然，方便向客戶推介方案。

To further promote the commercialisation of innovations, we have enhanced the existing E&M InnoPortal by introducing a new platform called E&M InnoCatalogue, which highlights the remarkable I&T trials conducted by the EMSD across diverse fields, such as the Government-Wide Internet of Things Network (GWIN), Smart Warehouse and Hiker Safety System for Outdoor Activities. The new platform allows users to compile multiple I&T projects into a catalogue, so that product information leaps to the eye, facilitating recommendation of solutions to clients.

為加快創科成果「落地」，我們建立了「機電創科彙集」。這個互動平台重點介紹機電署在不同範疇的優秀創科試驗項目。

To expedite the realisation of I&T outcomes, we established the E&M InnoCatalogue, a dynamic platform that highlights the remarkable I&T trials conducted by the EMSD in various fields.

企業管理
CORPORATE STEWARDSHIP

培育創新文化

我們在部門內部亦鼓勵人員持續創新。2023年第二季，我們舉辦第四屆「Inno@E&M創新科技挑戰賽」，以人工智能、無人機和機械人為主題，共收到162個參賽方案。此外，我們透過員工激勵計劃，舉辦「節能AI大比拼」比賽，鼓勵人員與本地或大灣區初創企業和大學合作提交方案，利用人工智能技術分析現有機電設備數據，找出節能方法。

Cultivating an Innovation Culture

Internally, we also encourage our officers to keep innovating. In the second quarter of 2023, we organised the fourth Inno@E&M Challenge under the themes of AI, drones and robotics, and received 162 proposals. Another example was the AI Competition for Energy Efficiency and Conservation under the Staff Motivation Scheme. Our officers were encouraged to partner with local or Greater Bay Area (GBA) start-ups and universities to submit proposals that utilise AI technology to analyse data of existing E&M equipment and identify energy-saving solutions.

「節能AI大比拼」比賽共收到28個節能方案，涵蓋空調製冷、太陽能、污水處理等範疇。參賽人員積極學習人工智能知識，提出具創意的方案，並聯同初創公司推行項目，展現無限發展潛力。

The AI Competition for Energy Efficiency and Conservation received a total of 28 energy-saving submissions, covering areas such as air-conditioning and refrigeration, solar energy, and sewage treatment. Participating officers actively acquired AI knowledge, proposed creative solutions, and partnered with start-ups to implement their projects, demonstrating boundless possibilities for development in this field.

推廣工作安全和良好作業

除了推動創科外，提高業界的安全意識以減少工業意外也是我們的重要工作。年內我們舉辦和參與多項活動，包括在2023年9月聯同職業安全健康局和香港科技園公司合辦安全研討會2023。研討會以「安全智慧工地系統」為主題，邀得業界講者分析機電業意外個案，並分享使用職安健科技和「組裝合成」建築法等方面的心得。

2023年11月，我們舉辦年度「品質及安全日」，邀得嘉賓就「智慧機電」分享經驗。在活動中，我們向「品質、環境及生產力推廣計劃2022/23」的優勝隊伍頒發獎項，表揚他們在改善職安健和推動綠色文化方面的出色表現。

我們亦經常與承辦商交流，以增強他們的安全意識。年內我們舉辦了四場承辦商研討會，分享風險管理和安全智慧工地系統等方面的經驗，共約970人參與。

此外，我們參加了發展局和建造業議會合辦的建造業安全周2023，透過參與研討會、工地參觀和嘉年華，推廣工地安全。

Promoting Work Safety and Good Practices

In addition to promoting I&T, we are also charged with the important role of enhancing safety awareness of the trade to reduce industrial accidents. In the year, we organised and participated in various activities, including the Safety Conference 2023 jointly hosted with the Occupational Safety and Health Council and the HKSTPC in September 2023. With the theme of "Smart Site Safety System", the conference invited industry speakers to analyse E&M industrial accident cases and share insights into using occupational safety and health technologies and Modular Integrated Construction (MiC) method.

In November 2023, we held the annual Quality and Safety Day and invited guests to share their experience in "Smart E&M". At the event, awards were presented to the winning teams of the Quality, Environment and Productivity Promotion Programme 2022/23, in recognition of their outstanding performance in improving occupational safety and health and promoting a green culture.

We also regularly engage with contractors to enhance their safety awareness. During the year, four sessions of Contractors Forum were held to share experience in risk management and Smart Site Safety System, with approximately 970 participants in total.

Furthermore, we participated in the Construction Safety Week 2023, co-organised by the DEVB and the Construction Industry Council, to promote safety at construction sites through conferences, site visits and a carnival.

為提升工程項目的管理效率和成本效益，我們全力配合發展局推動採用「新工程合約」模式，透過使用標準合約讓締約雙方建立互助互信的伙伴關係，共同管理風險。我們已在2024年4月推出一站式網上「新工程合約」資源中心，並已就承辦商採用「新工程合約」的準備情況完成意見調查。

To elevate management efficiency and cost effectiveness of works projects, we fully support the DEVB in promoting the adoption of the New Engineering Contract (NEC) form, a suite of standard contracts that fosters the building of a partnering relationship of mutual assistance and trust between the contracting parties, as well as enabling joint risk management. We launched a one-stop online NEC Resources Centre in April 2024 and completed a survey on our contractors' readiness to adopt the NEC.

在安全研討會2023上，有十間科技公司設置攤位，展示最新的職業安全和健康設備，以及安全智慧工地系統，吸引逾530人參與。

At the Safety Conference 2023, ten technology companies set up exhibition booths to showcase the latest occupational safety and health equipment, as well as Smart Site Safety Systems. The event attracted over 530 participants.

全方位尋覓人才

機電業的長遠穩定發展，繫於足夠的人才供應。有鑑於此，機電署一直通過不同渠道宣傳機電業，吸引年輕新血入行。年內其中一個亮點，是機電署與五間中學合作推行為期八個月的「啤啤校園之旅 — 生活小智識」STEM教育先導計劃，透過一系列教學活動和設計思維工作坊，增加學生對機電工程和智能生活的認識，引起他們對機電行業的興趣。我們在2023年7月舉行了畢業禮暨作品展，讓參與計劃的學生展示創作成果。同年9月，我們更邀請已完成計劃的學生到機電署總部參觀，讓他們多認識機電署的工作。

Comprehensive Talent Hunting

The long-term and steady development of the E&M industry relies on an adequate supply of talent. Having regard to that, the EMSD has been promoting the E&M industry through various channels to attract new blood to join the industry. One of the highlights of the year was "Witty Bear Campus Tour – EMbrace Smart Living in Daily Life", an eight-month pilot STEM education programme we launched in collaboration with five secondary schools. Through a series of educational activities and design thinking workshops, we aimed to enhance students' understanding of engineering and smart living, and arouse their interest in the E&M industry. In July 2023, we held a graduation ceremony-cum-exhibition for the participating students to showcase their creative inventions. Upon completion of the programme, students were invited to visit the EMSD Headquarters in September 2023 to learn more about the Department's work.

在2023年7月舉行的「啤啤校園之旅—生活小智識」STEM教育先導計劃畢業典禮暨作品展中，參與計劃的學生向嘉賓展示創作成果。

At the graduation ceremony-cum-exhibition of the pilot STEM education programme "Witty Bear Campus Tour – EMbrace Smart Living in Daily Life" held in July 2023, participating students of the programme demonstrated their inventions to the guests.

為歡迎行業的生力軍，我們一如以往，聯同香港機電業推廣工作小組（工作小組），在2023年9月舉行「機電．啟航2023」迎新典禮，逾千名新入行的年青人和業界代表出席，人數為歷年之冠。2024年1月，我們又與工作小組合辦機電業博覽2024，透過攤位展覽和職業講座，闡述行業前景和培訓資訊。2024年3月，我們參加香港工程師學會主辦的香港工程師週嘉年華，設置攤位展示本署在可再生能源方面的研發成果，介紹如何利用工程技術達致可持續發展，並加深大眾對工程行業的認識。

To welcome new blood to the industry, as our regular practice, the Department, in collaboration with the Hong Kong Electrical and Mechanical Trade Promotion Working Group (the Working Group), hosted the "E&M GO! 2023" Orientation Ceremony in September 2023. Over a thousand young newcomers to the industry and industry representatives attended the event, which saw the highest attendance ever. In January 2024, we co-organised with the Working Group the E&M Expo 2024, where we introduced industry prospects and training information through exhibition booths and career seminars. In March 2024, we participated in the Hong Kong Engineers Week Carnival organised by the Hong Kong Institution of Engineers, and set up a booth to showcase our research accomplishments in renewable energy, with the aim of demonstrating how engineering technologies could contribute to sustainable development and deepening public understanding of the engineering industry.

在招募見習工程師方面，我們在2024年加快招聘流程，並向應屆畢業生給予有條件取錄，務求盡早覓得合適人才。

Regarding recruitment of engineering graduates, the Department expedited the hiring process and extended conditional offers to fresh graduates in 2024, in order to secure suitable talent as early as possible.

機電署聯同香港機電業推廣工作小組合辦機電業博覽2024，向年青人展示機電業與日常生活息息相關，以及業界廣泛應用創科的情況，引起他們對投身機電業的興趣。

Co-organised by the EMSD and the Hong Kong Electrical and Mechanical Trade Promotion Working Group, the E&M Expo 2024 showcased to young people the close connection between the E&M industry and their daily lives, as well as the wide application of I&T in the industry, to stimulate their interest to join the E&M industry.

新成立的機電青年發展委員會舉辦多項活動，包括「青年交流平台」，協助機電署年青員工作多元發展。

The newly established E&M Youth Development Committee organised various activities, including the Youth Exchange Platform, to facilitate the diversified development of our young staff members.

員工培訓和發展

機電青年發展委員會

我們非常重視員工訓練，致力培育青年新生代，這也是第三個計劃的重要策略行動。本署在年內的一大舉措是成立機電青年發展委員會，以促進年輕人員的全面發展，並加強對外推廣機電行業。

委員會舉辦了多項活動，包括為期三天的機電青年大灣區創科考察團，讓團員參觀當地科企、科研單位和初創企業等；以及與香港機電工程商聯會合辦的「青年交流平台」活動，邀得機電署與業內的青年代表，就人工智能、區域供冷系統和「機電裝備合成法」分享經驗。此外，委員會應香港兒童醫院邀請，為200個受助家庭在聖誕前夕舉辦聖誕派對，以及安排香港迪士尼樂園之旅，讓他們度過一個溫馨難忘的聖誕節。

STAFF TRAINING AND DEVELOPMENT

E&M Youth Development Committee

We place great importance on staff training and are committed to nurturing the young generation, which are also the major strategic tasks under the 3rd Plan. A significant initiative this year was the establishment of the E&M Youth Development Committee, aiming at facilitating the all-round development of young members of our staff and enhancing external promotion of the E&M industry.

The committee organised various activities, including a three-day I&T tour to the GBA by the E&M youth delegation who visited local tech firms, scientific research institutes and start-ups; and the Youth Exchange Platform event, hosted in collaboration with the Hong Kong Federation of Electrical and Mechanical Contractors, in which young representatives from the Department and the industry were invited to share their experience in AI, district cooling systems, and Multi-trade integrated Mechanical, Electrical, and Plumbing (MiMEP) technology. Prior to Christmas, at the invitation of the Hong Kong Children's Hospital, the committee organised for 200 families in need a Christmas party and a trip to the Hong Kong Disneyland, bringing to them a warm and memorable Christmas.

知識傳承

第三個計劃的另一策略行動，是善用「知識羣體」架構，承傳知識和經驗，提升團隊能力及效率。我們成立了多個智囊羣組，範疇包括建築信息模擬及資產管理、智能建築、人工智能、無人機和機器人，以及「機電裝備合成法」等，讓成員分享所屬範疇的專業知識。此外，特定機電團隊（電力）在年內舉辦多項活動和分享會，內容涵蓋機場供電系統、低壓電力掣櫃出廠驗收測試和地底電纜維修等，促進知識共享。

Knowledge Inheritance

Another strategic task under the 3rd Plan is to make good use of the knowledge management platform to pass on knowledge and experience, as well as enhancing team capabilities and efficiency. Several Working Groups have been established, covering areas such as Building Information Modelling – Asset Management, smart construction, AI, drones and robotics, and MiMEP technology. These groups allow members to share expertise in their respective fields. Additionally, over the past year, the Special Duty Unit (Electrical) organised various activities and sharing sessions, covering topics such as airport power supply systems, factory acceptance test for low-voltage switchboards, and underground cable maintenance, facilitating knowledge sharing.

繼2022年取得佳績後，機電署在2023年9月獲得2023年香港最具創新力知識型機構大獎的「最高榮譽獎」和「最佳知識文化獎」。同年12月，我們更榮獲2023年全球最具創新力知識型機構大獎，可見機電署在推行知識管理和建立創新文化方面的努力備受肯定。

Further to our remarkable results in 2022, the EMSD became the Top Winner and received the Best in Knowledge Culture Award at Hong Kong Most Innovative Knowledge Enterprise (MIKE) Award 2023 in September 2023. In December 2023, we were also honoured with the Global MIKE Award 2023, in recognition of our efforts in implementing knowledge management and fostering an innovation culture.

機電署在2023年先後獲頒2023年香港最具創新力知識型機構大獎的「最高榮譽獎」和「最佳知識文化獎」，以及2023年全球最具創新力知識型機構大獎。這些殊榮印證了我們致力推動知識管理，將知識轉化為卓越服務，為持份者創造最大價值。

In 2023, the EMSD received the Top Winner and the Best in Knowledge Culture Award of Hong Kong MIKE Award 2023, followed by the Global MIKE Award 2023. These prestigious awards are testament to our dedication in promoting knowledge management and transforming knowledge into excellent services, which created maximum value for our stakeholders.

內地和海外考察團

我們非常鼓勵員工到內地和海外交流，掌握最新的行業趨勢和技術發展。舉例來說，本署的暖通空調智囊羣組和專才小組在2023年9月到澳洲墨爾本考察，了解當地使用環保雪種的安全設計和牌照要求，以及在空調系統應用人工智能的情況。

Mainland and Overseas Study Tours

We strongly encourage our staff to visit the Mainland and overseas for exchanges, so as to stay updated on the latest industry trends and technological developments. For instance, our Heat, Ventilation and Air-Conditioning Installations Working Group and Expert Group visited Melbourne, Australia in September 2023 to gain insights into the local safety design and licensing requirements for using eco-friendly refrigerants, as well as the application of AI in air-conditioning systems.

此外，「機電裝備合成法」智囊羣組在2023年10月舉辦為期三天的大灣區考察團，團員參觀當地工廠，了解「機電裝備合成法」和「組裝合成」建築法的組件設計和生產流程。2024年3月，我們舉辦為期五天的大灣區人工智能及創科考察團，推動大灣區的技術交流。

Moreover, in October 2023, the MiMEP Working Group organised a three-day study tour to the GBA, where the tour members visited local factories to learn about the design and production processes of MiMEP and MiC modules. We also organised a five-day AI and I&T tour to the GBA in March 2024, promoting technical exchanges in the GBA.

我們不時舉辦大灣區考察團，讓員工了解當地在「組裝合成法」、「機電裝備合成法」和人工智能等方面的發展。

We organised study tours to the GBA from time to time, enabling our staff to gain insights into the advancements in areas such as MiC, MiMEP and AI technologies.

跨境培訓

Cross-boundary Training

隨着疫情過去，我們全面恢復與內地合作伙伴的協作，包括實體訪問和培訓。在2023年6月和10月，廣州市機電技師學院和廣州市工貿技師學院的代表團先後到訪機電署總部，了解本署近年的創科應用和發展，並與本署參加世界技能大賽的技術人員及其導師互動交流。

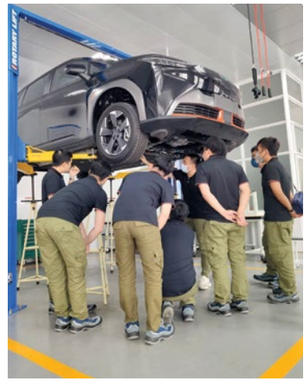
As the epidemic subsided, we fully resumed collaboration with our Mainland partners, including in-person visits and training. In June and October 2023, delegations from the Guangzhou Electromechanical Technician College and the Guangzhou Industry and Trade Technician College respectively visited the EMSD Headquarters to gain insights into our recent I&T applications and developments. They also had exchanges with our technicians who participated in the WorldSkills Competition, as well as their trainers.

年內我們亦與廣州市技師學院、廣州市機電技師學院、廣州市工貿技師學院和廣州市交通技師學院合辦培訓課程，內容涵蓋製冷與空調、電氣、電動車，以及屋宇裝備。在課程中，學員從實務訓練中學習新技能，並更深入認識內地技術規範，受益匪淺。

Furthermore, we collaborated with the Guangzhou Technician College, the Guangzhou Electromechanical Technician College, the Guangzhou Industry and Trade Technician College, and the Guangzhou Communications Technician Institute to organise training courses, covering topics including air-conditioning and refrigeration, electrical work, electric vehicles and building services. Students benefited significantly from the courses as they acquired not only new skills through practical training but also a better understanding of the technical standards in the Mainland.

廣州市機電技師學院(左)和廣州市工貿技師學院(右)的代表團先後到訪機電署總部，了解本署的創科應用和人才培訓工作。

Delegations from the Guangzhou Electromechanical Technician College (left) and the Guangzhou Industry and Trade Technician College (right) visited the EMSD Headquarters to gain insights into our I&T applications and staff training.



2023年7月至8月，本署訓練組聯同四間廣州技師學院，合辦製冷與空調、電氣、電動車和屋宇裝備四大範疇的實務培訓課程，讓學員提升技術，以及更深入認識內地的技術規範。

From July to August 2023, our Training Unit, in collaboration with four technician colleges in Guangzhou, organised practical training courses in four major areas, including air-conditioning and refrigeration, electrical work, electric vehicles and building services installations. These courses enhanced our trainees' skills while familiarising them with the technical standards in the Mainland.

國情教育

National Education

我們相信，除了提升員工的知識和技術外，加深他們對國家政策和發展的認識，對員工本身和部門的發展都有莫大幫助。我們在2023年6月及7月舉辦兩個大灣區國情考察團，團員參觀了國家科研機構、創科企業、文創產業基地和大學等，深入了解國家的改革開放歷程，以及社會和經濟發展。同年11月，我們在北京復辦疫後首個實體國情研習班。研習班由國家行政學院承辦，有44位來自不同職級的人員參與。

We believe that, in addition to enhancing the staff's knowledge and technical skills, deepening their understanding of our country's policies and development greatly benefits their personal growth and departmental advancement. In June and July 2023, we organised two study tours to the GBA, where members of the tours visited national scientific research institutions, I&T enterprises, bases of the cultural and creative industries, and universities, through which they gained an in-depth understanding of our country's reform and opening up as well as her social and economic development. In November 2023, we resumed organising the first post-epidemic physical National Studies Programme in Beijing. The programme was arranged by the Chinese Academy of Governance and 44 staff members of different ranks participated.

年內，我們舉辦國情研習班，以加深員工對國家政策和發展的認識。

During the year, we organised the National Studies Programme, aiming to deepen employees' understanding of our country's policies and development.

員工福利及支援

員工滿意度

我們每兩年進行一次員工滿意度調查，了解員工對於在本署工作的意見。2023年的調查結果顯示，員工滿意度持續上升，以10分為滿分計，員工滿意度為7.7分，較2021年上升0.1分，創歷史新高；回應率亦由2021年的50%，上升至2023年的55%。我們細心聆聽員工意見，訂立改善目標，包括優化工作環境和設施、推動關懷文化、加強管理層與員工的溝通，積極回應員工的需求。

此外，我們在2023年首次為借調員工進行員工滿意度調查。以10分為滿分計，員工滿意度為6.9分；回應率為60%。

優化工作環境

我們持續優化部門設施，包括在總部大樓新增一間授乳室，照顧需要哺乳的員工的需要。年內，我們又全面翻新了位於消防處總部大廈的電子設備維修工場，包括配置可靈活組合的辦公室家具、改善排煙系統、新增多用途活動室和遙距區域數碼監控中心等。此外，有近四十年歷史的屯門車輛維修站，翻新工程亦已完成。

隨着新的授乳室於2023年10月投入使用，機電署總部大樓現設有兩間授乳室。員工經網上系統預約後，使用員工證便可進入房間，簡單便捷。這些改善措施體現了部門對需要授乳的同事關懷和支持。

With the commissioning of an additional lactation room in October 2023, the EMSD Headquarters is now equipped with two lactation rooms. Both rooms can be conveniently reserved through an online booking system and accessed with a staff identity card. These enhancement measures reflect the Department's care and support for breastfeeding staff.

促進員工健康

我們非常關注員工的健康，定期舉辦各式各樣的康樂和體育活動，包括水耕種植、球類運動、射箭、遠足和盆菜宴，並不時組隊參與體育比賽，例如龍舟和長跑比賽。這些活動能豐富員工的業餘生活，紓緩他們的工作壓力，增強歸屬感。

WELFARE AND ASSISTANCE FOR STAFF

Staff Satisfaction

A staff satisfaction survey is conducted every two years to gauge the opinions of our staff on working in the Department. The results of the 2023 survey showed a continuous increase in staff satisfaction. We achieved a staff satisfaction rating of 7.7 on a scale of 10, representing a 0.1-point increase from 2021 and reaching a record high. The response rate also increased from 50% in 2021 to 55% in 2023. We listened carefully to our staff's feedback and set targets for improvement, including enhancing our working environment and facilities, promoting a caring culture, and strengthening communication between the management and staff, to proactively address the needs of our staff.

In addition, a staff satisfaction survey was first introduced for seconded staff in 2023. A staff satisfaction rating of 6.9 on a scale of 10 and a response rate of 60% were achieved.

Improving Working Environment

We continuously upgraded our departmental facilities, including adding a lactation room at the headquarters to cater to the needs of breastfeeding staff members. During the year, the comprehensive renovation of the Electronics Workshop at the Fire Services Headquarters Building, which included the provision of office furniture that can be freely combined, enhancement of the smoke exhaust system, addition of a multi-purpose room, and establishment of a remote Regional Digital Control Centre, was completed too. We also finished the renovation works of the Tuen Mun Vehicle Servicing Depot, which had a history of nearly 40 years.

我們參與香港綠色建築週2023的「『輕．型』」四色穿搭挑戰」活動，鼓勵員工穿着輕便衣物，這不單令他們感到舒適，更減少空調用量和節省能源。機電署在活動中獲頒「最積極參與大獎」銀獎。

We participated in the "4-Colour Biz-Green Outfits Social Challenge", an event of the Hong Kong Green Building Week 2023, and encouraged our staff to dress lightly, which not only made them feel comfortable, but also reduced air-conditioning usage and saved energy. The EMSD was presented with the Most Engaged Award – Silver prize.

Promoting the Wellbeing of Staff

Attaching great importance to the health of our employees, we organised various recreational and sports activities regularly, including hydroponic planting, ball games, archery, hiking, and a "poon choi" feast, as well as forming staff teams to participate from time to time in sports competitions, such as dragon boat racing and distance running events. Such activities could enrich their lives beyond working hours, alleviate work stress and enhance a sense of belonging.

為了促進員工的精神健康，我們繼續為員工提供輔導熱線，也在年內舉辦了五場線上講座和一個實體工作坊，分享保持身心健康的實用資訊，有超過1 100名員工參與。

We have continued to provide counselling hotline service to support employees' mental health. In addition, five online seminars and a physical workshop were held to share practical information on physical and mental health during the year, with over 1 100 employees participated.

機電署員工康樂會舉辦各類康樂體育活動，讓員工保持強健體魄，亦提升團隊凝聚力。

The EMSD Staff Club organised various recreational and sports activities to help our staff stay healthy and enhance cohesion of teams.

社區服務和參與

義工活動

我們鼓勵員工積極參與義工活動，善用工餘時間服務社會。為了保護海洋生態，員工康樂會組織義工隊，在2023年5月參與建造業運動及義工計劃的「建造業海岸清潔日」，清理元朗海岸的垃圾。同年8月，我們的義工隊參與「耆青連心樂融融計劃」，與香港大學護理學院學生上門探訪長者，為他們進行健康評估。

此外，我們編織過百條頸巾送贈仁愛堂轄下日間護理中心的長者，在寒冬中為他們帶來溫暖。由於舉辦這個「編編送暖行動」，另外又為長者提供家居維修服務，以及在疫情期間為安老及殘疾人士院舍進行通風系統評估，我們在賽馬會齡活城市「全城．長者友善」計劃2022中獲頒「齡活協作大獎」。

COMMUNITY SERVICE AND ENGAGEMENT

Volunteer Activities

We encourage our staff to actively participate in volunteer activities and serve the community during their spare time. To protect the marine ecosystem, our Staff Club set up a volunteer team to participate in the Construction Industry Shoreline Clean-up Day under the Construction Industry Sports & Volunteering Programme and removed rubbish from the coastlines in Yuen Long in May 2023. In August 2023, our volunteer team took part in the "Generations Connect" project and conducted home visits and health assessments for the elderly in collaboration with the nursing students of the University of Hong Kong.

Furthermore, we knitted over a hundred scarves for the elderly of the day care centres under Yan Oi Tong, bringing warmth to them in winter. This "Knit for Warmth" campaign, along with our home repair services provided to the elderly and the ventilation assessments conducted at residential care homes for the elderly and persons with disabilities during the epidemic, earned us the Age-friendly Collaborator Award in the Jockey Club Age-friendly City Partnership Scheme 2022.

我們在疫情期間不忘關懷長者，與非政府機構合辦「編編送暖行動」，編織頸巾送贈長者。在賽馬會齡活城市「全城．長者友善」計劃2022嘉許禮上，機電署獲頒「齡活協作大獎」，以示對我們致力服務長者社羣的肯定。

During the epidemic, we remained committed to caring for the elderly. In collaboration with a non-governmental organisation, we organised the "Knit for Warmth" campaign and knitted scarves for the elderly. In recognition of our dedication to serving the elderly community, the EMSD was honoured with the Age-friendly Collaborator Award at the Jockey Club Age-friendly City Partnership Scheme 2022 Award Presentation Ceremony.

企業管理
CORPORATE STEWARDSHIP

區議會選舉

在2023年12月舉行的區議會一般選舉，是政府重塑區議會後的首場大型選舉，意義重大。我們除了為是次選舉提供機電技術支援服務外，亦聯同發展局同事組成義工隊，派發宣傳單張，鼓勵市民參與投票。在投票日，我們的員工亦出任選舉工作人員，協助讓選舉順利進行。

District Council Election

Being the first large-scale election after the reform of the District Councils, the District Council Ordinary Election held in December 2023 was of utmost significance. Besides providing E&M technical support for the election, the EMSD also collaborated with colleagues from the DEVB to form a volunteer team to distribute promotional leaflets, so as to encourage the public to vote. On the election day, our employees also served as electoral staff and supported the smooth conduct of the election.

為慶祝部門75周年鑽禧誌慶，我們在2023年11月舉辦機電工程署七十五周年典禮，由財政司司長陳茂波先生擔任主禮嘉賓，紀念部門這個重要的里程碑，並為一連三天的機電75周年同樂日揭開序幕。

In celebration of the 75th anniversary Diamond Jubilee of the Department, we held the EMSD 75th Anniversary Ceremony in November 2023, with Mr Paul Chan, Financial Secretary, as our officiating guest, to commemorate this momentous milestone of the Department and to kick off the three-day event of E&M 75th Anniversary Fun Day.

發展局及機電署人員與「機智啤啤」一起派發2023年區議會一般選舉的宣傳單張，呼籲市民踴躍投票。

The DEVB and EMSD staff, together with Witty Bear, distributed promotion leaflets on the 2023 District Council Ordinary Election, encouraging members of the public to actively cast their votes.

鑽禧誌慶

今年適逢機電署成立75周年，我們以「傳承創新 同心惠民」為主題，舉辦一連串的慶祝活動，包括製作短片和紀念冊，回顧機電署不平凡的發展旅程。機電署七十五周年典禮在2023年11月底於總部舉行，超過200位嘉賓出席，包括政府部門和公營機構的首長和代表、機電業界代表、本港和內地的策略伙伴，共同慶祝這個重要時刻；該典禮亦為一連三日的機電75周年同樂日揭開序幕。75周年慶祝活動吸引約15 000人參與，反應熱烈。

在過去的四分之三個世紀，機電署一直盡心盡力服務香港，與市民並肩同行。展望將來，我們會繼續秉承優良傳統，傳承經驗和技術，推動創新文化，為市民提供高效優質的機電服務。

DIAMOND JUBILEE CELEBRATION

In celebration of the EMSD's 75th anniversary of establishment, we conducted a series of celebratory activities under the theme of "Serving the Community with Heart and Innovation". The activities included the production of a short video and a commemorative booklet featuring EMSD's remarkable journey of development. The EMSD 75th Anniversary Ceremony was held at the headquarters at the end of November 2023. Over 200 guests, including heads and representatives of government departments and public organisations, representatives of the E&M industry, and local and Mainland strategic partners, attended the event to celebrate this defining moment with us. The ceremony also kicked off the three-day E&M 75th Anniversary Fun Day. These celebratory events received enthusiastic responses and attracted approximately 15 000 participants.

Over the past three-quarters of a century, the EMSD has been dedicated to serving Hong Kong and walking hand in hand with the community. Looking ahead, we will continue our fine traditions, pass on our experience and expertise, and foster a culture of innovation, to provide highly efficient and quality E&M services to the public.

2023/24財政年度關鍵績效指標成績及表現承諾

Key Performance Indicator Results and Performance Pledges in Financial Year 2023/24

目標 Target　成績 Result

根據每月客戶意見調查結果所得的客戶滿意度 (%)
Satisfaction Level Based on Monthly Customer Feedback (%)
目標 99　成績 99.96

客戶滿意指數 [以8分為滿分計]
Customer Satisfaction Index [on an 8-point scale]
目標 6.8　成績 7.03[1]

員工滿意度指數[2] [以10分為滿分計]
Staff Satisfaction Rating[2] [on a 10-point scale]
目標 7.0　成績 7.7[3]

收入回報率(%)
Return on Revenue (%)
目標 1.1　成績 1.5

達到服務水平協議所訂的表現目標 (%)
Service Level Agreement (SLA) Service Performance Target Compliance (%)
目標 99　成績 99.99

員工建議計劃書[2] (份)
Staff Suggestion Proposals[2] (no.)
目標 75　成績 88

新業務及業務增長 (百萬元)
New Business and Growth of Business ($M)
目標 554.1　成績 568.4

營運基金員工的訓練日數 (每名員工接受訓練的日數)
Training Days of the EMSTF Staff (no. of training days per staff member)
目標 4.5　成績 5.63

違反法例次數 (宗)
Statutory Non-compliance (no.)
目標 0　成績 0

每千名營運基金員工須呈報的累積意外宗數 (以每千名員工計算)
Accumulated Reportable Accidents per 1 000 EMSTF Staff (no. per 1 000 staff)
目標 5.0[4]　成績 2.48

耗電量[2] (千瓦小時) [機電署總部大樓、企業數據中心及所有策略業務單位的主要場地]
Electricity Consumption[2] (kWh) [EMSD Headquarters Building, Corporate Data Centre and all SBUs Major Venues]
目標 7 726 538　成績 7 360 449[5]

年內續訂的服務水平協議 (%)
SLAs Renewed during the Year (%)
目標 95　成績 100

1 數字為2022年的調查結果。下一次調查將於2024年進行。
2 此項目適用於機電工程署整個部門，其他項目只適用於機電工程營運基金。
3 數字為2023年的調查結果。
4 此為警戒水平，並非目標。
5 赤鱲角空郵中心的帳戶已於2023年7月31日終止。因此，該中心自2023年8月起沒有用電數據。

1 Results are derived from the survey conducted in 2022. The next survey will be conducted in 2024.
2 This item applies to the EMSD as a whole. Other items apply to the EMSTF only.
3 Results are derived from the survey conducted in 2023.
4 This is an alert level, not a target.
5 The account of Air Mail Centre (AMC) in Chek Lap Kok was terminated on 31 July 2023. Hence there has been no electricity consumption of AMC starting from August 2023.

社會及環保報告
SOCIAL AND ENVIRONMENTAL REPORT

關於本報告
ABOUT THIS REPORT

匯報原則

機電工程署(機電署)堅持不懈，致力實現社會及環境的可持續發展，將可持續發展原則融入營運的各個層面，並每年發表全面的社會及環保報告，進行詳細披露。本《社會及環保報告2023/24》(本報告)展示了機電署在推動可持續發展方面的進展和成效，並重點介紹本署在匯報期內為環境和社會創造價值的顯著成就。

本報告根據全球報告倡議組織發布的2021年全球報告倡議組織可持續發展報告標準編寫，並參照環境保護署的《環保報告指引—管制人員適用》和聯合國可持續發展目標。為確保報告質量達致最高水準，我們遵循一套核心報告原則來編寫本報告，包括準確性、平衡性、清晰度、可比性、完整性、可持續發展背景、時效性和可驗證性。

第208頁的**全球報告倡議組織內容索引**，提供了全球報告倡議組織和聯合國可持續發展目標披露的全面對照，將其與本報告中的特定章節聯繫起來，並包括其他適用的補充資料，以提高報告透明度。為確保本報告的準確性、可靠性和公信力，機電署已委託第三方對本報告的內容和合規性進行獨立保證。詳情請參閱第232-235頁的**獨立保證意見聲明書**。

全球報告倡議組織服務確認本報告按要求清晰表述全球報告倡議組織內容索引，並且索引中的信息清晰，方便持份者查閱。

REPORTING PRINCIPLES

The Electrical and Mechanical Services Department (EMSD) is steadfast in its commitment to achieving social and environmental sustainability, integrating sustainability principles into every facet of our operations and annually publishes a comprehensive Social and Environmental Report detailing these efforts. The Social and Environmental Report 2023/24 (hereafter "this Report") showcases our progress and performance in driving sustainability throughout our organisation, highlighting notable achievements in creating value for both the environment and the community throughout the reporting period.

This Report has been produced in accordance with the GRI Sustainability Reporting Standards (GRI Standards) 2021 published by the Global Reporting Initiative (GRI), as well as taking reference from A Guide to Environmental Reporting for Controlling Officers published by the Environmental Protection Department and the United Nations Sustainable Development Goals (UNSDGs). To ensure the highest level of reporting quality, we have adhered to a set of core principles for developing this Report, including accuracy, balance, clarity, comparability, completeness, consideration of sustainability context, timeliness and verifiability.

The **GRI Content Index** on page 208 provides a comprehensive cross-reference of GRI and UNSDGs disclosures, linking them to specific sections within this Report, and includes supplementary information where necessary to enhance transparency. To ensure the accuracy, reliability and credibility of this Report, we have engaged a third-party to provide independent assurance on the content and compliance of this Report. Please refer to the **Independent Assurance Opinion Statement** on pages 232-235 for more details.

GRI Services reviewed that the GRI content index has been presented in a way consistent with the requirements for reporting in accordance with the GRI Standards, and that the information in the index is clearly presented and accessible to the stakeholders.

報告範圍

本報告載述機電署在2023/24財政年度的主要可持續發展成就，重點介紹2023年4月1日至2024年3月31日期間的工作。我們提供詳細的描述和關鍵統計數據，突出可持續發展的措施和計劃。除非另有說明，本報告中的數據均為經調整後的實際數字，並於我們所知悉的範圍內進行表述。財務資料除非另有說明，均以港元為單位。

本報告範圍包括機電署轄下的兩大服務範疇—規管服務和營運服務，後者亦稱為機電工程營運基金。在匯報期內，機電署的權責關係、規模、組織架構或供應鏈均無重大變化。

REPORTING SCOPE

Sharing our key sustainability accomplishments for the Financial Year 2023/24, this Report focuses on the period from 1 April 2023 to 31 March 2024. We provide in-depth descriptions and key statistics highlighting our sustainability initiatives and programmes. The data presented in this Report is normalised and provided in absolute figures to the best of our knowledge, unless otherwise noted. Financial information is presented in Hong Kong Dollars unless specified otherwise.

The scope of this Report includes both functional units of the EMSD – Regulatory Services and Trading Services, also called the Electrical and Mechanical Services Trading Fund. Throughout the reporting period, there were no significant changes to the Department's ownership, size, organisational structure, or supply chain.

重要議題

機電署每年進行持份者參與活動和重要性評估，作為報告流程的一部分，以釐定對我們的機構及持份者最為重要的可持續發展議題。此方針能確保我們在編寫本報告時，充分考慮持份者不同的關注和期望。我們亦希望藉此為持份者提供有關機電署運作和服務的重要資訊。

多年來，機電署與多個持份者組別建立了良好關係，包括員工、客戶、承辦商和供應商、學術團體、行業協會及公眾等。今年，我們繼續聘請獨立的外部顧問進行年度持份者參與活動，收集不同持份者組別的意見。我們收到的反饋意見用於進行重要性評估，以識別在環境、社會和經濟領域最相關的議題。

MATERIAL TOPICS

As part of our reporting process, the EMSD has conducted stakeholder engagement exercises and materiality assessments annually to prioritise a set of sustainability topics that matter most to our organisation and its stakeholders. This approach ensures that we have taken the diverse interests and expectations of our stakeholders into consideration when developing this Report, which we hope can in turn provide valuable insights to our stakeholders on the EMSD's operations and services.

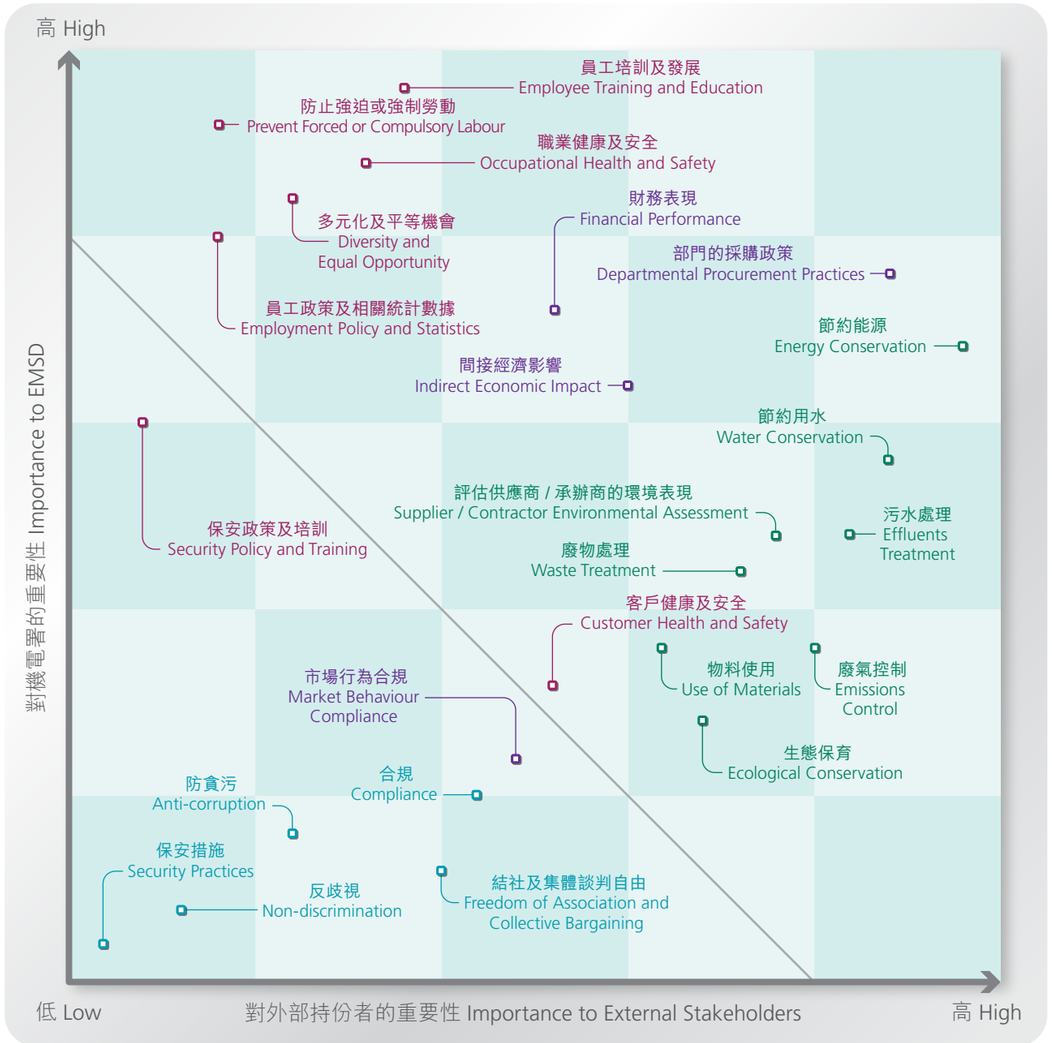
Over the years, the EMSD has cultivated relationships with a diverse range of stakeholder groups, such as employees, clients, contractors and suppliers, academia, trade associations and the public. This year, we continued to appoint an independent external consultant to conduct annual stakeholder engagement activities, gathering opinions from across different stakeholder groups. The received feedback is then used to conduct a material assessment, enabling us to identify the most relevant topics in environmental, social and economic areas.

關於本報告
ABOUT THIS REPORT

我們於2024年5月至6月期間進行了電子問卷調查，收集客戶、承辦商和供應商，以及員工代表的見解。我們感謝他們的寶貴意見，為我們的重要性評估提供有價值的參考，以確定本報告的關鍵議題。我們根據持份者的關注程度高低，在以下的重要性矩陣中顯示了24個可持續發展議題的重要性。圖表中分界線以上的17個議題為最重要的議題。這些重要議題也以表格形式列於右頁。

From May to June 2024, an e-survey was conducted to gather insights from clients, contractors and suppliers and staff representatives. We are grateful for their thoughtful contributions, which have offered valuable reference for our materiality assessment to determine the key topics for this Report. The following materiality matrix provides an overview of the significance of the 24 sustainability topics to our stakeholders, as indicated by their level of interest. As shown above the cut-off line in the graph, 17 topics stand out as most significant. These material topics are also presented in a table format on the right page.

重要性矩陣 Materiality Matrix



重要議題 Material Topics

環境 Environmental

- 生態保育 Ecological Conservation
- 節約能源 Energy Conservation
- 污水處理 Effluents Treatment
- 廢物處理 Waste Treatment
- 廢氣控制 Emissions Control
- 節約用水 Water Conservation
- 物料使用 Use of Materials
- 評估供應商 / 承辦商的環境表現 Supplier / Contractor Environmental Assessment

經濟 Economic

- 財務表現 Financial Performance
- 部門的採購政策 Departmental Procurement Practices
- 間接經濟影響 Indirect Economic Impact

社會 Social

- 員工培訓及發展 Employee Training and Education
- 多元化及平等機會 Diversity and Equal Opportunity
- 員工政策及相關統計數據 Employment Policy and Statistics
- 職業健康及安全 Occupational Health and Safety
- 防止強迫或強制勞動 Prevent Forced or Compulsory Labour
- 客戶健康及安全 Customer Health and Safety

我們歡迎您在機電署網站上閱覽或下載本報告。您的反饋對我們持續改進營運、可持續發展成效、報告內容和方式都非常重要。如有任何意見或查詢，請隨時通過電郵與我們聯絡：ccsd@emsd.gov.hk。

We welcome you to view or download this Report on the EMSD website. Your feedback is valuable to us for continual improvement of our operations, sustainability performance, reporting content and approach. Please feel free to contact us at ccsd@emsd.gov.hk if you have any comments or enquiries.

環境及社會概覽
ENVIRONMENTAL AND SOCIAL HIGHLIGHTS

環保成效概覽
Environmental Performance Highlights

訂立綠色能源目標，在2020/21至2024/25年度提升能源表現6%（以2018/19年度為基準）
Green Energy Target of improving energy performance from 2020/21 to 2024/25 by 6% (2018/19 as baseline)

2023/24年度機電署建築物及其基礎設施能源表現提升
Improving Energy Performance of EMSD Buildings and Infrastructure Facilities in 2023/24

4.7%

啟德區域供冷系統截至2023/24年度共節省
Kai Tak District Cooling System Saved

65.5 百萬千瓦小時電力 million kWh of electricity by 2023/24

2023/24年度，機電署共接獲41宗安裝淡水冷卻塔計劃的申請，並有
A total of 41 Fresh Water Cooling Towers (FWCT) Scheme applications were received and

111 個淡水冷卻塔落成 no. of FWCTs were completed in 2023/24

推動綠色採購
Promoting Green Procurement

採購綠色產品佔2023/24年度總採購額
The procurement of green product in 2023/24 accounted for a total value of procurement as

28.35%

推廣使用綠色車輛
Promoting Green Mobility Initiative

我們的綠色車輛包括
Our green vehicles included

17 輛電動車 no. of electric vehicle

1 輛混合動力車 no. of hybrid vehicle

增加廢紙回收量
Increasing Waste Paper Recycling

2023/24年度（目標24 647公斤）
2023/24 (Target 24 647 kg)

實際回收量
Actual **27 387** 公斤 kg

達標 Achieved

減少碳粉及噴墨盒購買和耗用量
Reducing Toner and Inkjet Cartridge Purchases and Consumption

2023/24年度（目標6 860個）
2023/24 (Target 6 860 no.)

實際用量
Actual **4 104** 個 no.

達標 Achieved

減少私家車碳足跡
Reducing Private Car Carbon Footprint

2023/24年度（目標1 111噸二氧化碳當量）
2023/24 (Target 1 111 tonnes of carbon dioxide equivalent)

實際排放量
Actual **1 071** 噸二氧化碳當量 tonnes of carbon dioxide equivalent

達標 Achieved

機電署建築物於2023/24年度產生的可再生能源
EMSD Buildings Generated Renewable Energy in 2023/24

141 108 千瓦小時 kWh

社會成效概覽
Social Performance Highlights

獲得全球與本地的認可
Attaining Global and Local Recognition

連續兩年榮獲全球及香港
最具創新力知識型機構大獎
Won for two consecutive years the Global and Hong Kong
Most Innovative Knowledge Enterprise Awards

機電署年報榮獲
Our Annual Report was Bestowed with

第38屆ARC國際年報大獎
「主席函件：政府機構及辦公室」組別銅獎
Bronze award in the Chairman's / President's Letter: Government Agencies & Offices category in the 38th International Annual Report Competition (ARC)

美國通訊專業聯盟「2023 Vision Awards」鉑金獎
Platinum award in the 2023 Vision Awards of the League of American Communications Professionals

MerComm, Inc.「2024 Galaxy Awards」
「網上版年報（綜合年報）」組別榮譽獎
Honours award in the Online: Integrated Annual Report category in the 2024 Galaxy Awards from the MerComm, Inc.

培養關愛文化
Cultivating a Caring Culture

連續第十年獲得香港社會服務聯會頒發的
「同心展關懷」標誌
Obtained the
Caring Organisation
Logo offered by the Hong Kong Council of Social Service for the tenth consecutive year

重視本地供應商
Prioritising Local Suppliers

物料供應分部採購約
Supplies Sub-division sourced approximately

99.97%

來自本地供應商 / 承辦商或本地代理商的服務及貨物
services and goods from local suppliers, contractors or local agents

參與善行義舉
Engaging Acts of Kindness

在義工項目合共錄得
Contributed a total of

533.5

小時義工服務時數
man-hours in volunteering projects

創建安全無憂的工作環境
Creating a Safe and Worry-free Workplace

- 死亡率：0（員工及承辦商）
  Rate of fatalities: 0 (employees & contractors)
- 嚴重工傷率：0.05（員工）；0.07（承辦商）
  Rate of high-consequence work-related injuries: 0.05 (employees), 0.07 (contractors)
- 工傷率：0.37（員工）；0.22（承辦商）
  Rate of recordable work-related injuries: 0.37 (employees), 0.22 (contractors)

通過培訓提升專業技能
Elevating Expertise Through Training

培訓時數由145 216小時（2022/23年度）增至
Training hours increased from 145 216 hours (2022/23) to

162 023

小時（2023/24年度）
hours (2023/24)

可持續發展管理方針
SUSTAINABILITY MANAGEMENT APPROACH

機電署一直致力促進環境和社會的可持續發展。這個承諾已植根於我們的營運中，並通過規管服務和營運服務兩大職能來具體實現。

我們的規管服務團隊主要職責是推行多項規管措施和公眾教育活動，旨在維護機電安全標準並提升香港的能源效益。通過為公眾和業界專業人士安排技術工作坊、論壇、研討會和會議，規管服務團隊致力以推廣先進方法，提升各行業的能源效益。此外，該團隊還提供專業指導和技術專長，協助政府制訂法規和指引，支持既定的機電目標。

至於營運服務團隊，致力滿足客戶和行業不斷轉變的需求，使用先進技術和行業標準，持續提供專業、全面和高質量的機電工程服務。該團隊借助尖端技術和創新策略，積極改善全港客戶處所的能源效益。

在最高管理層的指導下，我們堅持不懈，承諾遵循可持續發展原則，為員工、客戶、社區和環境創造價值。這個承諾有效地傳達給本署各層級員工。在管理層和員工的共同努力下，機電署努力創造更好的環境，持續推動專業發展，同時確保本署及承辦商員工的安全和健康福祉得到最高的保障。此外，機電署繼續實施各類措施，旨在不斷提升部門的核心能力和可持續發展成效。

At the EMSD, our utmost dedication in fostering environmental and social sustainability is ingrained in our operations, accomplished through our Regulatory Services and Trading Services.

The primary duty of our Regulatory Services team is to carry out diverse regulatory initiatives and engage in public educational campaigns aimed at upholding electrical and mechanical (E&M) safety standards and advancing energy efficiency in Hong Kong. By arranging technical workshops, forums, seminars and conferences for both the public and industry professionals, the Regulatory Services team endeavours to enhance energy efficiency by advocating for the adoption of advanced methodologies across all sectors. Furthermore, the team offers specialised guidance and technical proficiency to assist the Government in the formulation of legislations and guidelines that support established objectives in E&M aspects.

With a commitment to staying abreast of the changing requirements from our clients and the trade, the Trading Services team consistently delivers professional, inclusive and high-quality E&M engineering services utilising advanced technologies and industry standards. By leveraging cutting-edge technologies and innovative strategies, the team plays an active role improving the energy efficiency of client premises across the city.

Under the guidance from the top management, we remain steadfast in our commitment to upholding sustainability principles and creating values for our staff, customers, community and the environment. This commitment is effectively communicated to employees at every level within our organisation. With the efforts from our management and staff, the EMSD strives to foster a better environment, nurture ongoing professional development and ensure a superior level of safety and wellbeing for both our staff and contractors. Furthermore, the EMSD continues to implement various initiatives aimed at continuously enhancing our corporate core competencies and sustainability performance.

可持續發展管理

機電署致力推動可持續發展，並將環境和社會考慮納入我們的營運程序和決策過程中。我們遵循一系列環境、安全和健康政策，並嚴格遵守所有社會和環境相關的法律和規例。作為可持續發展管理系統的重要組成部分，我們不斷評估和處理與可持續發展相關的風險，旨在盡量減少任何潛在的負面影響，同時積極尋求改進的機會。我們定期檢視可持續發展策略和政策，以確保與政府的最新政策和全球的趨勢保持一致。我們與持份者密切溝通，以促進持續的互動和對話，推動我們在可持續發展道路上不斷改進。

SUSTAINABILITY MANAGEMENT

The EMSD is dedicated to advancing sustainable development and incorporating environmental and social considerations into our operational procedures and decision-making processes. We adhere strictly to all relevant social and environmental laws and regulations through observing a set of diverse environmental, safety and health policies. As an essential component of our sustainability management systems, we consistently assess and address sustainability-related risks, aiming to minimise any potential negative effects while actively seeking opportunities for enhancement. Our sustainability strategies and policies are regularly reviewed to align with the most up-to-date governmental policies and global trends. We communicate with our stakeholders closely to foster ongoing interaction and dialogue, fostering continuous improvements in our sustainability journey.

為確保機電署可持續發展，規管服務和營運服務均已採用綜合管理系統，涵蓋環境和社會層面，並符合國際標準。具體而言，ISO 9001品質管理、ISO 14001環境管理和ISO 37001反賄賂管理適用於兩項服務，而ISO 45001職業健康與安全管理則僅適用於營運服務。此外，在部別層面，我們還遵循ISO 13485醫療器材品質管理、ISO 27001資訊安全管理、ISO 50001能源管理和ISO 55001資產管理。

機電署由多個指定委員會，包括品質、環境及生產力策導委員會、職業安全及健康策導委員會和環保管理委員會組成穩健的管治架構核心。這些委員會負責檢視營運成效、設立目標、啟動新計劃並促進知識管理，以確保機電署的運作以可持續發展方式進行。

機電署員工在提供服務時，致力保持高度的誠信和道德操守。我們嚴格遵守公務員行為守則和指引，其中包括處理利益衝突和防止貪污的規定。持份者可以通過多種渠道，包括電話、傳真或電郵聯繫機電署客戶服務中心、公務員事務局和廉政公署，與我們分享他們的意見。在匯報期內，機電署持續確保其營運的合規性，並未因違反法律或規例而遭受大額罰款或非金錢制裁。

為配合政府架構，機電署已建立全面的系統來評估員工(包括高級職員)與營運目標有關的表現，其中包括與社會和環境效益相關的表現。我們確保甄選和晉升員工時，秉持公正和誠信，同時實施薪酬政策，以吸引、挽留和激勵致力於提供優質服務的人才。此外，我們還設立了專責常務委員會，就薪酬事宜提供指引，並檢視各職級員工的薪級表，確保流程透明和公平。

To ensure the sustainability of the EMSD, Integrated Management Systems (IMS) have been implemented for both the Regulatory Services and Trading Services. These IMS encompass environmental and social aspects, and in accordance with international standards. Specifically, ISO 9001 for Quality Management and ISO 14001 for Environmental Management and ISO 37001 for Anti-Bribery Management are applicable to both services, while ISO 45001 for Occupational Health and Safety Management applies exclusively to Trading Services. Additionally, on divisional level, we comply with ISO 13485 for Medical Devices – Quality Management, ISO 27001 for Information Security Management, ISO 50001 for Energy Management and ISO 55001 for Asset Management.

At the core of this framework lies the robust governance structure of the EMSD, which consists of designated committees. These committees include the Quality, Environmental & Productivity Steering Committee, the Steering Committee on Occupational Safety and Health and the Green Management Committee. They are responsible for reviewing operational performance, establishing targets, initating new programmes and promoting knowledge management, to ensure that the EMSD's operations are managed in a sustainable manner.

The staff of the EMSD are dedicated to upholding a strong sense of integrity and ethical conduct in service delivery. We strictly adhere to the code of conduct and guidelines for civil servants, which encompass protocols for handling conflicts of interest and preventing corruption. Stakeholders have access to various channels to share their opinions with us, including contacting the Customer Service Centre of the EMSD, the Civil Service Bureau and the Independent Commission Against Corruption via phone, fax or email. Throughout the reporting period, the EMSD continued to ensure compliance throughout its operations, and did not incur significant fines or non-monetary sanctions for any violations of laws or regulations.

In alignment with the Government's framework, the EMSD has established a comprehensive system to evaluate the performance of the staff, including senior members, in relation to the operational objectives that contribute to our social and environmental impacts. The staff selection and promotion processes ensure impartiality and integrity, while a pay policy is also in effect to attract, retain and motivate talented individuals who are committed to delivering quality services. Furthermore, dedicated standing committees have been established to provide guidance on matters pertaining to salaries and review pay scales for staff members of various ranks, ensuring transparency and fairness of the processes.

可持續發展管理方針
SUSTAINABILITY MANAGEMENT APPROACH

本地及全球可持續發展背景脈絡

香港特別行政區政府作為全球努力應對氣候變化的一員，積極參與並作出承諾，在2050年前實現碳中和。為了實現這個共同目標，政府以2018/19年度相同的運作條件為基準，致力在2020/21至2024/25年度的五年期間，將能源表現提升6%。為支持政府改善能源效益和邁向碳中和的目標，機電署致力優化香港的能源管理規管架構，並協助各界持份者(包括機構和個人)。我們透過促進伙伴關係和協作，鼓勵各方共同努力，以優化能源表現並實現減碳目標。

Local and Global Sustainability Context

As part of global endeavours to combat climate change, the Government of the Hong Kong Special Administrative Region has taken an active role and announced a commitment to achieve carbon neutrality by 2050. In pursuit of this shared objective, the Government is dedicated to enhancing its energy performance by 6%, over the five-year period from 2020/21 to 2024/25, based on comparable operating conditions established in 2018/19. To support the Government's objective in improving energy efficiency and progressing towards carbon neutrality, the EMSD has devoted efforts to enhance Hong Kong's regulatory energy management framework and to assist various stakeholders, including organisations and individuals. By fostering partnership and collaboration, all parties are encouraged to work together in order to optimise energy performance and attain carbon reduction goals.

機電署放眼全球，積極引入聯合國可持續發展目標，並與我們的可持續發展措施相呼應，努力為國際可持續發展進程作出貢獻。我們識別了八項與我們營運最相關的聯合國可持續發展目標，以下簡述了我們在這八項發展目標的最新工作重點。

With a global vision, the EMSD actively contributes to the international sustainability agenda by incorporating the United Nations Sustainable Development Goals (UNSDGs) and aligning our sustainability initiatives accordingly. We have identified eight specific UNSDGs that hold the greatest relevance to our operations. Below is a summary of our recent endeavours in relation to these eight UNSDGs.

相關聯合國可持續發展目標 Relevant UNSDGs	機電署於2023/24年度的貢獻 Contributions by the EMSD in 2023/24

環境層面
Environmental Aspect

- 推廣和探索創新解決方案，以減少能源消耗和碳排放量。
  Promoted and explored innovative solutions to reduce energy consumption and carbon emissions.
- 定期檢討及實施相關法例、政策、計劃和其他措施，支持香港減碳量。
  Regularly reviewed and implemented relevant legislation, policies, schemes and other initiatives to support carbon reduction in Hong Kong.
- 達到回收紙張、減少購買碳粉及噴墨盒、減少私家車碳足跡的目標。
  Achieved targets for recycling paper, reducing toner and inkjet cartridge purchases and reducing the carbon footprint of private cars.

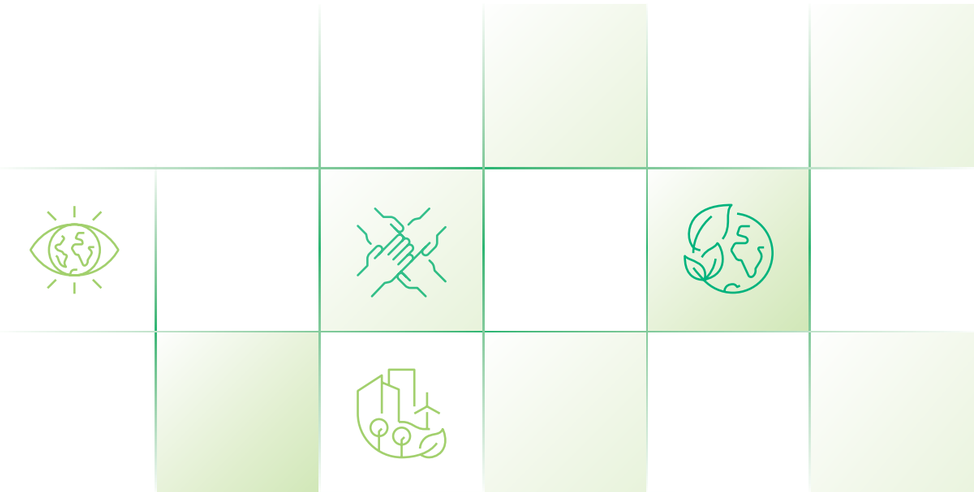
詳情請參閱**環境可持續發展成效**章節。
Please refer to **Environmental Sustainability Performance** section for details.

相關聯合國可持續發展目標 Relevant UNSDGs	機電署於2023/24年度的貢獻 Contributions by the EMSD in 2023/24

社會層面
Social Aspect

- 繼續透過舉辦一系列培訓課程及計劃推廣職業安全與健康。
  Continued to promote occupational safety and health through a series of training and schemes.
- 為機電業現職專業人才及新血提供培訓，促進專業發展。
  Nurtured professional growth by providing training to current E&M professionals and new blood in the industry.
- 參與「ESG約章」行動。
  Participated in the ESG Pledge Scheme.

詳情請參閱**可持續發展管理方針和社會可持續發展成效**章節。
Please refer to **Sustainability Management Approach and Social Sustainability Performance** sections for details.



與持份者保持聯繫

我們通過多種活動，與各界持份者定期保持聯繫，促進開放的交流並邀請他們給予反饋。這些活動提供了寶貴的參考，有助我們評估與可持續發展相關的事宜，並收集持份者的寶貴意見，讓我們做出明智決策及適當行動，應對可持續發展的挑戰。下表列出了我們與持份者聯繫的主要和常用渠道。

ENGAGEMENT WITH OUR STAKEHOLDERS

We have consistently engaged with a wide range of stakeholders through numerous activities, promoting open communication and inviting feedback. These engagement activities offer valuable reference for us to assess sustainability-related matters and gather valuable insights from our stakeholders for making informed decisions and taking appropriate actions in response to emerging sustainability challenges. The table below outlines key channels that we regularly utilised for stakeholder engagement.

主要持份者 Key Stakeholders	主要聯繫渠道 Key Engagement Channels
客戶 Clients 政府決策局及部門 Government Bureaux and Departments	客戶意見調查及訪問 Customer Opinion Surveys and Interviews 電話調查 Telephone Surveys 客戶通訊 Customer Newsletters 合作項目 Joint-projects 會議 Meetings 研討會及座談會 Symposiums and Seminars 報告重要議題調查 Report Materiality Survey 參觀機電署總部 Tours to the EMSD Headquarters (HQs)
供應商及承辦商 Suppliers and Contractors	會議 Meetings 報告重要議題調查 Report Materiality Survey 研討會及座談會 Symposiums and Seminars
公眾人士 General Public 學術團體 Academia 非政府組織 Non-governmental Organisations 培訓機構 Training Institutes	機電安全及節能社區推廣活動 Community-wide Promotion of E&M Safety and Energy Efficiency 合作項目 Joint-projects 研討會及座談會 Symposiums and Seminars 會議 Meetings 通訊 Newsletters YouTube 社交媒體平台 Social Media Platforms 外展計劃 Outreach Programmes 報告重要議題調查 Report Materiality Survey 公眾調查 Public Surveys 參觀機電署總部 Tours to the EMSD HQs

主要持份者 Key Stakeholders	主要聯繫渠道 Key Engagement Channels
傳媒 Media	傳媒聚會 Media Gatherings 就傳媒查詢回應及發表意見 Feedback and Responses to Media Enquiries
員工 Staff	員工滿意度調查 Staff Satisfaction Surveys 員工工會及員工協商委員會 Staff Unions and Departmental Consultative Committees 焦點討論小組 Focus Groups 員工通訊 Staff Newsletters 高級管理層親善大使探訪 Ambassador Visits by Senior Management 培訓課程 Training Sessions 比賽及團隊建立活動 Competitions and Team-building Activities 會議 Meetings 報告重要議題調查 Report Materiality Survey
專業團體及行業公會 Professional and Trade Associations 受規管行業 Regulated Trades	業界調查 Trade Surveys 研討會及座談會 Symposiums and Seminars 工作小組 Working Groups 會議 Meetings 報告重要議題調查 Report Materiality Survey

此外，機電署每年聘請外部的獨立顧問加強持份者的參與度，以確定我們社會及環保報告的範圍，確保納入最相關的主題。詳情請參閱**關於本報告**章節。

Furthermore, the EMSD has appointed an impartial external consultant on an annual basis to enhance stakeholder involvement in order to establish the parameters for our Social and Environmental Reports (SERs), to ensure that the most pertinent subject matters are to be incorporated in the SERs. Please refer to the **About this Report** section for more details.

與客戶溝通

我們致力為客戶提供卓越的工程服務方案，同時提升客戶體驗。我們持續努力提升表現，如委託獨立的市場研究公司每兩年進行一次客戶意見調查，讓我們了解客戶的看法並進一步改善他們的體驗。最近一次的調查於2022年完成，客戶滿意指數達到7.03分（滿分為8分）。此外，整體服務競爭力指數從6.85分上升至7.06分（滿分為8分），反映了我們的努力，確保客戶獲得高度滿意的服務。

我們實施「顧客為本電子平台」，旨在加強與客戶的溝通，並提供便捷的渠道，讓他們及時獲取項目進展的更新。我們不斷提升該平台的功能，簡化工作分配，並提高透明度，以追蹤項目進度。

機電署已邁出重要步伐，透過整合數碼科技，優化我們為業界提供的服務。我們採用創新解決方案，提升服務質素，為客戶提供高效率的機電工程方案。值得關注的是，機電署成功推出「政府物聯通」和區域數碼監控中心，旨在應用實時監察和控制功能，提高機電設施的運作效率和環保成效。

在本匯報年度內，機電署總部繼續作為平台，展示升級的創新科技，例如物聯網可用泊車位檢視系統及綜合式智能貨倉等。我們為公眾和政府部門安排參觀，與客戶和其他持份者分享這些先進的解決方案。

Communication with our Clients

We consistently strive to deliver excellent engineering solutions to our clients while aiming to enhance the quality of customer experience. As part of our continuous efforts, we commission an independent market research firm to conduct a Customer Opinion Survey (COS) every two years, allowing us to gain valuable insights into our clients' perspectives and further improve their experience. The most recent COS, concluded in 2022, achieved an impressive Customer Satisfaction Index of 7.03 out of 8. Additionally, the overall Service Competitiveness Index rose from 6.85 to 7.06 (on a scale of 8) for the same period, reflecting our efforts to ensuring a high level of service satisfaction for customers.

By implementing the Customer Centric e-Platform (CCeP), we aim to strengthen communication with our clients and to provide easy access for them to receive timely updates on the progress of their projects. We continuously enhance the functionalities of CCeP to streamline work allocation and improve transparency in tracking project advancements.

With the integration of digital technology, the EMSD has taken significant steps towards improving our service offerings to the industry. By embracing innovative solutions, we have elevated the quality of our services and the efficiency of E&M engineering solutions for our clients. Notably, the EMSD has successfully launched the Government-Wide Internet of Things (IoT) Network (GWIN) and Regional Digital Control Centres, in an aim to enhance the operational efficiency and environmental performance of E&M facilities by applying real-time monitoring and control capabilities.

During the reporting year, the EMSD Headquarters continued to serve as a platform for showcasing innovation and technology advancements, for examples, the IoT-based Car Park Availability System and the Integrated Smart Warehouse. We organise visits for both the general public and government departments to share these cutting-edge solutions with our clients and other stakeholders.

與供應商合作

我們與提供機電服務的承辦商，以及採購與機電安裝、操作和維修相關零部件、設備和服務的供應商一起執行嚴格的標準，以維護服務品質和安全的最高標準。承辦商和供應商的甄選過程是透明和公平的。我們監察和評估承辦商和供應商的表現，確保他們遵守所有相關的法律要求、產品質素標準、職業健康與安全規例、商業道德規範和環境管理。此外，我們就機電署的職業健康與安全政策和指引，與所有承辦商和供應商保持有效的溝通。

在2023/24匯報年度內，機電署共聘用了2 670名承辦商和供應商，涵蓋各類產品和服務，包括人力資源、活動、電訊、資訊科技、金融服務等。這些承辦商和供應商主要協助提供與機電安裝、操作和維修相關的零部件、設備和服務。年內聘用的供應商中，超過99%為香港本地企業，我們根據具體情況與這些供應商訂立合約。

在登記新供應商時，我們會要求並記錄供應商有關環保產品的建議。在匯報期內，我們共新增59間可提供環保產品的供應商，將我們的環保產品供應商名冊擴充至552間。此外，我們在選擇產品和服務時，也盡量結合環境保護署所倡導的綠色規格，務求切實可行。

Partnership with our Suppliers

We uphold the highest standards for service quality and safety by implementing rigorous criteria together with contractors who offer E&M services, as well as suppliers who source parts, equipment and services related to E&M installation, operation and maintenance. The contractors and suppliers selection process is conducted transparently and fairly. We monitor and assess the performance of contractors and suppliers and ensure their adherence to all relevant legal requirements, product quality standards, occupational health and safety regulations, ethical business practices and environmental management. Furthermore, we ensure effective communication of the EMSD's occupational health and safety policies and guidelines to all contractors and suppliers.

During the reporting year of 2023/24, the EMSD engaged a total of 2 670 contractors and suppliers for products and services in various categories, including human resources, events, telecommunications, information technologies, financial services and more. These contractors and suppliers primarily assisted in delivering parts, equipment and services associated with E&M installation, operation and maintenance for the EMSD's products and services. Over 99% of the suppliers that were engaged during the year are based in Hong Kong and are subject to contractual agreements tailored to specific applications.

When registering new suppliers, we would request and record information relating to any proposals of environmentally friendly products. Throughout the reporting period, we recorded a total of 59 newly registered suppliers that offer environmentally friendly products, thereby increasing the overall count of environmentally friendly suppliers on our supplier list to 552. Moreover, we make every effort to incorporate green specifications advocated by the Environmental Protection Department when selecting products and services, to the extent that it is feasible and practical.

供應鏈管理的環境及社會層面
Environmental and Social Aspects of Supply Chain Management

環境層面 Environmental Aspect

- 規定承辦商和供應商嚴格履行合約訂明的環保規定。
  To require contractors and suppliers to place great emphasis on environmental requirements in contracts.
- 要求承辦商和供應商遵守ISO 14001環境管理系統認證標準所指定的環保規定。
  To request contractors and suppliers to observe environmental requirements stipulated by the ISO 14001 Environmental Management System standard.
- 鼓勵供應商提供環保產品。
  To encourage suppliers to provide environmentally friendly products.
- 保存環保產品供應商資料在本署數據庫以供日後採購時評選。
  To keep information of suppliers offering sustainable products in our database for future procurement consideration.
- 納入環保採購指引促進供應商採購環保物料及產品。
  To incorporate green procurement guidelines for suppliers to source green materials and products.

社會層面 Social Aspect

- 遵守所有與安全及健康有關的法例規定及合約條款、相關的標準和實務守則，並推動主動積極、風險為本的文化，預防意外發生。
  To observe all statutory and contractual requirements for safety and health, relevant standards and codes of practices, and foster a pro-active risk-based accident prevention culture.
- 監察承辦商的工地安全與健康表現，就表現未如理想的情況，適時採取必要的行動，避免意外發生。
  To monitor the site safety and health performance of our contractors and to take necessary actions timely in case of sub-standard performance and for preventing accidents.
- 致力不斷改進安全與健康的管理及表現，包括尋找及制訂最佳安全健康實務做法，要求承辦商採納或向其推廣。
  To strive for continual improvement in safety and health management and performance, including identifying and developing best practices in safety and health, and requiring or promoting where appropriate the adoption of such practices by our contractors.

追求卓越的可持續發展成效

我們致力建立可持續發展的未來，為突顯這個承諾，機電署加入了由香港中華廠商聯合會主辦、香港品牌發展局合辦的「ESG約章」行動。該計劃旨在鼓勵企業和公營機構實施行動計劃，以提升其環境、社會和管治的成效。

SUSTAINABILITY EXCELLENCE

To reaffirm our dedication to building a sustainable future, the EMSD has joined the ESG Pledge Scheme, a scheme organised by the Chinese Manufacturers' Association of Hong Kong in co-operation with the Hong Kong Brand Development Council. This scheme aims to encourage businesses and public sectors to implement action plans to improve Environmental, Social and Governance (ESG) performance.

機電署加入「ESG約章」行動，突顯我們的承諾，積極推動可持續發展。

EMSD joined the ESG Pledge Scheme to reaffirm its commitment to promoting sustainable development.

《機電工程署二零二二至二三年年報》榮獲多個由知名平台頒發的卓越獎項。在第30屆年度Communicator Awards中，我們的年報在「政府」和「非牟利」組別中分別獲卓越獎和傑出獎。在美國通訊專業聯盟「2023 Vision Awards」中，我們的年報被評為全球鉑金獎，並被列為全球100份最佳年報、50份最佳中文年報和亞太區100份最佳年報之一。此外，我們更被評為亞太區最具創意年報。我們的年報還在「2024 Galaxy Awards」中獲得「網上版年報(綜合年報)」組別的榮譽獎，進一步體現了我們創新報告的承諾。這些殊榮亦可見我們重視透明度和有效溝通。

The EMSD Annual Report 2022/23 has garnered significant recognition across various prestigious platforms. It won Excellence and Distinction awards at the 30th Annual Communicator Awards in the categories of Government and Non-Profit, respectively. At the League of American Communications Professionals (LACP) 2023 Vision Awards, it was celebrated as a Platinum Winner Worldwide, ranked among the Top 100 Reports Worldwide, the Top 50 Reports in China, and the Top 100 Reports in the Asia-Pacific Region. Additionally, we were proud to be recognised as the Most Creative Report in the Asia-Pacific Region. Further highlighting our commitment to innovative reporting, our Annual Report also received an Honours award in the Online: Integrated A.R. category at the 2024 Galaxy Awards. These accolades underscore our focus on transparency and effective communication.

此外，我們的《社會及環保報告2022/23》在第38屆ARC國際年報大獎中獲得「非牟利機構(網上版年報)：政府機構及辦公室」組別的銅獎。我們的年報還在「主席函件：政府機構及辦公室」組別中獲得銅獎。ARC是著名的國際獎項，旨在表彰卓越的年報，重點推廣透明度、問責制和有效溝通。

In addition, our Social and Environmental Report 2022/23 received a Bronze award in the Non-Profit Organisation (Online A.R.): Government Agencies & Offices category at the 38th International Annual Report Competition (ARC) Awards. Our Annual Report also won a Bronze award in the Chairman's/President's Letter: Government Agencies & Offices category. The International ARC Awards is a prestigious programme that recognises excellence in annual reports, focusing on promoting transparency, accountability and effective communication.

與此同時，機電署在第21屆國際傑出顧客關係服務獎中脫穎而出，成為首個政府部門，獲得第一屆國際大灣區傑出顧客關係服務創新領袖獎三個獎項，包括 2023 年最佳人工智能科技服務(政府部門)、2023年最佳區塊鏈解決方案(政府部門)和2023年最佳物聯網項目(政府部門)。我們兩位高級工程師和兩位工程師，因其卓越貢獻而獲得個人獎項。這些獎項引證了我們追求創新和卓越服務的承諾。

Moreover, the EMSD has distinguished itself at the 21st International Customer Relationship Excellence (CRE) Awards, becoming the first government department to win three awards: the Best AI Technology Service of the Year 2023 (Government), the Best Blockchain Solutions of the Year 2023 (Government) and the Best IoT Project of the Year 2023 (Government) at the inaugural International Greater Bay Area CRE Innovation Leadership Awards. Two of our senior engineers and two engineers received individual awards for their exceptional contributions. These recognitions underscore our commitment to innovation and excellence in service delivery.

機電署以創新與卓越的服務在第一屆國際大灣區傑出顧客關係服務創新領袖獎中榮獲多個獎項。

EMSD's innovated and exemplary services shined at the first International Greater Bay Area CRE Innovation Leadership Awards with multiple awards bagged.

另外，我們最近在第十八屆粵港澳物聯網大會上，憑藉科技提升大灣區人民的安全和生活質素，努力獲得認同，我們的「香港遠足人士定位系統」榮獲粵港最佳物聯網產品獎。該系統利用先進的衛星導航技術，結合「政府物聯通」，確保戶外活動愛好者的安全。

Furthermore, our efforts to enhancing safety and quality of people's life through technology across the Greater Bay Area were recently recognised at the 18th Guangdong-Hong Kong-Macao IoT Conference, where we received the Best IoT Product Award in the Guangdong-Hong Kong Region for our Location Tracking System for Hong Kong Hikers. This system utilises advanced navigation satellite technology in conjunction with the GWIN to ensure the safety of outdoor enthusiasts.

「香港遠足人士定位系統」榮獲粵港最佳物聯網產品獎，彰顯我們利用科技提升安全與生活質素的努力。

The Location Tracking System for Hong Kong Hikers won the Best IoT Product Award, highlighting our commitment to enhancing safety and quality of life through technology.

機電署獲香港工程師學會頒發多項殊榮，以表彰我們在工程領域的卓越表現。機電署一位工程師獲得2024年度「傑出青年工程師獎」優異獎，展示了我們機構內部重視人才培養的承諾。此外，機電署在2024年度「香港工程師學會大獎—創意」兩個組別中獲得優異獎，這些項目包括智能防污海水濾網和人工智能為基礎的製冷機能源優化方案，反映了我們在工程領域上持續努力，推動創新和技術發展。

In recognition of our engineering excellence, the EMSD has received notable accolades from the Hong Kong Institution of Engineers (HKIE). An EMSD engineer received the Young Engineer of the Year Award 2024 – Certificate of Merit, showcasing our commitment to developing talent within the organisation. Additionally, the EMSD was awarded the HKIE Grand Award 2024 – Certificates of Merit in two innovation categories for projects that enhance sustainability and efficiency, including a smart antifouling seawater screen and an AI-based chiller energy optimisation initiative. These accolades reflect our ongoing dedication to promoting innovation and technology in engineering.

機電署工程師袁彪洪先生(右)獲香港工程師學會頒發2024年「傑出青年工程師獎」優異獎，可見本署致力培育人才的努力。

Mr Yuen Piu-hung, Francis, an EMSD engineer (right) received the Young Engineer of the Year Award 2024 – Certificate of Merit from the HKIE, showcasing our commitment to developing talent within the organisation.

環境可持續發展成效
ENVIRONMENTAL SUSTAINABILITY PERFORMANCE

為應對城市面臨的氣候相關挑戰，政府已發布《香港氣候行動藍圖2050》，提出高層次的環境可持續發展目標。機電署全力支持這些目標，以實現「零碳排放．綠色宜居．持續發展」的願景。我們的貢獻包括通過規管和營運服務，積極作出貢獻，推廣創新技術和採用可持續的作業方法，以支持政府的環保倡議，促進能源效益和可再生能源應用。

In response to the climate-related challenges faced by the city, the Government has released its high-level environmental sustainability objectives in the published Hong Kong's Climate Action Plan 2050. The EMSD fully supports these objectives, which envision the future of Hong Kong as of "Zero-carbon Emissions · Liveable City · Sustainable Development". We actively contribute to this vision through regulatory and trading services, promoting innovative technologies and sustainable workplace practices, to support environmental initiatives of the Government such as promoting energy efficiency and renewable energy application.

我們實施了一套全面的風險管理系統，為減輕氣候相關風險，旨在有效應對極端天氣引發的緊急情況，確保全港重要基礎設施具應變能力，安全可靠。機電署旨在透過上述努力，在香港轉變為可持續發展和具應變力城市的進程中，發揮關鍵作用。

To mitigate climate-related risks, we have implemented a comprehensive risk management system designed to respond effectively to emergencies arising from extreme weather, to ensure the resilience and safety of critical infrastructures across the city. Through these dedicated efforts, the EMSD strives to play a pivotal role in transforming Hong Kong into a sustainable and resilient urban environment.

支持建築物可持續發展的法規和指引

在香港，建築物的用電量佔全港總用電量的90%，而與建築物用電相關的碳排放佔全港總碳排放的60%。因此，機電署優先考慮建築物的能源效益，旨在幫助香港實現低碳轉型。我們定期檢討與能源使用相關的條例、政策和計劃，以服務業界和市民大眾。

REGULATIONS AND GUIDELINES FOR SUSTAINABLE BUILDINGS

In Hong Kong, 90% of the city's total electricity consumption is attributable to buildings, and the associated electricity generation for buildings accounts for 60% of the city's total carbon emissions. The EMSD, therefore, prioritises building energy efficiency in an aim to assist the low-carbon transformation of the city. We regularly review ordinances, policies and schemes related to energy use for the trades and general public.

為提高建築物的能源效益和減少碳排放，《建築物能源效益條例》於2012年生效，規定建築物必須遵守《建築物能源效益守則》和《能源審核守則》。《建築物能源效益守則》訂明新建建築物和現有建築物在大型翻新工程中屋宇裝備裝置設計的最低能源效益標準指引，而《能源審核守則》則要求商業建築物的業主進行能源審核。機電署與樓宇業主、負責人和物業管理公司等持份者合作，提高他們對法規要求的認識，並確保其遵守《建築物能源效益條例》以提高建築物能源效益。

To improve energy efficiency and reduce carbon emissions of buildings, the Buildings Energy Efficiency Ordinance (BEEO) came into effective in 2012, which mandates the specified requirements to comply with the Building Energy Code (BEC) and Energy Audit Code (EAC). While BEC sets out guidance on the minimum energy efficiency standards of the design of building services installations in newly constructed buildings and major retrofitting works in existing buildings, EAC requires owners of commercial buildings to conduct energy audits. The EMSD, working together with our stakeholders such as building owners, responsible persons and property management companies, promotes their awareness of the regulatory requirements and ensures compliance with the BEEO for building energy efficiency.

對於現有建築物進行能源評估，有利於尋找機會，以提升效率並節省資源成本。為此，機電署於2017年首次發布《重新校驗技術指引》，並於2018年和2023年修訂該指引，為樓宇業主提供一個全面而有效的評估框架，以評估現有建築物的能源表現。該指引為促進建築能源效益的持續改進，提升基本技術參考。機電署與香港綠色建築議會合作，透過培訓計劃向專業人士和從業員推廣該指引，鼓勵在實踐中應用。

For existing buildings, it is beneficial to conduct energy assessments to identify opportunities for efficiency enhancement and save resource costs. To this end, the EMSD published the Technical Guidelines on Retro-commissioning initially in 2017, then amended in 2018 and 2023, which provides building owners with a comprehensive yet effective procedural framework to evaluate the energy performance of existing building structures. The guidelines serve as a fundamental information source to facilitate the continual improvement of building energy efficiency. In collaboration with the Hong Kong Green Building Council, the EMSD promotes the guidelines through training programmes to professionals and practitioners to encourage the adoption of the guidelines in practice.

此外，我們認識到企業、家庭和個人在實施節能措施方面有重要貢獻。為讓市民大眾明智選擇電器產品，機電署於2009年推出「強制性能源效益標籤計劃」，規定所有訂明產品均須貼附能源標籤，向買家和消費者提供有用的能源資訊，幫助他們選擇更高能源效益的電器。

Furthermore, we recognise the vital contributions of businesses, households and individuals in implementing energy-saving measures. To empower people to make informed decisions about electrical products, the EMSD launched the Mandatory Energy Efficiency Labelling Scheme in 2009 to require energy labels to be affixed to all prescribed products, providing useful energy information to buyers and consumers to help them choose more energy-efficient appliances.

向各行各業推廣技術支持可持續發展

我們明白技術的重要性，可幫助城市實現可持續發展目標，推廣良好作業方法。同時，我們繼續通過與業界協作，探索創新解決方案，進一步減少能源消耗和碳排放，以實現更大的可持續發展效益。

PROMOTING TECHNOLOGIES TO TRADES TO SUPPORT SUSTAINABILITY

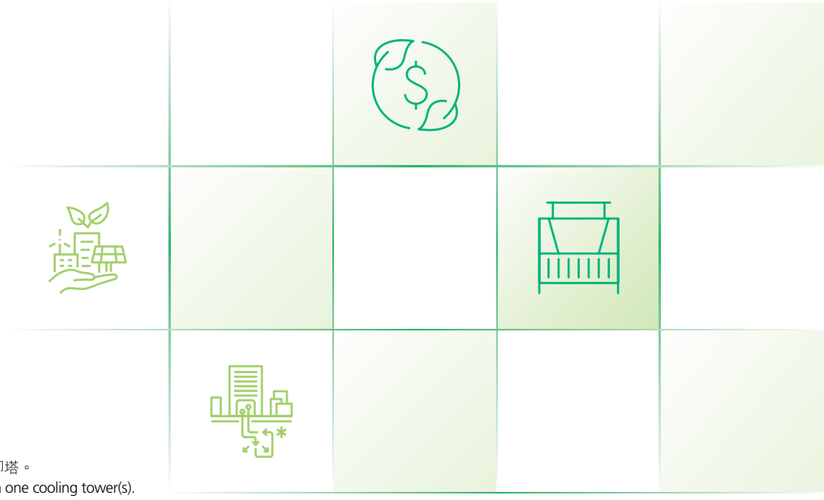
We understand the importance of technologies in helping the city achieve sustainability objectives and strive to promote good practices. Meanwhile, we continue to explore innovative solutions through collaboration with trades, to further reduce energy consumption and carbon emissions for greater sustainability benefits.

高效供冷

我們推廣可持續發展的供冷技術，如區域供冷系統和淡水冷卻塔。區域供冷系統是一種高能源效益的供冷系統，通過綜合基礎設施為鄰近多棟建築物提供並平衡供冷需求。作為香港首個此類型系統，位於啟德的海水區域供冷系統自2013年以來已節省約6 550萬千瓦小時電力，減少了45 850公噸碳排放，相關電費估計節省8 520萬港元[1]。另一方面，淡水冷卻塔是使用淡水的冷卻系統，與傳統的氣冷式空調系統相比，能源效益更高，碳排放更低。淡水冷卻塔計劃可帶來顯著的節能效果，報告年度內共接獲41宗新申請[2]，並有111個淡水冷卻塔落成，估計每年可節省約2 950萬千瓦小時電力。

Efficient Cooling

We promote sustainable cooling technologies, such as the District Cooling System (DCS) and the Fresh Water Cooling Towers (FWCTs). DCS is an energy-efficient cooling system that can supply and balance cooling demands across multiple buildings in vicinity through an integrated infrastructure. As the first of its kind in Hong Kong, the seawater DCS implemented in the Kai Tak district has saved approximately 65.5 million kWh of electricity since 2013, reducing carbon emissions by a total of 45 850 tonnes. The associated electricity cost saving is estimated at HK$85.2 million[1]. On the other hand, FWCTs refer to cooling systems using fresh water, which show increased energy efficiency and lowered carbon emissions compared to conventional air-cooled air-conditioning systems. The FWCTs scheme can lead to significant energy savings, with 41 new applications[2] and 111 completed FWCTs recorded in the reporting year, which can save approximately 29.5 million kWh of electricity annually by estimation.



[1] 以每度電$1.3港元計算。
Calculated at HK$1.3 per kWh.

[2] 每宗淡水冷卻塔申請可能涉及一個或多個淡水冷卻塔。
Each FWCT application may involve one or more than one cooling tower(s).

環境可持續發展成效
ENVIRONMENTAL SUSTAINABILITY PERFORMANCE

可再生能源

為支持香港採用可再生能源，機電署更新了《可再生能源發電系統與電網接駁技術指引》和《太陽能光伏系統安裝指南》供公眾參考。我們推出「香港可再生能源網」，分享有用的可再生能源資源，包括最新的技術指引和指南。此外，我們還製作了關於太陽能光伏系統和太陽能熱水系統設計、操作和維修的短片，作為補充參考材料。除了通過上網電價計劃的熱線解答公眾查詢外，我們還舉辦及與合作伙伴合辦各種知識分享活動，推廣可再生能源的認識和應用。

Renewable Energy

To support the adoption of renewable energy in Hong Kong, the EMSD updated the Technical Guidelines on Grid Connection of Renewable Energy Power Systems and the Guidance Notes for Solar Photovoltaic (PV) System Installation for public reference. We have launched the Hong Kong Renewable Energy Net, where useful resources on renewable energy are shared, including the latest technical guidelines and guidance notes. In addition, videos about the design, operation and maintenance of solar PV systems and solar hot water systems were created as supplementary reference materials. Besides addressing public enquiries through a hotline for the Feed-in Tariff schemes, we also organised or co-organised various knowledge-sharing activities with partners to promote renewable energy awareness and application.

創新服務

作為政府的「創新促成者」，機電署深感自豪。我們致力推廣以客為本的創新服務，最近的一項舉措是在荔枝角公園游泳池安裝再生介質過濾系統。與傳統的沙缸過濾相比，再生介質過濾技術不僅能提供優異的過濾能力，還能節省水、化學品和能源消耗，從而減少碳排放。

另一個示範項目是我們開發的可再生能源探索者。此為用於收集天氣和可再生能源系統數據的數碼平台，以初步評估可再生能源潛力，並進行實時監察、故障診斷、預測性維修和系統優化。可再生能源探索者還具有便攜設計，配備太陽能電池板和電池以實現電力自給自足，並具備「一裝即用」功能，可以快速使用。它根據實際需求自動安排維修工作，將營運成本降至最低。可再生能源探索者收集到的數據可在平台上共享，以提高效率，促進全球資產管理，支持技術協作，從而促進可再生能源投資，推動綠色經濟，並為實現碳中和作出貢獻。

Innovative Service

The EMSD is proud to serve as the Innovation Facilitator of the Government, and is committed to promoting customer-oriented innovative services. One of our recent initiatives is the installation of a regenerative media filter system at the Lai Chi Kok Park Swimming Pool. Regenerative media filtering technology can not only provide excellent water filtration capabilities, but also save water, chemical and energy consumption, resulting in carbon reduction, compared to conventional sand filtration.

Another exemplary project is our development of Integrated Self-sustained renewable-Energy Explorer (iSEE), which is a digital platform to gather weather and renewable energy system data for initial assessment of renewable energy potential and for real-time monitoring, fault diagnosis, predictive maintenance and system optimisation. The iSEE also features a portable design with solar panels and batteries for electricity self-sufficiency and a plug-and-play feature for quick deployment. It automatically schedules maintenance based on actual needs, minimising operational costs. Data collected by the iSEE is shared on a platform to enhance efficiency, facilitate global asset management and support technical collaboration, thereby stimulating renewable energy investment, promoting a green economy and contributing to carbon neutrality.




新的再生介質過濾系統(下圖)可提升游泳池的水質，相比傳統沙缸過濾器(上圖)，該系統佔用空間較少，同時節省資源。

The new regenerative media filter system (bottom) can enhance water quality in swimming pool. Compared with conventional sand filters (top), it takes up less space and saves resources.

可再生能源探索者是收集氣象資料及可再生能源系統數據的新發明，於第48屆日內瓦國際發明展中榮獲金獎。

The iSEE is a new invention for gathering weather and renewable energy system data. The invention won a gold medal at the 48th International Exhibition of Inventions of Geneva.

機電署的環保作業方法

我們致力透過嚴格的環境管理和認真的營運作業方法，促進未來的可持續發展。以下概述了我們的環保成效，重點包括管理和合規標準、應對氣候變化、能源消耗、碳減排、水效益、廢物管理和綠色採購。

ENVIRONMENTAL PRACTICES AT THE EMSD

We are dedicated to fostering a sustainable future through rigorous environmental management and conscientious operational practices. The following outlines our environmental performance, highlighting key areas such as management and compliance, climate resilience, energy consumption, carbon reduction, water efficiency, waste management and green procurement.

環境管理和守法合規

我們實施ISO 14001:2015環境管理系統，確保我們持續提升環保成效。標準受國際認可，有助我們減少資源消耗和碳足跡，同時保持完全符合環境法規。機電署將環保措施融入日常運作，展現我們守法合規及致力可持續發展的承諾。

Environmental Management and Compliance

We have implemented the ISO 14001:2015 Environmental Management System to ensure continuous improvement in our environmental performance. This internationally recognised standard helps us minimise resource consumption and carbon footprint, while to maintain full accordance with environmental laws and regulations. By integrating environmentally friendly measures into daily operations, the EMSD demonstrates its commitment to ensuring regulatory compliance and striving for sustainable development.

氣候應變

在應對日益嚴重的天氣事件時，我們通過緊急事故控制中心展示了卓越的應變能力和準備能力。緊急事故控制中心在緊急情況下啟動，全天候運作，監控和協調全港主要公共機電設施的運作。即使在極端天氣事件等危機中，我們也能確保公共安全和快速恢復服務。在超強颱風「蘇拉」來襲期間，機電署首次採用兩組人員執勤的模式，確保準備充分和迅速行動。同樣，在2024年9月史無前例的暴雨期間，該中心迅速啟動，與政府部門保持溝通，即時提供緊急維修服務。

Climate Resilience

In response to increasingly severe weather events, we have demonstrated exceptional resilience and preparedness through the Emergency Control Centre (EMCC). The EMCC, activated during emergencies, operates around the clock to monitor and co-ordinate the operation of major public E&M facilities across Hong Kong. This ensures continuous public safety and rapid restoration of services, even amidst crises such as extreme weather events. During the arrival of Super Typhoon Saola, the EMSD adopted a dual-team duty model for the first time, ensuring thorough preparation and swift action. Similarly, during the unprecedented rainstorm in September 2024, the EMCC was promptly activated, enabling constant communication with government departments for immediate emergency and repair services.

環境可持續發展成效
ENVIRONMENTAL SUSTAINABILITY PERFORMANCE

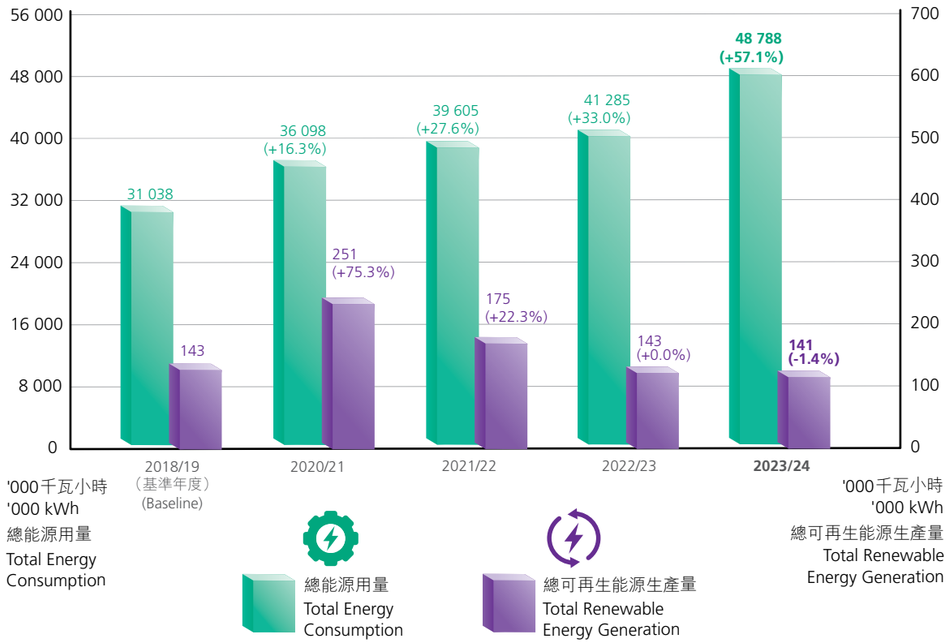
能源使用

為配合香港特別行政區政府的「綠色能源目標」，我們旨在2020年至2025年間減少總能源用量6%。在本匯報年度內，隨着經濟和社會活動在疫後時期恢復，總能源用量較去年有所增加。根據政府定義的相若運作情況下經調整後的數據計算，2023/24年度的年度能源表現較2018/19年度的基準年提升4.7%。儘管面對挑戰，機電署仍堅定不移，致力透過節能措施和持續採用可再生能源技術，不斷改善能源表現。

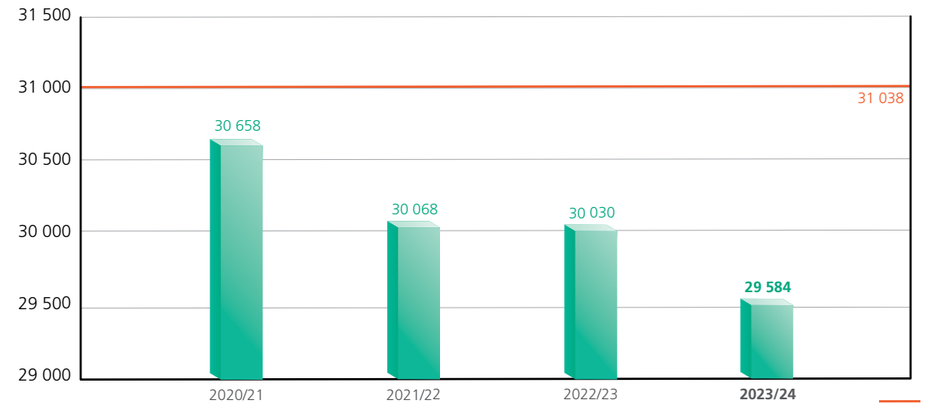
Energy Use

In alignment with the Green Energy Target of the Government of the Hong Kong Special Administrative Region, we aim to reduce total energy consumption by 6% between 2020 and 2025. During the reporting year, the resumption of economic and social activities in a post-epidemic period led to an increase in the total energy consumption compared to the previous year. After normalisation under the Comparable Operational Conditions as defined by the Government, the energy performance in 2023/24 has been improved by 4.7% compared to the baseline year in 2018/19. Despite this setback, the EMSD remains steadfast in its commitment to improving energy performance through conservation efforts and the continual adoption of renewable energy technologies.

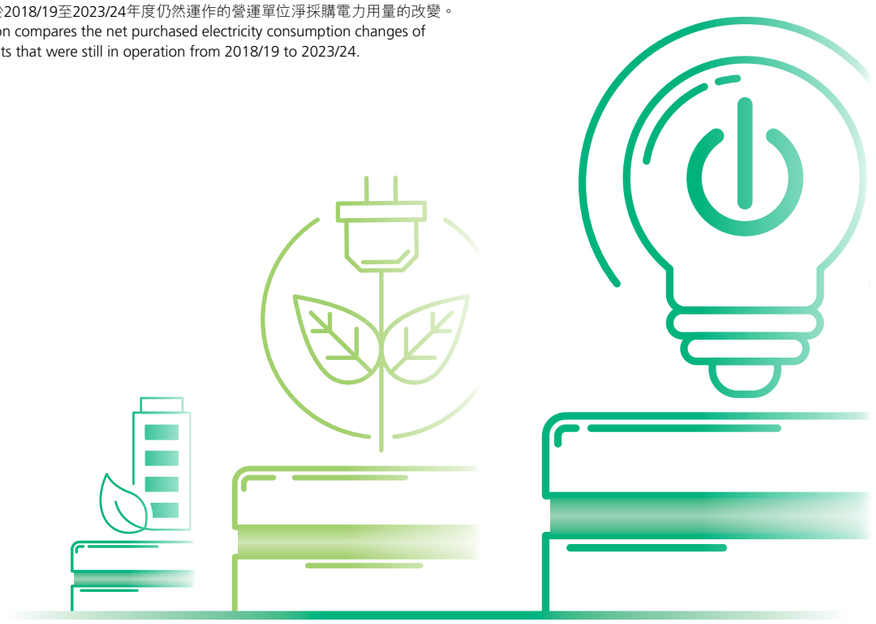
總能源表現
Total Energy Performance



於相若運作情況下的總能源用量[3]
Total Energy Consumption under Comparable Operating Conditions[3]



[3] 此計算比較於2018/19至2023/24年度仍然運作的營運單位淨採購電力用量的改變。
The calculation compares the net purchased electricity consumption changes of operating units that were still in operation from 2018/19 to 2023/24.



環境可持續發展成效
ENVIRONMENTAL SUSTAINABILITY PERFORMANCE

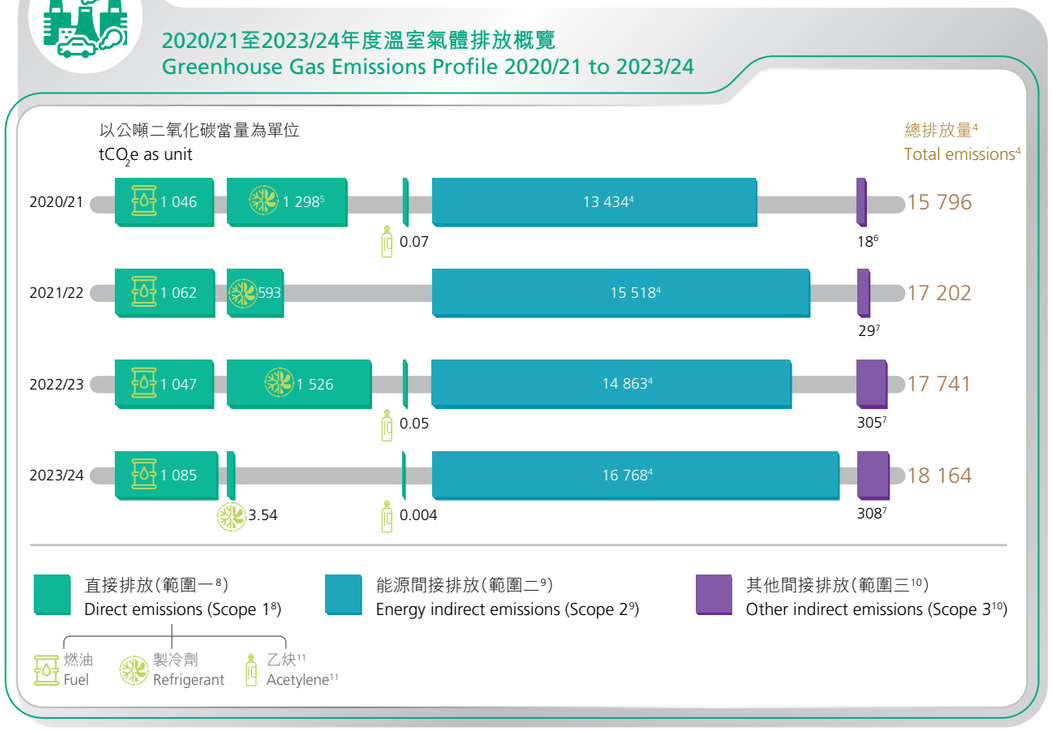
碳排放

我們在減少碳排放方面取得了重大進展，特別是總部大樓實施區域供冷系統，顯著降低了供冷能耗。我們積極推廣使用可再生資源，如太陽能板，並嚴密監察和控制主要碳排放源，包括燃料和電力使用、廢物處置和公務旅行等。目前，我們的車隊中有17輛電動車和1輛混合動力車，反映我們在採用可再生能源交通工具方面投入的努力。

Carbon Emissions

We have taken substantial progress in reducing carbon emissions, particularly through the implementation of the DCS for our Headquarters Building, which significantly lowers cooling power consumption. We actively promote the use of renewable resources, such as solar panels, and meticulously monitor and control major sources of carbon emissions, including fuel and electricity use, waste disposal and business travel. At present, there are 17 electric vehicles and 1 hybrid model in our fleet, reflecting our effort in embracing renewable energy-powered transportation.

2020/21至2023/24年度溫室氣體排放概覽
Greenhouse Gas Emissions Profile 2020/21 to 2023/24



[4] 排放量不包括由區域供冷系統產生的電力。
The electricity generated from DCS is not included in the emission.

[5] 2020/21年度製冷劑數據經審查後新增其溫室氣體排放。
In 2020/21, refrigerant consumption was available after data review and the associated greenhouse gas (GHG) emission was newly included.

[6] 數據包括2020/21年度處置廢紙及公務旅行。
The figure includes waste paper disposal and business travelling in 2020/21.

[7] 數據包括處置廢紙、公務旅行、處理食水和污水時耗用的電力。
The figure includes waste paper disposal, business travelling, electricity used for fresh water and sewage processing.

[8] 範圍一排放是指由機電署控制的活動所產生的所有直接排放，例如燃氣鍋爐和車輛。
Scope 1 emissions refer to all direct emissions generated by activities controlled by the EMSD, such as combustion of fuel in gas boilers and vehicles.

[9] 範圍二排放是指由機電署從能源供應商購買的能源生產所產生的排放，例如購買的電力和煤氣。
Scope 2 emissions refer to emissions resulting from the production of energy purchased by the EMSD from energy suppliers, such as purchased electricity and gas.

[10] 範圍三排放是指機電署以外發生的其他間接溫室氣體排放，例如處置廢紙、公務旅行、處理食水和污水時耗用的電力。
Scope 3 emissions refer to other indirect GHG emissions outside the EMSD, such as waste paper disposal, business travelling, electricity used for fresh water and sewage processing.

[11] 參考《香港中小企業碳審計工具箱》(由香港大學及香港城市大學發佈)。
Made reference to the Carbon Audit Toolkit for Small and Medium Enterprises in Hong Kong (by the University of Hong Kong and City University of Hong Kong).

用水效益

為加強水資源管理，我們引入了多項措施，包括雨水回收系統和廁所的感應式水龍頭。儘管總用水量較前一年有所增加，我們會繼續監察和收集數據，以追蹤進展並找出可改進的地方。

Water Efficiency

To enhance water management, we have introduced several measures, including a rainwater harvesting system and sensor taps in toilets. Although there has been an increase in total water consumption compared to the previous year, we continue to diligently monitor and collect data to track our progress and identify areas for improvement.

廢物管理

為支持政府減廢和零堆填的願景，我們實施了全面的廢物管理程序。在本匯報年度中，我們購買了67 235公斤再造紙供辦公室使用。同時，我們確保在辦公室內妥善收集和分類廢物。我們共回收54噸廢物並由合資格的承辦商處置，較去年增加了4.8%，體現了我們對廢物管理負責任的承諾。

Waste Management

In support of the Government's vision of waste reduction and zero landfill, we have implemented comprehensive waste management procedures. During the reporting period, we purchased 67 235 kg of paper with recycled content for operational purposes. Meanwhile, we ensured proper collection and separation of waste in the office. A total of 54 tonnes of waste was collected and disposed by qualified contractors, representing a 4.8% increase compared to the previous year, demonstrating our commitment to responsible waste management.

綠色產品和服務

機電署恪守政府的環保採購政策和ISO 14001:2015環境管理系統，進一步強化其對綠色採購的承諾。在本匯報年度內，我們共新增59間可提供環保產品的供應商，將我們的環保產品供應商名冊擴充至552間。總採購額為7.4875億港元，其中2.1229億港元(28.35%)用於綠色產品。此舉措突顯了我們對負責任採購和可持續採購的作業方式，作出承諾。

Green Products and Services

The EMSD's commitment to green procurement is reinforced by our adherence to the Government's green procurement policy and ISO 14001:2015 Environmental Management System. During the reporting period, we recorded a total of 59 newly registered suppliers that offer environmentally friendly products, thereby increasing the overall count of environmentally friendly suppliers on our supplier list to 552. Of the total purchase volume amounting to 748.75 million, 212.29 million (28.35%) was allocated to green products. This initiative underscores our dedication to responsible sourcing and sustainable procurement practices.

社會可持續發展成效
SOCIAL SUSTAINABILITY PERFORMANCE

機電署作為政府部門，同時兼任機電工程服務供應商，對此我們引以為傲。在服務社會和業界方面，我們有着明確的定位，我們明白，機電署的貢獻不僅限於向社會提供機電服務，更是致力推動可持續發展、追求行業卓越和專業發展，引領改革，作出承諾。

The EMSD is proud to have dual roles of a government body and a leading E&M engineering service provider, for which our distinct position is well defined in serving both the community and industry. At the EMSD, we recognise that our contributions extend far beyond delivering E&M services to the community. We are dedicated to driving positive change through our commitment to sustainability, industry excellence and the development of our expertise.

為智慧城市提供卓越的機電服務

機電署借助其專業知識，推動社會進步。我們提供先進的機電服務，引入創新解決方案，致力提高效率，提升公共服務，並推動香港智慧城市的發展。

E&M EXCELLENCE FOR A SMART CITY

The EMSD leverages its expertise to drive social improvement. We deliver cutting-edge E&M services and pioneer innovative solutions, striving to boost efficiency, elevate public services and propel Hong Kong's evolution as a smart city.

提供智能機電服務

我們明白，機電署的服務與市民日常生活、政府運作息息相關，因此，我們致力運用創新技術，提供全面優質的工程服務。

Delivering Intelligent E&M Services

Embracing the symbiotic relationship among our services, people's daily routines and government operations, the EMSD aims to provide holistic and high-quality engineering services infused with innovative technologies.

創新機電解決方案亮點
Highlights of Innovative E&M Solutions

利用醫療儀器維修表格電子平台
Utilising the BES E-form Platform

機電署為醫院管理局實施了醫療儀器維修表格電子平台，將維修工作流程數碼化，實現無紙化操作，提高效率。我們計劃擴展平台覆蓋範圍並推廣給其他客戶使用。

The EMSD implemented the Biomedical Engineering Services (BES) e-form platform for the Hospital Authority to digitise maintenance workflows, achieving paperless operations and improving efficiency. We plan to expand its coverage and promote its use to other clients.

舞台系統升級工程
Stage System Advancement Project

機電署與康樂及文化事務署(康文署)合作，提升元朗劇院的舞台系統，提供現代化效果和改良的自動化操作。該項目在一年內完成，展示了科技為舞台表演帶來的無限可能。

The EMSD collaborated with the Leisure and Cultural Services Department (LCSD) to enhance Yuen Long Theatre's stage system, providing modern effects and improved automation. Completed within a year, the project showcased the unlimited possibilities enabled by technology for stage performance.

再生介質過濾系統
Regenerative Media Filter System

機電署與康文署在荔枝角公園游泳池引入了創新的過濾系統，提升濾水效率，保障水質、衞生和安全。

The EMSD and the LCSD introduced an innovative filter system at the Lai Chi Kok Park Swimming Pool, improving water filtering efficiency for water quality, hygiene and safety.

創新機電解決方案亮點
Highlights of Innovative E&M Solutions

推出智能化路線圖
Launch of the Intelligent Roadmap

機電署推出港珠澳大橋香港口岸路線圖，強調智能解決方案、資產管理和碳中和。該路線圖還包括車輛自動清關支援系統升級、人工智能系統和可再生能源方案等元素，以促進效率和可持續發展。

The EMSD launched a roadmap for the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port, which emphasises smart solutions, asset management and carbon neutrality. It also includes elements such as upgrading the Automatic Vehicle Clearance Support System, artificial intelligence (AI) systems and renewable energy solutions to promote efficiency and sustainability.

第二代智能馬桶清潔系統
Second Generation of Smart Toilet Bowl Cleaning System

機電署升級的物聯網智能馬桶清潔系統具有自動化清潔和實時監察功能。它利用人工智能分析清潔度並調整清潔模式，減少勞動力並提高衞生水平。

EMSD's upgraded Internet of Things-enabled Smart Toilet Bowl Cleaning System features autonomous cleaning and real-time monitoring. It uses AI to analyse cleanliness and to adjust cleaning modes, reducing staff workload and improving hygiene.

引領機電創新

機電署着重實用創新和技術，推廣先進的解決方案，提升公共服務，此舉對實踐政府的願景，將香港轉型為智慧城市，至關重要。

在第49屆日內瓦國際發明展上，我們在創新方面的努力得到認同。機電署在該賽事榮獲七項金獎、十項銀獎和四項銅獎，這些成果體現了我們對卓越的追求並獲得國際認可。下表列出我們金獎項目的亮點。作為政府的「創新促成者」，機電署積極與各部門協作，識別和實施多個創科方案，以優化政府運作，推動智慧城市發展。

Pioneering E&M Innovations

The EMSD's focus on practical innovation and technology is pivotal in advancing the Government's vision of transforming Hong Kong into a smart city by expanding our portfolio of cutting-edge solutions and improving public services.

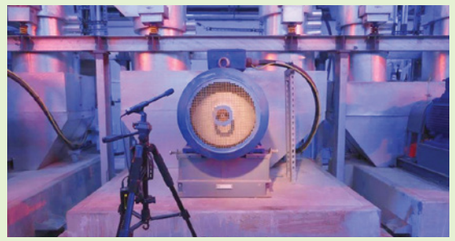
Our commitment to innovation has been recognised at the 49th International Exhibition of Inventions of Geneva, where we proudly received seven gold medals, ten silver medals and four bronze medals. These achievements reflect our dedication to excellence and international recognition. The projects that garnered gold medals are highlighted in the table below. As the Government's Innovation Facilitator, the EMSD actively collaborates with various departments to identify and implement innovation and technology (I&T) solutions that enhance government operations and promote smart city initiatives.

金獎項目亮點
Highlights of Gold Medals Award-winning Projects

應用於濕地檢測和快速應對外來入侵物種的水上人工智能機械人
AI-powered Aqua-bot for Early Detection and Rapid Response for Invasive Alien Species (IAS) in Wetland

- 檢測並消除入侵濕地的福壽螺卵。
  Detects and eliminates invasive apple snail eggs in wetland.
- 運用射水和擺動機械棒有效率進行清除工作。
  Employs water jet and a swinging stick for effective removal.

金獎項目亮點
Highlights of Gold Medals Award-winning Projects



智慧聲音檢測分析系統
Acoustic Detector: Determine Hidden Machine Failures by Analysing Sound Signature Using AI

- 運用人工智能音頻分析來識別隱藏的機械故障。
  Utilises AI-based audio analytics to identify hidden machine failures.
- 通過網頁的圖形用戶介面提供維修建議。
  Provides maintenance recommendations through a web graphical user interface (GUI).

協助視察及救援工作的球型機器人
Ball Type Rolling Robot for Inspection and Rescue

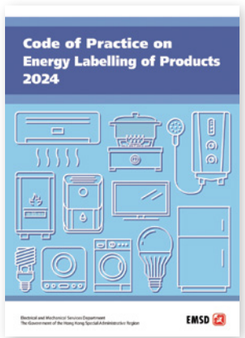
- 外型小巧，能夠進入難以到達的地域。
  Has a compact design for accessing difficult-to-reach areas.
- 能在狹窄的管道、洞穴內進行檢查、救援和通信。
  Capable of inspection, rescue and communication in narrow tubes and caves.

透過嚴格規管　提升機電行業發展

機電署致力透過嚴格的規管和創新解決方案，促進香港機電業的安全、效率和技術進步。我們致力提升機電行業的發展，主要工作如下。

機電署定期檢視和更新規例，以推動機電行業的持續改進，確保工人和市民大眾的安全。在本匯報年度內，機電署修訂了幾項主要規例，包括：

- 發布《產品能源標籤實務守則》(2024年版)
- 公布最新升降機和自動梯承辦商的性能評級



《產品能源標籤實務守則》(2024年版)
The Code of Practice on Energy Labelling of Products (2024 Edition)

Empowering the E&M Sector with Robust Regulations

The EMSD is committed to enhancing the safety, efficiency and technological advancement of Hong Kong's E&M sector through robust regulations and innovative solutions. Below are some key efforts demonstrating our commitment to empowering the E&M sector.

The EMSD regularly reviews and updates regulations to drive continuous improvement in the E&M sector and ensure the safety of both workers and the public. In the reporting year, the EMSD revised several key regulations, including:

- The release of the Code of Practice on Energy Labelling of Products (2024 Edition)
- The publication of the latest performance ratings for lift and escalator contractors

機電署作為香港的氣體安全監管機構，負責評估和批准由中華電力有限公司(中電)和香港電燈有限公司(港燈)開發的離岸液化天然氣接收站這個大型氣體設施的建設和使用。該項目於2020年年底開始建設，並於2023年7月開始營運。這個項目展示了香港在維持多元化能源組合方面的專業知識，對實現碳中和目標作出重要貢獻。

As Hong Kong's Gas Authority, the EMSD is responsible for assessment and approval of the construction and use of mega gas facilities of the offshore liquefied natural gas (LNG) terminal project, developed by the CLP Power Hong Kong Limited (CLP) and the Hongkong Electric Company, Limited (HK Electric). The construction began in late 2020 and the operation was commenced in July 2023. This project showcases the city's expertise in maintaining a diversified energy portfolio, contributing significantly to carbon neutrality.

機電署負責評估和批准中電及港燈的海上液化天然氣接收站建設及使用，確保設施安全合規。
The EMSD assessed and approved the construction and use of the offshore LNG terminal by the CLP and HK Electric, ensuring safety compliance.

我們在提升公共安全和建立無障礙環境方面取得重大進展，在優化升降機資助計劃下，約有5 100部舊式升降機已排期進行優化工程。該計劃為合資格的私人住宅和綜合用途建築物業主提供經濟誘因和必要的專業支援，以優化老舊的升降機。該計劃不僅提高了升降機安全，還在升降機停運期間為居民提供了外展社會服務，增加就業機會。

We are making significant strides in upgrading public safety and accessibility, approximately 5 100 aged lifts have been scheduled for modernisation under the Lift Modernisation Subsidy Scheme. This initiative provides financial incentives and essential professional support to eligible building owners of private residential and composite buildings for the modernisation of aged lifts. The Scheme not only enhances lift safety but also creates job opportunities and offers outreach social services to residents during lift suspensions.

為推動數碼化轉型，機電署推出升降機及自動梯數碼工作日誌，將約70 000部升降機和10 000部自動梯的20 000本紙本工作日誌轉換為數碼記錄。數碼工作日誌利用區塊鏈技術，確保記錄的真確性，防止篡改。超過39 000部升降機和自動梯已採用數碼工作日誌，持份者廣泛讚譽。

To drive digital transformation, the EMSD launched the Digital Log-books for Lifts and Escalators (DLBs), converting 20 000 paper-bound log-books into digital records for about 70 000 lifts and 10 000 escalators. Utilising blockchain technology, the DLBs ensure the authenticity and tamper-resistance of records. Over 39 000 lifts and escalators have adopted DLBs, receiving widespread acclaim from stakeholders.

數碼工作日誌推動升降機及自動梯的數碼轉型與安全管理。
Digital Log-books drive digital transformation and safety management for lifts and escalators.

除此之外，機電署還推出了智慧升降機及自動梯設計審批系統，該系統為網上平台，使用人工智能光學字元辨識和自然語言處理技術，旨在簡化升降機、自動梯及其安全部件的種類許可申請提交和處理過程。這個創新系統大大縮短了處理時間，並提高了準確度。

Complementing these advancements, the EMSD has launched the Type Approval Process and Authentication System, an online portal that uses AI Optical Character Recognition and Natural Language Processing technologies to streamline the submission and processing of type approval applications for lifts, escalators and their safety components. This innovative system markedly reduces processing time and enhances accuracy.

此外，機電署通過多種渠道聯繫機電業界，包括通訊、研討會、網絡研討會、講座和會議，提供規例更新、分享最佳作業方法和安全提示。這種持續的溝通，確保行業獲得最新資訊，以符合嚴格的安全和效率標準。

Additionally, the EMSD engages the E&M sector through a diverse array of channels, including newsletters, seminars, webinars, talks and meetings to provide updates on regulations, share best practices and offer safety reminders. This ongoing communication ensures the sector remains well-informed and aligned with stringent safety and efficiency standards.

2023/24年度與業界的聯繫
Engaging the Industry in 2023/24

車輛維修自願註冊計劃 Voluntary Registration Schemes for Vehicle Maintenance

- 於2023年5月、8月、11月和2024年2月出版四期《RVM通訊》。
  Published four issues of the RVM Newsletter in May, August, November 2023 and February 2024.
- 向「VM加分站」的註冊用戶發放合共14 339小時的持續專業進修時數。
  Issued a total of 14 339 Continuing Professional Development (CPD) hours to the registered users on the VM Learning Station.
- 舉辦了一次持續專業進修研討會和三次關於新能源車輛和車輛維修技術的網絡研討會，共有2 235人參加。
  Held a CPD seminar and three webinars on new energy vehicle and vehicle maintenance technology with a total of 2 235 participants.
- 參加由行業組織和資歷架構秘書處舉辦的研討會，推廣車輛技工「過往資歷認可」機制。
  Participated in the seminar organised by the trade organisation and Qualifications Framework Secretariat to promote the Recognition of Prior Learning Mechanism for Vehicle Mechanics.
- 與車輛維修技術諮詢委員會共同制訂《電動車維修工作指引》，為行業提供電動車維修的推薦設施清單，確保電動車維修工作的安全。
  Jointly developed the Practice Guidelines for Electric Vehicle (EV) Maintenance with Vehicle Maintenance Technical Advisory Committee for the trade, providing a list of recommended facilities for EV maintenance, ensuring the safety of EV maintenance work.

雪種處理 Handling Refrigerants

- 為R32家用空調技術員和物業管理公司舉辦了13次關於處理易燃雪種的安全講座。
  Conducted 13 safety talks on handling flammable refrigerants for R32 household air-conditioner technicians and property management companies.

2023/24年度與業界的聯繫
Engaging the Industry in 2023/24

氣體安全 Gas Safety

- 共舉辦21次氣體安全講座和簡介會，對象包括餐飲業、物業管理、建築界和公眾等各個行業。
  Conducted a total of 21 gas safety talks and briefings, targeting various sectors including the catering industry, property management, construction and the public.
- 舉辦第55屆和第56屆氣體安全諮詢委員會會議，並於2023年9月舉辦氣體業界暨創新科技論壇。
  Held the 55th and 56th meetings of the Gas Safety Advisory Committee and organised a Gas Trade cum I&T Forum in September 2023.

鐵路管理 Railway Management

- 參加各種國內/國際會議，並與海外鐵路監管機構進行交流，以提升鐵路設計、事故調查和安全監管方面的技能、知識和全球視野，例如日內瓦國際發明展、亞太鐵路大會、國際鐵路安全理事會、Rail Live 2023、RISSB鐵路安全會議、Thailand Rail 2024。
  Participated various national / international conferences and exchanged with overseas railway regulators to enhance skill, knowledge and global vision on railway design, incident investigation and safety regulation such as International Exhibition of Inventions of Geneva, Asia Pacific Rail, International Railway Safety Council (IRSC), Rail Live 2023, Rail Industry Safety and Standards Board (RISSB) Rail Safety Conference, Thailand Rail 2024.
- 在此期間擔任國際鐵路安全理事會的核心小組成員。
  Involved as the core group member of IRSC in the period.

升降機和自動梯安全、機動遊戲機安全和架空纜車安全 Lifts and Escalators Safety, Amusement Rides Safety and Aerial Ropeways Safety

- 分別於2023年6月和12月出版第12期和第13期《電梯通訊》。
  Published the 12th and 13th issues of the Lift and Escalator Newsletter in June and December 2023 respectively.
- 與職業訓練局合作制訂升降機和自動梯大師級專業文憑課程，該課程達到資歷架構第4級認可。
  Worked with the Vocational Training Council to formulate the Professional Diploma Meister in Lift and Escalator Engineering programme pitched at the Qualifications Framework (QF) Level 4.
- 與行業合作，促進註冊承辦商組織自己的資歷架構第2級/第3級證書課程，以培養內部註冊工人。
  Worked with the trade to facilitate Registered Contractors to organise their own certificate courses equivalent to QF Level 2 / Level 3 for grooming in-house Registered Workers.

推動機電專業的可持續發展

為吸引和培養有志於機電業的專業人才，機電署持續提供多樣化的推廣活動和計劃。這些舉措旨在介紹機電服務，並與年輕人、從業員和公眾分享寶貴的專業知識。

DRIVING SUSTAINABILITY THROUGH E&M PROFESSIONAL DEVELOPMENT

To attract and nurture aspiring professionals in the E&M sector, the EMSD consistently offers a diverse array of promotional activities and programmes. These initiatives aim to introduce E&M services, as well as share valuable professional knowledge with young individuals, practitioners and the public.

培養下一代機電業領袖

我們致力吸引和培養有志投身機電服務的人才，為行業未來建立堅實的基礎。我們專為青年制訂發展計劃和舉辦大型的行業博覽會，這些舉措旨在引領和裝備下一代機電領袖，讓他們具備所需的知識、技能和專業知識，推動業界創新和可持續發展。

Nurturing the Next Generation of E&M Leaders

To establish a robust foundation for the future of the industry, we are committed to attracting and nurturing talented individuals who are passionate about E&M services. Through initiatives such as dedicated youth development programmes and extensive industry expos, we aim to inspire and equip the next generation of E&M leaders with the knowledge, skills and expertise essential for driving innovation and sustainability in the industry.

2023/24年度青年計劃亮點
Highlights of Youth Programmes in 2023/24

機電青年發展委員會 E&M Youth Development Committee

我們成立機電青年發展委員會，加強與青年的溝通，幫助他們培養正向思維，並加深他們對機電業的了解。

We established the E&M Youth Development Committee to strengthen communication with young people, to help them cultivate positive thinking and deepen their understanding of the E&M industry.

STEM教育試點計劃 Pilot STEM Education Programme

機電署與五所中學合作，推出「啤啤校園之旅－生活小智識」STEM教育先導計劃，以增加學生的機電知識，並培養他們對加入行業的興趣。

The EMSD launched a pilot STEM education programme, "Witty Bear Campus Tour – EMbrace Smart Living in Daily Life", in collaboration with five secondary schools, to enhance students' E&M knowledge and inspire their interest in joining the industry.

機電業博覽2024 E&M Expo 2024

我們的旗艦活動—機電業博覽2024，展示了機電行業令人振奮的職業前景和創新技術。博覽會以「機電潛力，引領未來」為主題，設有攤位、職業講座和分享會(包括人工智能和建築信息模擬等最新行業發展)，旨在提升年青人的興趣，吸引新人才加入行業。

Our flagship event, the E&M Expo 2024, showcased the exciting career prospects and innovative technologies in the E&M industry. Themed "Embrace your Potential, Master your Future", the Expo featured booths, career seminars and sharing sessions on the latest industry developments, including AI and Building Information Modelling, to spark the interest of young people and to attract fresh talent to the industry.

持續促進專業發展

我們提供一系列培訓和發展機會，滿足機電業專才各式各樣的需求和興趣，讓他們保持領先地位。我們持續促進專業發展，旨在提高機電從業員的技能和專業知識，讓他們在業界推動可持續和創新發展，追求卓越。

Fostering Ongoing Professional Development

To empower existing E&M professionals to stay ahead of the curve, we provide a range of training and development opportunities that cater to their diverse needs and interests. By fostering ongoing professional development, we aim to enhance the skills and expertise of E&M practitioners, enabling them to drive sustainability, innovation and excellence in the industry.

機電創科日2023
E&M I&T Day 2023

機電署致力推動創科。在營運基金第三個五年策略計劃下，我們引入了四大策略，包括「加強多方創新協作」，以實現「機電3.0 — 智能機電」的願景。我們舉行機電創科日2023，為業界提供分享創新技術、協作創科發展和應用的平台，以支持上述策略。

The EMSD is committed to advancing I&T. Under the EMSTF's third Five-year Strategic Plan, we introduced four key strategies, including "Strengthening Innovative Collaboration between Stakeholders", to achieve the vision of "E&M 3.0 – Intelligent E&M". To support this, we organised the E&M I&T Day 2023, providing a platform for the industry to share their innovations and collaborate on I&T development and application.

推動公眾參與可持續發展

機電署致力提高公眾對機電安全和能源效益的認識和理解。為實現這個目標，我們推出一系列公眾教育和外展計劃，與社會各界聯繫，尤其是年青人與長者。此舉反映我們致力可持續發展、創新機電工程服務、智慧城市發展，以及提高市民大眾的生活質素。以下是我們在2023/24年度為公眾舉辦的主要活動。

Promoting Public Involvement in Sustainable Development

The EMSD is dedicated to raising public awareness and understanding of E&M safety and energy efficiency. To fulfil this objective, we have launched a range of public education and outreach programmes to engage with various segments of society, particularly the youth and elderly. These initiatives reflect our commitment to sustainability, innovation in E&M engineering services, smart city development and improving the public's quality of life. Please find below the main events organised for the public in the 2023/24 period.

2023/24年度與公眾和行業聯繫的活動
Public and Trade Engagement Activities in 2023/24

與公眾分享機電署75周年的喜悅
Sharing the Joy with the Public on the 75th Anniversary of the EMSD

為慶祝機電署成立75周年，我們舉辦了為期三天的公眾活動，內容豐富多樣化。數百名中、小學生參加STEAM工作坊、虛擬實境體驗、攤位遊戲，增進他們對機電知識的興趣。活動可提高公眾對機電安全、節能減排和創科應用的認識，精彩活動內容還包括機電「智」識工作坊、啟德區域供冷系統一號廠房導賞團、機電之旅(虛擬實境遊戲)、政府車輛展示，以及參觀機智「元」區、「機電創科專區」和智能貨倉。75周年活動與典禮很受歡迎，吸引了約15 000人參與。

To celebrate our 75th anniversary, the EMSD hosted a three-day public event featuring a variety of engaging activities. Hundreds of primary and secondary school students participated in STEAM workshops, virtual reality experiences and booth games, sparking their interest in E&M knowledge. The event also included activities to raise public awareness of E&M safety, energy efficiency, emission reduction and the application of I&T. Highlights included STEAM & Coding Workshops, guided tours of the Kai Tak DCS Plant No.1, a virtual reality game called Metaracing, a showcase of government vehicles, and visits to our Smart World, E&M InnoZone and ai Store. The event, along with the 75th Anniversary Ceremony, was well-received and attracted around 15 000 participants.

2023年醫院管理局研討大會
Hospital Authority Convention 2023

2023年醫院管理局研討大會促進醫療新知的經驗交流。機電署展示一系列創新方案，例如「建築信息模擬—資產管理」系統和智能維護機械人等。機電署將繼續協助提升香港醫療服務水平。

The Hospital Authority (HA) Convention 2023 promoted knowledge sharing in clinical advances. The EMSD showcased innovative solutions such as the Building Information Modelling – Asset Management System and smart servicing robots. The EMSD will continue supporting the enhancement of healthcare services in Hong Kong.

職業安全與健康

機電署以保持高標準的職業安全與健康(職安健)為首要任務。為了規劃、實施、評估和持續改進職安健作業方法和成效，營運基金在綜合管理系統中建立了職安健管理系統。我們提供的機電服務嚴格遵守機電署的安全與健康政策。

此外，我們已將最新國際標準的ISO 45001:2018認證的職業健康與安全管理系統整合到綜合管理系統中，此舉有助我們促進員工和承辦商的工作場所安全與健康。我們成立職安健策導委員會，積極管理職安健相關事務。該委員會在監督和監察我們所有營運業務的職安健成效方面，發揮了領導作用。此外，我們還設立部別職安健委員會，以加強溝通和促進工作場所安全與健康的作業方法。

管理職安健風險和事故

為了提高工地安全，機電署支援安全智慧工地系統的實施，以提升現有的安全管理架構，並加強工務工程和定期維修合約的安全表現。安全智慧工地系統採用智慧安全設備來監察高風險作業和維護活動，收集資料以識別安全隱患。我們設有中央管理平台，提供資料分析、警報發放的一站式中心，有助對已識別的危險和異常情況採取後續行動。金額超過三千萬港元的合約已經採用安全智慧工地系統，而機電署共有18份實施該系統的合約。

我們採用全面的職安健管理方法，致力保障本署與承辦商員工的安全和福祉。我們透過危害識別、風險評估、事故調查和跟進行動，盡力減少工傷。

OCCUPATIONAL SAFETY AND HEALTH

At the EMSD, we prioritise maintaining a high standard of occupational safety and health (OSH) in all our operations. To govern the planning, implementation, evaluation and continuous improvement of OSH practices and performances, we have established an OSH management system as part of our Integrated Management System (IMS) for the EMSTF. Our delivery of E&M services strictly adheres to the EMSD Safety and Health Policy.

Furthermore, we have integrated the latest international standard of ISO 45001:2018 certified Occupational Health and Safety Management System into our IMS. This helps us promote workplace safety and health for both our staff and contractors. In order to proactively manage OSH-related matters, we have formed the Steering Committee on OSH. This committee plays a leading role in overseeing and monitoring OSH performance across all our operations. Additionally, we have established Divisional Occupational Safety and Health Committees (DivOSHCs) to enhance communication and promote workplace safety and health practices.

OSH Risk and Incident Management

To enhance work site safety, the EMSD has supported the implementation of the Smart Site Safety System (SSSS) to upgrade the existing safety management framework and elevate safety performance in public works and term maintenance contracts. The SSSS employs smart safety devices to monitor high-risk works and maintenance activities, collecting data to identify safety hazards. A centralised management platform has been set up for providing a one-stop hub for data analysis, alert generation, and facilitates follow-up actions on identified hazards and abnormalities. The SSSS has already been employed in those contracts with contract sum larger than HK$30 million, and there are 18 EMSD contracts with SSSS labelled.

We are dedicated to prioritising the safety and wellbeing of its in-house staff and contractor employees through a comprehensive approach to OSH management. Our focus extends to hazard identification, risk assessment, incident investigation and follow-up actions, all aimed at minimising occupational injuries.

職安健風險評估和危害預防
OSH Risk Assessment and Hazard Prevention

- 參考《系統程序手冊》、實務守則和指引，識別與工作相關的危害。
  Identify work-related hazards with reference from the System Procedure Manual, code of practices and guidelines.
- 每個策略業務單位各自根據其業務性質進行風險評估。
  Individual risk assessments are conducted by each Strategic Business Unit based on its nature.
- 為員工提供必要的個人防護裝備和器材。
  The necessary personal protective equipment are provided for staff members.
- 密切監察承辦商的健康及安全成效，就不合規的表現及時採取措施，避免意外發生。
  Contractors' health and safety performance is actively monitored, and timely actions are taken for sub-standard performance and accident prevention.

事故報告和調查
Incident Reporting and Investigation

- 一旦出現職安健事故，員工應立即停止執行職務，並向上級報告。
  Staff members should halt duties and promptly report OSH incidents to supervisors.
- 組別安全督導員或部別安全主任負責調查事故。
  Sectional Safety Supervisor or Divisional Safety Officer will conduct investigations of incidents.
- 制訂措施保障員工免受事故相關問題困擾或遭報復。
  Measures are in place to safeguard staff from incident-related issues and protect against reprisals.

宣傳職業安全和評估表現
Safety Communication and Performance Evaluation

- 職安健策導委員會和部門職安健委員會定期舉行會議，評估職安健成效並檢討內部措施。
  The Steering Committee on OSH and DivOSHCs hold regular meetings to evaluate OSH performance and review internal measures.
- 定期進行內部審核，持續優化職安健管理系統。
  Periodic internal audits are conducted to drive continuous improvement of the OSH management system.

推廣職安健意識和加強聯繫

為提升安全意識，機電署為員工和承辦商提供各種安全培訓課程和活動，包括研討會、比賽和必修培訓班，例如基本安全訓練和安全督導員培訓，讓他們掌握處理職安健事故所需的技能。我們利用數碼平台，例如部門內聯網、內部刊物和電子郵件，有效地向所有員工傳達安全信息。同時，承辦商必須遵守特定的職安健要求，以確保全面的安全管理。

OSH Awareness and Engagement

To promote safety awareness and provide staff and contractors with necessary skills to handle OSH incidents, the EMSD provides a variety of safety training programmes. These programmes consist of seminars, competitions and mandatory training sessions, for examples, Basic Safety Training and Safety Supervisor Training. Digital channels such as the department intranet, internal publications and email communication are utilised to communicate safety messages to all staff members effectively. Meanwhile, contractors are required to adhere to specific OSH requirements to ensure a comprehensive approach to safety.

安全培訓
Safety Training

內部員工
Internal Staff

- **強制性基本安全培訓**
  Mandatory Basic Safety Training
- **一般職安健培訓**
  General OSH Training
- **安全督導員培訓**
  Safety Supervisor Training
- **研討會**
  Seminars
- **比賽**
  Competitions

承辦商
Contractors

- **承辦商研討會**
  EMSD Contractors Forum
  推廣最新的安全標準和相關措施。
  Promoting the latest safety standards and relevant measures.
- **政府合約**
  Government Contract
  《工地安全特別規格》訂明承辦商必須為工地工人提供必要的安全培訓。
  Stipulating in Particular Specifications on Site Safety that contractors must provide necessary safety training for their site workers.

關懷員工

機電署高度重視員工作出的重大貢獻，我們明白，員工在推動可持續發展中，扮演着重要的角色。

員工統計

截至2024年3月底，機電署共僱用5 893名員工，包括全職、常任制員工和合約工人(2022/23年度共有5 837名員工)。年內並無聘用兼職員工。至於勞動力變化方面，本匯報年度的新入職率為9.8%，離職率為6.5%。

CARING FOR OUR COLLEAGUES

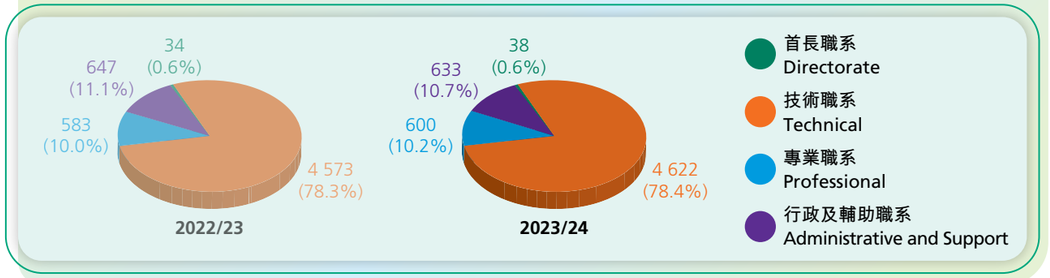
The EMSD highly values the significant contributions made by our workforce, recognising the substantial role they play in promoting sustainable development.

Staff Statistics

As of end of March 2024, the EMSD employed a total of 5 893 individuals, comprising both full-time permanent staff and contract (temporary) workers (compared to 5 837 staff members in the previous year, 2022/23). During this period, there were no part-time employees recorded. Regarding workforce dynamics, the recruitment rate for new employees was 9.8%, while the turnover rate for the current reporting year reached 6.5%.

員工按性別劃分
Staff Breakdown by Gender

員工按職系劃分
Staff Breakdown by Grade



員工福利

機電署員工只要符合政府公務員聘用條款及非公務員合約僱員計劃列明的資格，便可享有一系列福利，包括根據《公務員事務規例》和公務員事務局發出的通告和通函中規定提供的醫療服務和房屋福利。機電署明白員工履行家庭責任的重要性，對此給予支持，我們也提供育嬰假，讓同事在發展事業和照顧家庭之間取得平衡。

機電署員工的健康福祉至關重要。為此，我們優先照顧員工的心理健康，設立專門熱線，提供心理支援。我們簽署《精神健康職場約章》，落實全方位保健方針，可見我們致力營造心理健康的工作環境，切實履行我們的承諾。

多元化與平等機會

機電署致力提供彼此支持和共融的工作環境，讓每位員工都能享有公平和公正的待遇。為履行這個承諾，機電署絕不容許工作場所出現歧視、騷擾和誹謗行為。此外，機電署積極推動有特殊需要的人士就業，參與《有能者．聘之約章》和共融機構嘉許計劃等活動。

Staff Welfare

Eligible individuals who meet the criteria outlined in the Government's Civil Service and Non-Civil Service Contract Staff Schemes are entitled to a range of benefits. These provisions, including medical services and housing benefits, are provided in accordance with the regulations specified in the Civil Service Regulations and the Civil Service Bureau Circulars and Circular Memoranda. The EMSD also recognises the importance of supporting employees in fulfilling their family responsibilities. We offer sufficient parental leave to help our colleagues strike a balance between advancing their careers and caring for their families.

At the EMSD, the wellbeing of our staff is of utmost importance. In view of this, we prioritise the mental health of our employees. To provide psychological support, we have established a dedicated helpline. As a testament to our comprehensive approach, we take pride in being a signatory of the Mental Health Workplace Charter. This signifies our commitment to cultivating a work environment that promotes mental health and underscores our dedication to this crucial cause.

Diversity and Equality

The EMSD is dedicated to fostering a supportive and inclusive workplace environment, where every staff member is treated equitably and fairly. To uphold this commitment, the EMSD strictly prohibits workplace discrimination, harassment and vilification. Additionally, the EMSD actively promotes employment opportunities for individuals with special needs, participating in initiatives like the Talent-Wise Employment Charter and the Inclusive Organisations Recognition Scheme.

在本署核心文化中，我們堅守承諾，維護人權和奉行公義原則的工作環境，絕不容忍任何形式的強迫或強制勞動。在本匯報年度內，機電署整體營運及供應商網絡均無發現任何涉及歧視或違反關於童工或強迫勞工的法律法規的情況。

At the heart of our organisational culture lies a strong commitment to upholding human rights and cultivating a work environment based on principles of justice. This unwavering dedication is exemplified by our firm stance of zero tolerance towards any form of forced or compulsory labour. It is noteworthy that throughout the reporting year, there were no recorded incidents of discrimination or violations of laws and regulations pertaining to child or forced labour within the broader scope of the EMSD's operations or among our network of suppliers.

培訓和發展

機電署提供多元化的培訓和發展機會，以促進員工不斷成長，期望讓他們提升基本技能並了解行業發展，其中包括新興技術的能力建設培訓，例如數碼化技術、「建築信息模擬 — 資產管理」、生成式人工智能和第三代互聯網等。我們也提供各種培訓，涵蓋職業安全與健康、結構化管理發展課程、行政人員發展培訓、操守與誠信、國情、基本法、國安法，以及各種職業和通識培訓。此外，我們重新設計新僱員的入職培訓課程，以配合政府加強公務員入職培訓的方針。

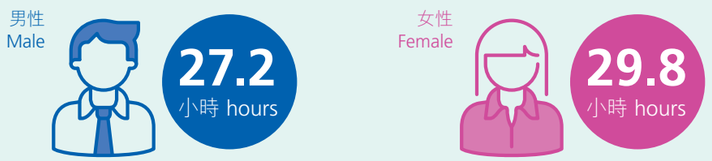
Training and Development

To foster ongoing growth among our employees, the EMSD provides a wide range of training and development opportunities. These initiatives are designed to enhance essential skills and keep them updated on industry advancements, which include capacity-building training on emerging technologies such as digitised technologies, Building Information Modelling – Asset Management, Generative AI and Web 3.0. We also provide training on occupational safety and health, structured management development programmes, executive development programmes, conduct and integrity, national studies, Basic Law, National Security Law, as well as various vocational and generic training programmes. Moreover, we have redesigned our induction programmes for new recruits to align with the Government's efforts in strengthening Civil Service Induction Training.

在本匯報年度中，機電署提供總共超過27 000日的培訓，每名員工平均培訓日數為5.63日。按性別和職系劃分的平均培訓時數如下：

Throughout the reporting year, the EMSD provided over 27 000 days of training, averaging 5.63 training days per staff member. The average training hours by gender and grade during this period are as follows:

2023/24年度按性別劃分的平均培訓時數
Average Training Hours by Gender in 2023/24



2023/24年度按職系劃分的平均培訓時數
Average Training Hours by Grade in 2023/24

員工溝通

機電署高度重視員工的意見和建議，深知他們在維持工作質素和效率方面扮演重要的角色。我們設立多種溝通渠道和舉措，促進有效的內部溝通。此外，我們設有明確的員工投訴程序，員工可舉報任何不當待遇或表達不滿，並確保他們的投訴獲得妥善處理。

Staff Communication

We hold the opinions and suggestions of our staff members in high regard, acknowledging their vital role in maintaining work quality and efficiency. To foster effective internal communication, we have implemented a variety of communication channels and initiatives. Furthermore, we have established a well-defined staff complaint procedure in place that enables staff to report any mistreatment or dissatisfaction they may experience. This framework ensures that such complaints are addressed in an appropriate manner.

主要內部溝通渠道和舉措
Major Channels and Initiatives for Internal Communication

委員會和工會 Committees and Unions

為加強內部溝通，我們設有四個部門協商委員會和五個部別協商委員會，作為員工與管理層之間交流意見的平台。

此外，我們的員工可以自由加入機電署11個部門工會或機電署外的政府員工組織，表達自己的意見和關注議題。

In order to enhance our internal communication, we have implemented four departmental consultative committees and five divisional consultative committees. These committees serve as platforms for staff and management to exchange ideas and perspectives.

Furthermore, our staff members have the freedom to join the 11 departmental staff unions or government staff unions outside the EMSD. This allows them to express their views and concerns effectively.

會議和分享會 Meetings and Sharing Sessions

管理層透過多種渠道與員工互動，包括每年的署長簡報會、親善大使探訪、部門協商委員會和工會會議，力求與員工保持定期溝通，坦誠對話。

在情況許可下，我們會在實施新措施之前透過員工關係組或簡報會和工作坊，諮詢員工，收集他們的建議和意見，聽取他們的觀點，員工亦可從活動中了解機電署的最新動態，並分享他們的想法。

To ensure open and regular communication, the management engages with our staff through various channels. These include the annual DEMS Briefing, ambassador visits, meetings with departmental consultative committees and staff unions.

Whenever feasible, we make efforts to conduct staff consultations prior to implementing new practices. This is facilitated through the Staff Relations Unit or through briefings and workshops. These consultations allow us to gather advice and input from our staff, enabling us to consider their perspectives. They also enable staff to stay informed about the latest developments of the EMSD and share their ideas.

「好人好事嘉許計劃」 "Good People, Good Deeds Commendation Scheme"

本計劃旨在激勵員工實現機電署的目標，同時培養一隊專業、創新、高效和摯誠服務社會的團隊。

The objective of the scheme is to inspire and encourage our staff to attain the goals of the EMSD while fostering a team that is professional, innovative, productive and committed to serving the community.

員工福祉

員工的整體福祉對我們來說非常重要。為此，機電署員工康樂會年內為員工舉辦了一系列活動，包括龍舟、保齡球、乒乓球等比賽或同樂日，讓所有同事攜帶家人一起參與，提供社交機會，建立健康好動的生活模式。

Staff Wellbeing

The workforce's overall wellbeing is important to us. To this end, the EMSD Staff Club continued to organise a range of activities throughout the year for our employees. A variety of events were organised, featuring competitions and fun days in dragon boat, bowling, table tennis, etc. These activities were open to all colleagues and their families, providing opportunities for social bonding and promoting a healthy and active lifestyle.

2023/24年度員工康樂會活動亮點
Highlights of Staff Club Activities in 2023/24

機電署員工康樂會籌辦各式各樣的體育活動，讓員工攜同家人參與。
The EMSD Staff Club organised various sports activities for participation of employees and their families.

關懷社區

機電署肩負着服務大眾的重要使命，我們的責任並非單純的行政工作，而是創造有意義的社會價值。過去一年，我們積極與公眾聯繫，透過不同的義工活動回應公眾需求。

CARING FOR THE COMMUNITY

The EMSD takes a profound responsibility to serve the greater good, going beyond mere administrative tasks to create meaningful social impact. Throughout the year, we have actively engaged with the public and addressing their needs through different volunteering events.

2023/24年度義工服務 Voluntary Services in 2023/24

我們的員工完成七個義工項目，共錄得533.5小時的服務時數。
Completed seven volunteering projects by our staff who contributed a total of 533.5 man-hours.

2023/24年度義工活動亮點
Highlights of Voluntary Activities in 2023/24

深水埗長者探訪 Elderly Visit in Sham Shui Po

為應對2019冠狀病毒病疫情，義務工作發展局推出「耆青連心樂融融計劃」，旨在改善長者的身心健康。計劃招募義工探訪長者住戶，提供關懷和支持。計劃的其中一部分，由機電署員工康樂會與香港大學護理學院合作，在深水埗進行探訪和調查。探訪期間，義工與長者互動，在情感上給予支持和慰問，並協助大學生調查員進行問卷調查，評估長者的身心健康。

In response to the Coronavirus Disease 2019 epidemic, the Agency for Volunteer Service launched the "Generations Connect" project to improve the physical and mental wellbeing of the elderly. The project recruited volunteers to visit elderly residents in their homes, providing care and support. As part of this initiative, the EMSD Staff Club collaborated with the University of Hong Kong School of Nursing to conduct visits and surveys in Sham Shui Po. During these visits, volunteers engaged with the elderly, offering emotional support and condolences, and assisted student investigators from the university in administering questionnaires to assess physical and mental health of the elderly.

與社企協作 Collaboration with Social Enterprise

員工康樂會與營康薈協作，在總部員工餐廳設立展覽攤位，銷售有機健康產品和康復用品。活動反應熱烈，獲得眾多同事支持，推動殘疾人士就業。

The Staff Club hosted with Live Smart an exhibition booth at the headquarters' staff canteen, featuring the sale of organic health products and rehabilitation supplies. The event received positive responses, with many colleagues participating and supporting employment opportunities for individuals with disabilities.

社會公益行動 Social Good Action

員工康樂會的義工服務小組舉辦圍巾編織班，教導同事編織技巧，為有需要的人士編織保暖衣物。我們在一個月內收集了超過100條圍巾，捐贈給屯門仁愛堂吳偉光紀念長者日間護理中心。圍巾剛巧在發出寒冷天氣警告之際贈送給長者，義工團隊還探訪他們，給予溫暖的祝福。

The Staff Club's volunteer service team organised a scarf-weaving class to teach colleagues knitting skills, with the goal of creating warm clothing for those in need. Over 100 scarves were collected in a month and donated to the Yan Oi Tong Ng Wai Kwong Memorial Day Care Centre for the Elderly in Tuen Mun. The scarves were presented to the elderly, coinciding with the issuance of a cold weather warning. The volunteer team also visited the elderly, shared warm wishes with them.

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI | CONTENT INDEX ESSENTIALS SERVICE 2024

機電工程署根據全球報告倡議組織標準編製本報告，匯報期為2023年4月1日至2024年3月31日期間的內容。全球報告倡議組織透過「內容索引 – 必要服務」確認本報告已按符合其標準的方式清晰表述內容索引，並且索引中的信息清晰可見，便於持份者查閱。

Electrical and Mechanical Services Department (EMSD) has reported in accordance with the GRI Standards for the period from 1 April 2023 to 31 March 2024. For the Content Index – Essentials Service, GRI Services reviewed that the GRI content index has been presented in a way consistent with the requirements for reporting in accordance with the GRI Standards, and that the information in the index is clearly presented and accessible to the stakeholders.

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
GRI 1: 基礎 2021 GRI 1: Foundation 2021					
GRI 2: 一般披露 2021 GRI 2: General Disclosures 2021	**2-1**	組織詳細資訊 Organisational details	部門簡介及架構 Organisational Profile and Structure	封面內頁 Inner Page of Cover	✓
			關於本報告 About this Report	P.168-171	
	2-2	機構可持續報導包含的單位 Entities included in the organisation's sustainability reporting	關於本報告 About this Report	P.168-171	✓
	2-3	匯報期、頻率及聯絡點 Reporting period, frequency and contact point	關於本報告 About this Report	P.168-171	✓
	2-4	重整信息 Restatements of information	本年度報告中沒有歷史數據或信息需要重申 There is no historical data or information to restate in this year's report.		✓
	2-5	外部認證 External assurance	關於本報告 About this Report	P.168-171	✓
			獨立保證意見聲明書 Independent Assurance Opinion Statement	P.232-235	
	2-6	業務活動、價值鏈和其他業務關係 Activities, value chain and other business relationships	部門簡介及架構 Organisational Profile and Structure	封面內頁 Inner Page of Cover	✓
			可持續發展管理方針 Sustainability Management Approach	P.174-183	
	2-7	僱員 Employees	統計資料摘要 Summary of Statistics	P.224-231	✓
	2-8	僱員以外的工作者 Workers who are not employees	統計資料摘要 Summary of Statistics 在本報告年度，並無聘用兼職員工。 During this reporting year, there were no part-time employees recorded.	P.224-231	✓
	2-9	管治架構及組成 Governance structure and composition	我們的管理層 Our Management 我們的管治架構及組成載於本署網站： https://www.emsd.gov.hk/tc/about_us/our_organisation/ Our governance structure and composition are listed on our website at: https://www.emsd.gov.hk/en/about_us/our_organisation/	P.12-13 P.16-17 P.110-113	✓
	2-10	最高治理單位的提名與遴選 Nomination and selection of the highest governance body	可持續發展管理方針 Sustainability Management Approach 機電署的最高治理單位為部門的高級管理層，作為香港特別行政區的政府部門，機電署秉持香港特別行政區公務員事務局的規例與法規。 The EMSD is a government department of the HKSAR, and its senior management serves as the highest governance body of the department, adhering to the rules and regulations established by the Civil Service Bureau (CSB) of the HKSAR.	P.174-183	✓
	2-11	最高治理單位的主席 Chair of the highest governance body	我們的管理層 Our Management	P.12-13 P.16-17 P.110-113	✓
			可持續發展管理方針 Sustainability Management Approach 我們的高層管理人員載於： https://www.emsd.gov.hk/tc/about_us/our_organisation/ Our senior management is listed on our website at: https://www.emsd.gov.hk/en/about_us/our_organisation/	P.174-183	
	2-12	最高治理單位於監督影響管理的角色 Role of the highest governance body in overseeing the management of impacts	可持續發展管理方針 Sustainability Management Approach 高級管理層負責監督內部營運及推行可持續策略和政策。 Senior management oversees the internal operations and implementation of sustainability strategies and policies.	P.174-183	✓
	2-13	為管理影響的責任授權 Delegation of responsibility for managing impacts	可持續發展管理方針 Sustainability Management Approach 品質、環境及生產力策導委員會，職業安全健康策導委員會及環保管理委員會定期向高級管理層就管理機電署對環境、職業安全和研究發展進行匯報。 The Quality, Environmental & Productivity Steering Committee, the Steering Committee on Occupational Safety and Health and the Green Management Committee report to the senior management on the management of the EMSD's impacts on environment, occupational safety and research development regularly.	P.174-183	✓

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	2-14	最高治理單位於可持續報告的角色 Role of the highest governance body in sustainability reporting	關於本報告 About this Report 可持續發展管理方針 Sustainability Management Approach 機電署高級管理層負責檢視及審核社會及環保報告的信息。 The senior management of the EMSD is responsible for reviewing and approving the information in Social and Environmental Reports.	P.168-171 P.174-183	✓
	2-15	利益衝突 Conflicts of interest	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
	2-16	溝通關鍵重大事件 Communication of critical concerns	關於本報告 About this Report	P.168-171	✓
	2-17	最高治理單位的集體知識 Collective knowledge of the highest governance body	品質、環境及生產力策導委員會及環保管理委員會由包括高級管理層在內的員工參與，帶領關於可持續發展的措施，同時發放及記錄有關的集體知識。 The Quality, Environmental & Productivity Steering Committee and Green Management Committee led the sustainability related activities of EMSD with participation of senior management staff where collective knowledge is shared and recorded.		✓
	2-18	最高治理單位的績效評估 Evaluation of the performance of the highest governance body	可持續發展管理方針 Sustainability Management Approach 作為政府部門的機電工程署，工作表現管理制度詳情載於： https://www.csb.gov.hk/tc_chi/admin/pm/173.html EMSD acts as a government department and the details of performance management system are listed on the website at: https://www.csb.gov.hk/english/admin/pm/173.html	P.174-183	✓
	2-19	薪酬政策 Remuneration policies	可持續發展管理方針 Sustainability Management Approach 作為政府部門的機電工程署，薪酬政策調整載於：https://www.csb.gov.hk/tc_chi/admin/pay/38.html EMSD acts as a government department and the pay policy is listed on the website at: https://www.csb.gov.hk/english/admin/pay/38.html	P.174-183	✓
	2-20	薪酬決定流程 Process to determine remuneration	可持續發展管理方針 Sustainability Management Approach 作為政府部門的機電工程署，年度薪酬調整載於：https://www.csb.gov.hk/tc_chi/admin/pay/55.html EMSD acts as a government department and the annual pay adjustment mechanism is listed on the website at: https://www.csb.gov.hk/english/admin/pay/55.html	P.174-183	✓
	2-21	年度總薪酬比率 Annual total compensation ratio	可持續發展管理方針 Sustainability Management Approach 作為政府部門的機電工程署，總薪級表載於：https://www.csb.gov.hk/tc_chi/admin/pay/42.html EMSD acts as a government department and the master pay scale is listed on the website at: https://www.csb.gov.hk/english/admin/pay/42.html	P.174-183	✓
	2-22	可持續發展策略的聲明 Statement on sustainable development strategy	署長的話 Message from the Director 規管業務服務概覽 — 服務回顧 Regulatory Services Achievements Overview – Operations Review 機電工程營運基金報告 — 業務回顧與前瞻 EMSTF Report – Operations Review and Outlook 可持續發展管理方針 Sustainability Management Approach	P.2-11 P.18-25 P.114-119 P.174-183	✓
	2-23	政策承諾 Policy commitments	可持續發展管理方針 Sustainability Management Approach 環境可持續發展成效 Environmental Sustainability Performance 社會可持續發展成效 Social Sustainability Performance 我們的企業政策載於： https://www.emsd.gov.hk/tc/about_us/corporate_policies/index.html Our corporate policies are shown on our website at: https://www.emsd.gov.hk/en/about_us/corporate_policies/index.html	P.174-183 P.184-191 P.192-207	✓
	2-24	融合政策承諾 Embedding policy commitments	可持續發展管理方針 Sustainability Management Approach 環境可持續發展成效 Environmental Sustainability Performance 社會可持續發展成效 Social Sustainability Performance	P.174-183 P.184-191 P.192-207	✓

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	2-25	補救負面影響的程序 Processes to remediate negative impacts	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
	2-26	尋求建議和提出疑慮的機制 Mechanisms for seeking advice and raising concerns	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
	2-27	遵守法律及法規 Compliance with laws and regulations	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
	2-28	機構參與的協會的會員資格 Membership associations	機電工程署屬於以下協會的成員： 1) 保障資料主任聯會 2) 歐洲標準委員會 3) 綠十字會 4) 香港職業安全衛生協會 5) 英國燃氣專業學會 6) 國際纜車監管機構會議 7) 國際鐵路安全議會 The EMSD holds membership in the following associations: 1) Data Protection Officers' Club 2) European Committee for Standardisation 3) Green Cross Group 4) Hong Kong Occupational Safety and Health Association 5) Institution of Gas Engineers and Managers 6) Internationale Tagung der Technischen Aufsichtsbehörden (International Meeting of Technical Authorities for Cableways) 7) International Railway Safety Council		✓
	2-29	持份者參與的方針 Approach to stakeholder engagement	關於本報告 About this Report	P.168-171	✓
			可持續發展管理方針 Sustainability Management Approach	P.174-183	
	2-30	集體談判協議 Collective bargaining agreements	共有 11 個機電工程署工會由員工以自願性質參與，另有九個員工協商委員會代表不同職系及職級的機電工程署員工就員工福利與部門溝通。全體的員工（100%）都受集體談判協議的保障。 There are 11 EMSD staff unions which can be joined on voluntary basis. There are also nine departmental consultative committees who are representatives of all grades and ranks of the EMSD staff to liaise with the Department for the wellbeing of the staff. All of our employees (100%) are covered by collective bargaining agreements.		✓

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
重要議題 Material Topics					
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-1**	重要議題決定的流程 Process to determine material topics	關於本報告 About this Report	P.168-171	✓
	3-2	重要議題清單 List of material topics	關於本報告 About this Report	P.168-171	✓
	經濟成效（財務表現） Economic Performance (Financial Performance)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
GRI 201: 經濟績效 2016 GRI 201: Economic Performance 2016	**201-1**	機構所產生及分配的直接經濟價值 Direct economic value generated and distributed	機電工程營運基金報告 EMSTF Report	P.108-165	✓
			機電工程營運基金報告 — 業務回顧與前瞻 EMSTF Report – Operations Review and Outlook	P.114-119	
	201-2	氣候變遷所產生的財務影響及其他風險與機會 Financial implications and other risks and opportunities due to climate change	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
	201-3	固定福利計劃義務與其他退休計劃 Defined benefit plan obligations and other retirement plans	作為政府部門的機電工程署，退休計劃載於：https://www.csb.gov.hk/tc_chi/admin/retirement/183.html As a government department, the retirement policy of the EMSD is listed on: https://www.csb.gov.hk/english/admin/retirement/183.html		✓
	201-4	取自政府之財務補助 Financial assistance received from government	作為政府部門，機電署不會像私人企業那樣獲得財政支持。我們的資金來源於政府的預算分配。 As a government department, EMSD does not receive financial assistance like private organisations; our funding comes from government budget allocations.		✓

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	間接經濟影響 Indirect Economic Impacts				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
GRI 203: 間接經濟影響 2016 GRI 203: Indirect Economic Impacts 2016	**203-1**	基礎設施投資與支援性服務 Infrastructure investments and services supported	規管服務業務概覽 — 服務回顧 Regulatory Services Achievements Overview – Operations Review	P.18-25	✓
			機電工程營運基金報告 — 業務回顧與前瞻 EMSTF Report – Operations Review and Outlook	P.114-119	
	203-2	重大間接經濟影響 Significant indirect economic impacts	規管服務業務概覽 — 服務回顧 Regulatory Services Achievements Overview – Operations Review	P.18-25	✓
			機電工程營運基金報告 — 業務回顧與前瞻 EMSTF Report – Operations Review and Outlook	P.114-119	
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
	採購實務（部門的採購政策） Procurement Practices (Departmental Procurement Practices)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
GRI 204: 採購實務 2016 GRI 204: Procurement Practices 2016	**204-1**	本地供應商採購的支出比例 Proportion of spending on local suppliers	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
	物料（物料使用） Materials (Use of Materials)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			環境可持續發展成效 Environmental Sustainability Performance	P.184-191	
GRI 301: 物料 2016 GRI 301: Materials 2016	**301-1**	所用物料的重量或體積 Materials used by weight or volume	統計資料摘要 Summary of Statistics	P.224-231	✓
	301-2	使用回收再利用的物料 Recycled input materials used	統計資料摘要 Summary of Statistics	P.224-231	✓
	301-3	回收產品及其包材 Reclaimed products and their packaging materials	不適用。機電署主要負責規管服務及工程方案，並不直接涉及產品的生產，銷售或包裝。 Not applicable. EMSD primarily focuses on regulatory service and engineering solutions and does not directly engage in the production, sale or packaging of products.		✓

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	能源（節約能源） Energy (Energy Conservation)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			環境可持續發展成效 Environmental Sustainability Performance	P.184-191	
GRI 302: 能源 2016 GRI 302: Energy 2016	**302-1**	機構內部的能源消耗量 Energy consumption within the organisation	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	302-2	機構外部的能源消耗量 Energy consumption outside of the organisation	不適用。作為政府部門，機電署擔任機電安全的監管機構以及工程方案的提供者，我們的能源消耗僅限於機構內部。 Not applicable. As a government department, EMSD serves as a regulatory authority for electrical and mechanical safety and a provider of engineering solutions, our energy consumption is confined to within the organisation.		✓
	302-3	能源強度 Energy intensity	統計資料摘要 Summary of Statistics	P.224-231	✓
	302-4	減少能源的消耗 Reduction of energy consumption	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
	302-5	降低產品和服務的能源需求 Reductions in energy requirements of products and services	不適用。作為政府部門，機電署支援香港政府的各類政策和活動，包括推廣能源效益，但我們並不直接參與產品或服務的銷售。 Not applicable. As a government department, EMSD is tasked with supporting government initiatives in Hong Kong, including promoting energy efficiency; however, we do not engage directly in the sales of products or services.		✓

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	水與污水(節約用水，污水處理) Water and Effluents (Water Conservation, Effluents Treatment)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			環境可持續發展成效 Environmental Sustainability Performance	P.184-191	
GRI 303: 水資源與污水 2018 GRI 303: Water and Effluents 2018	**303-1**	共享水資源之相互影響 Interactions with water as a shared resource	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
	303-2	管理與排水相關的影響 Management of water discharge-related impacts	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
	303-3	取水量 Water withdrawal	機電工程署的用水主要來自水務署管理的供水來源。按來源細分用水量的披露方法，例如地表水、地下水等，並不適用。 The water consumed by the EMSD's operations comes from the sources managed by Water Supplies Department. Disclosure on the breakdown of water withdrawn by source, e.g. surface water, groundwater, etc. is considered to be not applicable.		✓
	303-4	排水量 Water discharge	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
			各項目排放的水均輸往所在城市的市立廢水系統。 100% of water discharged from our operations was transported to municipal wastewater systems in the cities where we operate.		
	303-5	耗水量 Water consumption	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
			香港沒有特定地區遭受缺水威脅。 No specific regions are water-stressed in Hong Kong.		

12 RESPONSIBLE CONSUMPTION AND PRODUCTION
負責任消費和生產

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	生物多樣性(生態保育) Biodiversity (Ecological Conservation)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
GRI 304: 生物多樣性 2016 GRI 304: Biodiversity 2016	**304-1**	機構所擁有、租賃、管理的營運地點或其鄰近地區位於環境保護區或區外的具有重要生物多樣性價值的地區或其毗鄰地區 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	機構所擁有、租賃、管理的營運地點均不在環境保護區或區外的具有重要生物多樣性價值的地區或其毗鄰地區。 No operation sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.		✓
	304-2	業務活動、產品及服務，對生物多樣性方面的顯著影響 Significant impacts of activities, products and services on biodiversity	不適用。作為政府部門，機電署擔任機電安全的監管機構以及工程解決方案的提供者，我們的業務活動、產品和服務對生物多樣性的影響並不顯著。 Not applicable. As a government department, the EMSD serves as a regulatory authority for electrical and mechanical safety and a provider of engineering solutions. The impact of our activities, products and services on biodiversity is considered insignificant.		✓
	304-3	受保護或復育的棲息地 Habitats protected or restored	不適用。作為政府部門，機電署擔任機電安全的監管機構以及工程解決方案的提供者，我們不直接參與保護或復育的棲息地工作。 Not applicable. As a government department, the EMSD serves as a regulatory authority for electrical and mechanical safety and a provider of engineering solutions. We do not directly engage in the protection or restoration of habitats.		✓
	304-4	受營運影響的棲息地中，已被列入IUCN紅色名錄及國家保育名錄的物種 IUCN Red List species and national conservation list species with habitats in areas affected by operations	不適用。作為政府部門，機電署擔任機電安全的監管機構以及工程解決方案的提供者，我們的運作對瀕危物種的影響並不顯著。 Not applicable. As a government department, the EMSD serves as a regulatory authority for electrical and mechanical safety and a provider of engineering solutions. The impact of our operation on endangered species is considered insignificant.		✓

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	排放物（廢氣控制） Emissions (Emissions Control)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	3-3	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			環境可持續發展成效 Environmental Sustainability Performance	P.184-191	
GRI 305: 排放 2016 GRI 305: Emissions 2016	305-1	直接溫室氣體排放（範圍一） Direct GHG emissions (Scope 1)	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	305-2	能源間接溫室氣體排放（範圍二） Energy indirect GHG emissions (Scope 2)	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	305-3	其它間接溫室氣體排放（範圍三） Other indirect GHG emissions (Scope 3)	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	305-4	溫室氣體排放強度 GHG emissions intensity	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	305-5	溫室氣體減排量 Reduction of GHG emissions	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	305-6	臭氧層破壞物質的排放 Emissions of ozone-depleting substances (ODS)	匯報年度中記錄的製冷劑不屬於臭氧層破壞物質。 The recorded refrigerants during the reporting year are not ODS.		✓
	305-7	氮氧化物、硫氧化物及其他重大的氣體排放 Nitrogen Oxides (NOx), Sulfur Oxides (SOx) and other significant air emissions	統計資料摘要 Summary of Statistics	P.224-231	✓

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	廢棄物（廢物處理） Waste (Waste Treatment)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	3-3	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			環境可持續發展成效 Environmental Sustainability Performance	P.184-191	
GRI 306: 廢棄物 2020 GRI 306: Waste 2020	306-1	廢棄物的產生與廢棄物相關的重大影響 Waste generation and significant waste-related impacts	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
	306-2	廢棄物相關的重大影響管理 Management of significant waste-related impacts	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
	306-3	產生的廢棄物 Waste generated	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	306-4	廢棄物的處置移轉 Waste diverted from disposal	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	306-5	廢棄物的直接處置 Waste directed to disposal	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	供應商環境評估（評估供應商/承辦商的環境表現） Supplier Environmental Assessment (Supplier/Contractor Environmental Assessment)				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	3-3	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
GRI 308: 供應商環境評估 2016 GRI 308: Supplier Environmental Assessment 2016	308-1	按照環境準則篩選的新供應商 New suppliers that were screened using environmental criteria	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓
	308-2	供應鏈對環境的負面影響，以及所採取的行動 Negative environmental impacts in the supply chain and actions taken	環境可持續發展成效 Environmental Sustainability Performance	P.184-191	✓

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	僱傭關係(員工政策及統計數據) **Employment (Employment Policy and Statistics)**				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
GRI 401: 僱傭關係 2016 GRI 401: Employment 2016	**401-1**	新入職員工及員工離職率 New employee hires and employee turnover	統計資料摘要 Summary of Statistics	P.224-231	✓
	401-2	提供給全職員工(不包含臨時或兼職員工)的福利 Benefits provided to full-time employees that are not provided to temporary or part-time employees	社會可持續發展成效 Social Sustainability Performance	P.197-207	✓
	401-3	育嬰假 Parental leave	統計資料摘要 Summary of Statistics	P.224-231	✓
	職業健康與安全 **Occupational Health and Safety**				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
GRI 403: 職業健康與安全 2018 GRI 403: Occupational Health and Safety 2018	**403-1**	職業健康與安全管理體系 Occupational health and safety management system	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	403-2	危險辨識、風險管理及事故調查 Hazard identification, risk management and incident investigation	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	403-3	職業健康服務 Occupational health services	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	403-4	有關職業健康及安全之工作者參與、諮詢與溝通 Worker participation, consultation and communication on occupational health and safety	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	403-5	有關職業健康及安全之工作者培訓 Worker training on occupational health and safety	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	403-6	促進工作者健康 Promotion of worker health	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	403-7	預防和減緩與業務關係直接相關之職業健康及安全的影響 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	403-8	職業健康安全管理系統所涵蓋之工作者 Workers covered by an occupational health and safety management system	職業健康及安全管理是機電署綜合管理系統的有機組成部分，有效確保員工和承辦商的作業健康與安全。其中機電工程營運基金已獲得 ISO 45001:2018 認證。 Occupational health and safety management is part of the EMSD's Integrated Management System, ensuring the workplace health and safety for our staff and contractors. In particular, EMSTF has been certified with ISO 45001:2018.		✓
	403-9	工傷 Work-related injuries	統計資料摘要 Summary of Statistics	P.224-231	✓
	403-10	職業病 Work-related ill health	統計資料摘要 Summary of Statistics	P.224-231	✓
	培訓與教育(員工培訓及發展) **Training and Education (Employee Training and Education)**				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
GRI 404: 培訓與教育 2016 GRI 404: Training and Education 2016	**404-1**	每名員工每年接受培訓的平均小時數 Average hours of training per year per employee	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
			統計資料摘要 Summary of Statistics	P.224-231	
	404-2	提升員工職能及過渡協助方案 Programmes for upgrading employee skills and transition assistance programmes	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	404-3	定期接受成效及職業發展評估的員工百分比 Percentage of employees receiving regular performance and career development reviews	報告期內，100% 的機電署員工接受工作表現評估及培訓需要評估。 100% of the EMSD's employees received performance review as well as evaluation on training needs during the reporting period.		✓

全球報告倡議組織內容索引
GRI CONTENT INDEX

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	多元化與平等機會 **Diversity and Equal Opportunity**				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
GRI 405: 多元化與平等機會 2016 GRI 405: Diversity and Equal Opportunity 2016	**405-1**	管治機構及員工多樣性 Diversity of governance bodies and employees	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓
	405-2	女性對男性基本薪資加薪酬的比率 Ratio of basic salary and remuneration of women to men	釐定公務員薪酬的政策和安排並不涉及任何性別因素的考慮，並且完全遵守《性別歧視條例》現有框架下對同值同酬的要求。女性對男性基本薪資加薪酬的比率為 1：1。 The policy and practice for the determination of civil service pay is gender neutral by design and is in full compliance with the requirements for equal pay for work of equal value under the existing framework as provided for under the Sex Discrimination Ordinance. Ratio of basic salary and remuneration of women to men is 1:1.		✓
	反歧視（非重要議題） **Non-discrimination (Not Material Topic)**				
GRI 406: 反歧視 2016 GRI 406: Non-discrimination 2016	**406-1**	歧視事件及組織採取的改善行動 Incidents of discrimination and corrective actions taken	社會可持續發展成效 Social Sustainability Performance		✓
	強迫或強制勞動（防止強迫或強制勞動） **Forced or Compulsory Labour (Prevent Forced or Compulsory Labour)**				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
GRI 409: 強迫或強制勞動 2016 GRI 409: Forced or Compulsory Labour 2016	**409-1**	具強迫或強制勞動事件重大風險的營運據點和供應商 Operations and suppliers at significant risk for incidents of forced or compulsory labour	社會可持續發展成效 Social Sustainability Performance	P.192-207	✓

GRI 標準 GRI Standards	披露 Disclosure		參照/直接解釋 Reference/Direct Answer	頁數 Page No.	外部認證 External Assurance
	顧客健康與安全 **Customer Health and Safety**				
GRI 3: 重要議題 2021 GRI 3: Material Topics 2021	**3-3**	重要議題的管理 Management of material topics	可持續發展管理方針 Sustainability Management Approach	P.174-183	✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
GRI 416: 顧客健康與安全 2016 GRI 416: Customer Health and Safety 2016	**416-1**	評估產品和服務類別對健康和安全的衝擊 Assessment of the health and safety impacts of product and service categories	機電工程署是規管香港電力、氣體及機械設備的機構。我們的主要任務，是透過全面推行規管機電及氣體設備的架構和制度，保障公眾安全，並與社會各界緊密合作。我們的服務承諾及服務表現可見於：https://www.emsd.gov.hk/tc/about_us/performance_pledges_pledge_performance/index.html EMSD is the regulatory agency for the electrical, gas and mechanical systems used in Hong Kong. Our main responsibility is to safeguard public safety through implementation of a set of comprehensive regulatory frameworks and systems on electrical, mechanical and gas applications. Detail of our Performance Pledges & Pledge Performance are listed on: https://www.emsd.gov.hk/en/about_us/performance_pledges_pledge_performance/index.html		✓
			社會可持續發展成效 Social Sustainability Performance	P.192-207	
	416-2	違反有關產品與服務的健康和安全法規之事件 Incidents of non-compliance concerning the health and safety impacts of products and services	統計資料摘要 Summary of Statistics	P.224-231	✓

統計資料摘要
SUMMARY OF STATISTICS

環境
Environment

		單位 Unit	2021/22	2022/23	2023/24
能源 Energy					
柴油 Diesel		千兆焦耳[12]（GJ）[12]（升L）	4 909（136 360）	4 713（130 909）	6 240（173 320）
汽油 Gasoline		千兆焦耳[12]（GJ）[12]（升L）	8 540（258 801）	8 363（253 420）	7 402（224 295）
太陽能發電系統所生產的可再生電力[13] Renewable electricity generated from solar photovoltaic system[13]		千兆焦耳[12]（GJ）[12]（千瓦小時 kWh）	630（174 933）	516（143 285）	508（141 108）
購買電力使用總量[14] Total purchased electricity consumption[14]		千兆焦耳[12]（GJ）[12]（'000千瓦小時 '000 kWh）	141 947（39 430）	148 109（41 141）	175 129（48 647）
購買電力使用強度 Purchased electricity consumption intensity		千瓦小時/員工 kWh/employee	6 656	7 048	8 255
水 Water					
水 Water		立方米 m^3	14 703	14 983	22 714
溫室氣體排放[15] GHG Emissions[15]					
直接排放（範圍一） Direct emissions (Scope 1)	燃油 Fuel	公噸二氧化碳當量 tCO_2e	1 062	1 047	1 085
	製冷劑 Refrigerant	公噸二氧化碳當量 tCO_2e	593	1 526	3.54
	乙炔[16] Acetylene[16]	公噸二氧化碳當量 tCO_2e	0	0.05	0.004
能源間接排放（範圍二）[17] Energy indirect emissions (Scope 2)[17]		公噸二氧化碳當量 tCO_2e	15 518	14 863	16 768
其他間接排放（範圍三） Other indirect emissions (Scope 3)		公噸二氧化碳當量 tCO_2e	29[18]	305[19]	308
總排放量[17] Total emissions[17]		公噸二氧化碳當量 tCO_2e	17 202	17 741	18 164

[12] 系數的單位統一換算成千兆焦耳：柴油（0.036千兆焦耳/升）、汽油（0.033千兆焦耳/升）、電力（0.0036千兆焦/千瓦小時）。
Conversion factors used to standardise the units to gigajoules (GJ): diesel (0.036GJ/L), gasoline (0.033GJ/L), electricity (0.0036GJ/kWh).

[13] 產生的可再生電力，只供內部使用。
The generated renewable electricity is for internal use only.

[14] 購買電力使用總量包括中電、港燈和區域供冷系統產生的電力。
The total purchased electricity consumption included the electricity generated from CLP Power Hong Kong Limited, HK Electric, and District Cooling System (DCS).

[15] 參考《香港建築物（商業、住宅或公共用途）的溫室氣體排放及減除的審計和報告指引》（由環境保護署及機電工程署發布），溫室氣體包括二氧化碳、甲烷、氧化亞氮及氫氟碳化物。
Made reference to the Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings of Commercial, Residential or Institutional Purposes in Hong Kong (by Environmental Protection Department and the EMSD), GHG types include CO_2, CH_4, N_2O and HFCs.

[16] 參考《香港中小企業碳審計工具箱》（由香港大學及香港城市大學發布）。
Made reference to the Carbon Audit Toolkit for Small and Medium Enterprises in Hong Kong (by The University of Hong Kong and City University of Hong Kong).

[17] 排放量不包括由區域供冷系統產生的電力。
The electricity generated from DCS is not included in the emission.

[18] 棄置到堆填區的廢紙和公務旅行已納入2021/22年度的範圍三排放數據計算中，然而由於2019冠狀病毒病的情況下，2021/22年度沒有公務旅行的排放數據記錄。
It included paper waste disposal and business travelling in 2021/22. There was no overseas travelling recorded in 2021/22, due to the COVID-19 epidemic.

[19] 數據包括處置廢紙、公務旅行、處理食水和污水時耗用的電力。
It included waste paper disposal, business travelling, electricity used for fresh water and sewage processing.

	單位 Unit	2021/22	2022/23	2023/24
物料 Material				
不可再生材料 Non-renewable materials				
油漆及溶劑 Paint & solvent	升 L	30	6	728
潤滑油 Lubrication oil	升 L	2 546	2 395	2 895
油脂 Grease	公斤 kg	22	20	26
工業用氣體 Industrial gas	立方米 m^3	0	44	3
蓄電池電解液 Battery electrolyte	升 L	0	0	7
原子車胎 Tubeless tyre	條 No.	232	312	187
外車胎 Outer cover tyre	條 No.	0	0	0
車胎內膽 Inner tube	條 No.	0	0	0
可再生材料 Renewable materials				
紙張[20] Paper[20]	令 ream	28 826	28 380	26 950

[20] 機電署購買和使用再造紙張。
At the EMSD, we purchase and consume paper with recycled content.

統計資料摘要
SUMMARY OF STATISTICS

	單位 Unit	2021/22 妥善棄置 Properly Disposed	2021/22 由承辦商處理 Handled by Contractors	2022/23 妥善棄置 Properly Disposed	2022/23 由承辦商處理 Handled by Contractors	2023/24 妥善棄置 Properly Disposed	2023/24 由承辦商處理 Handled by Contractors
污水及廢物 Effluents and Waste							
無害廢物[21] Non-hazardous waste[21]							
廢紙 Waste paper	公斤 kg	3 178	36 039	2 284	26 123	1 572	27 387
鋁罐及金屬罐 Aluminium and metal cans	個 No.	0	10 625	0	11 625	0	11 501
膠樽 Plastic bottles	個 No.	0	5 313	0	6 092	0	5 901
即棄電池 Disposable batteries	公斤 kg	59	94	26	55	22	85
金屬廢料 Metal scraps	公斤 kg	21 340	1 550	33 957	0	40 100	0
有害廢物[22] Hazardous waste[22]							
可充電電池 Rechargeable batteries	公斤 kg	-	447	-	428	-	776
廢油（潤滑油） Waste oil (Lubrication oil)	升 L	-	2 391	-	2 357	-	4 703
舊車胎 Used vehicle tyres	條 No.	-	232	-	312	-	183
舊光管/含水銀照明燈 Spent fluorescent / mercury lamps	盞 No.	-	1 847	-	3 947	-	2 964

	單位 Unit	2021/22	2022/23	2023/24
車輛的排放[23] Emissions from Vehicles[23]				
氮氧化物 Nitrogen Oxides (NOx)	克 g	2 897 743	3 215 632	3 246 502
硫氧化物 Sulfur Oxides (SOx)	克 g	4 523	5 825	6 083
顆粒物 Particulate Matter (PM)	克 g	214 162	238 300	248 738

[21] 廢物處置方法根據本地政府要求處理。產生的無害廢物由合資格承辦商收集以作回收或妥善棄置。
Disposal method determined based on compliance with local government requirements. Non-hazardous waste is collected through licensed contractors for recycling or disposal to the landfills.

[22] 廢物處置方法根據本地政府要求處理。產生的有害廢物由合資格承辦商收集以作回收或妥善棄置。可充電電池、廢油（潤滑油）、舊車胎及舊光管/含水銀照明燈沒有棄置量數據記錄。
Disposal method determined based on compliance with local government requirements. Hazardous waste is collected by licensed contractors for recycling or disposal to the landfills. There were no data record keeping for disposal of rechargeable batteries, water oil (lubrication oil), used vehicle tyres and spent fluorescent/mercury lamps.

[23] 參考《如何編備環境、社會及管治報告 — 附錄二：環境關鍵績效指標匯報指引》（由香港交易所發布）的計算方法。
Made reference to the calculation method in the How to prepare an ESG Report - Appendix 2: Reporting Guidance on Environmental KPIs (by Hong Kong Exchanges and Clearing Limited).

社會
Social

僱員人數[24] Employees Statistics[24]

	截至2022年3月31日（百分比） As of 31 March 2022 (Percentage)	截至2023年3月31日（百分比） As of 31 March 2023 (Percentage)	截至2024年3月31日（百分比） As of 31 March 2024 (Percentage)
總人數 Total number	5 924	5 837	5 893
男女分佈 By gender			
男性 Male	5 210 (87.9%)	5 134 (88.0%)	5 182 (87.9%)
女性 Female	714 (12.1%)	703 (12.0%)	711 (12.1%)
合約類型分佈 By employment type			
常任制 Permanent			
男性 Male	3 540 (86.3%)	3 488 (86.4%)	3 547 (86.5%)
女性 Female	560 (13.7%)	551 (13.6%)	554 (13.5%)
合約制 Contract			
男性 Male	1 670 (91.6%)	1 646 (91.5%)	1 635 (91.2%)
女性 Female	154 (8.4%)	152 (8.5%)	157 (8.8%)
年齡分佈 By age group			
50歲或以上 Aged 50 or above	1 724 (29.1%)	1 695 (29.0%)	1 741 (29.5%)
30 – 49歲 Aged 30-49	2 774 (46.8%)	2 785 (47.7%)	2 802 (47.5%)
29歲或以下 Aged 29 or under	1 426 (24.1%)	1 357 (23.2%)	1 350 (22.9%)

2023/24新入職員工 2023/24 New Hires

	截至2022年3月31日（百分比） As of 31 March 2022 (Percentage)	截至2023年3月31日（百分比） As of 31 March 2023 (Percentage)	截至2024年3月31日（百分比） As of 31 March 2024 (Percentage)
總人數 Total number	552 （佔總員工9.3%） (9.3% of total employee)	444 （佔總員工7.6%） (7.6% of total employee)	570 （佔總員工9.8%） (9.8% of total employee)
年齡分佈 By age group			
50歲或以上 Aged 50 or above	80 (14.5%)	81 (18.2%)	76 (13.33%)
30 – 49歲 Aged 30-49	151 (27.4%)	88 (19.8%)	113 (19.82%)
29歲或以下 Aged 29 or under	321 (58.2%)	275 (61.9%)	381 (66.84%)
男女分佈 By gender			
男性 Male	486 (88.0%)	399 (89.9%)	508 (89.12%)
女性 Female	66 (12.0%)	45 (10.1%)	62 (10.88%)

[24] 機電署並無聘用任何非僱員的工人，所有員工均在香港執勤。
The EMSD does not employ workers who are not employees. All staff are based in Hong Kong.

統計資料摘要
SUMMARY OF STATISTICS

2023/24離職員工 2023/24 Turnover

	截至2022年3月31日（百分比） As of 31 March 2022 (Percentage)	截至2023年3月31日（百分比） As of 31 March 2023 (Percentage)	截至2024年3月31日（百分比） As of 31 March 2024 (Percentage)
總人數 Total number	527 （佔總員工8.9%） (8.9% of total employee)	514 （佔總員工8.8%） (8.8% of total employee)	384 （佔總員工6.5%） (6.5% of total employee)
年齡分佈 By age group			
50歲或以上 Aged 50 or above	244 (46.3%)	287 (55.8%)	198 (51.6%)
30 – 49歲 Aged 30-49	93 (17.6%)	71 (13.8%)	49 (12.8%)
29歲或以下 Aged 29 or under	190 (36.1%)	156 (30.4%)	137 (35.7%)
男女分佈 By gender			
男性 Male	481 (91.3%)	468 (91.1%)	346 (90.1%)
女性 Female	46 (8.7%)	46 (8.9%)	38 (9.9%)

管理層的結構 Composition of Senior Management

	截至2022年3月31日（百分比） As of 31 March 2022 (Percentage)	截至2023年3月31日（百分比） As of 31 March 2023 (Percentage)	截至2024年3月31日（百分比） As of 31 March 2024 (Percentage)
總管理層人數 Total number of senior management staff	186 （佔總員工3.1%） (3.1% of total employee)	191 （佔總員工3.3%） (3.3% of total employee)	207 （佔總員工3.5%） (3.5% of total employee)
年齡分佈 By age group			
50歲或以上 Aged 50 or above	115 (61.8%)	113 (59.2%)	123 (59.4%)
30 – 49歲 Aged 30-49	71 (38.2%)	78 (40.8%)	84 (40.6%)
29歲或以下 Aged 29 or under	0 (0%)	0 (0%)	0 (0%)
男女分佈 By gender			
男性 Male	162 (87.1%)	165 (86.4%)	175 (84.5%)
女性 Female	24 (12.9%)	26 (13.6%)	32 (15.5%)

職業健康及安全指標 Occupational Health and Safety Indicators

機電署員工 For EMSD employees		2021/22	2022/23	2023/24
死亡 Fatalities	數字 Number 比率 Rate	0 0	0 0	0 0
嚴重工傷[25] High-consequence work-related injuries[25]	數字 Number 比率 Rate（按每200 000工時計算） (number per 200 000 man-hours)	2 0.03	2 0.03	3 0.05
工傷[26] Recordable work-related injuries[26]	數字 Number 比率 Rate（按每200 000工時計算） (number per 200 000 man-hours)	22 0.37	15 0.26	22 0.37
工作小時 Number of hours worked	小時 Hour	11 978 096	11 697 712	11 967 020
職業病所造成的死亡數量 Number of fatalities as a result of work-related ill healt	數字 Number	0	0	0
可記錄之職業病的案件數量 Number of cases of recordable work-related ill health	數字 Number	0	0	0

機電署承辦商 For EMSD contractors		2021/22	2022/23	2023/24
死亡 Fatalities	數字 Number 比率 Rate	0 0	0 0	0 0
嚴重工傷[25] High-consequence work-related injuries[25]	數字 Number 比率 Rate（按每200 000工時計算） (number per 200 000 man-hours)	0 0	3 0.05	4 0.07
工傷[27] Recordable work-related injuries[27]	數字 Number 比率 Rate（按每200 000工時計算） (number per 200 000 man-hours)	13 0.26	12 0.22	13 0.22
工作小時 Number of hours worked	小時 Hour	9 979 456	11 001 611	11 940 117
職業病所造成的死亡數量 Number of fatalities as a result of work-related ill health	數字 Number	0	0	0
可記錄之職業病的案件數量 Number of cases of recordable work-related ill health	數字 Number	0	0	0

[25] 嚴重工傷（不包括死亡）指因工作而導致的損傷，從而使員工不能/不可/預計未能於六個月內回復傷前的健康狀態。
High-consequence work-related injuries (excluding fatalities) refer to work-related injury that results in an injury from which the worker cannot, does not, or is not expected to recover fully to pre-injury health status within six months.

[26] 報告涉及機電署人員工作時的任何意外，包括未導致給予受傷人員病假的意外。2023/24年度機電署員工工傷主要類型是滑倒、絆倒或在同一高度跌倒、撞到固定或靜止物體、高處墜下或受困於物件之內或物件之間
Any accident involving the EMSD personnel on duty reported, including those accidents which have not resulted in the granting of any sick leave to the injured person. Main types of work-related injury reported in 2023/24 for the EMSD employees were injured due to slip, trip or fall on the same level, striking against fixed or stationary object, fall of person from height, or trapped in or between objects.

[27] 2023/24年度機電署承辦商工傷主要類型是撞到固定或靜止物體、滑倒、絆倒或在同一高度跌倒，及受困於物件內或物件之間。
Main types of work-related injury reported in 2023/24 for the EMSD contractors were striking against fixed or stationary object, slip, trip or fall on the same level, or trapped in or between objects.

統計資料摘要
SUMMARY OF STATISTICS

培訓與教育 Training and Education

	單位 Unit	2021/22	2022/23	2023/24
平均受訓時數 Average training hours				
男女分佈 By gender				
男性 Male	小時 Hour	23.6	24.3	27.2
女性 Female	小時 Hour	25.6	28.8	29.8
職系分佈 By grade				
高級管理層[28] Senior management[28]	小時 Hour	25.2	26.4	30.7
一般員工[29] General staff[29]	小時 Hour	23.8	24.9	27.5

[28] 高級管理層指首長職系員工。
Senior management refers to directorate grade staff.
[29] 一般員工指技術職系、專業職系和行政及輔助職系員工。
General staff refers to technical, professional, administrative and support staff.

育嬰假 Parental Leave

	2021/22	2022/23	2023/24
享有育嬰假的員工總數 Total number of employees that were entitled to parental leave			
男女分佈 By gender			
男性 Male	4 845	5 134	5 182
女性 Female	660	703	711
實際使用育嬰假的員工總數 Total number of employees that took parental leave			
男女分佈 By gender			
男性 Male	103	88	65
女性 Female	23	22	15
休完育嬰假後，在匯報年度內復職的員工總數 Total number of employees that returned to work in the reporting period after parental leave ended			
男女分佈 By gender			
男性 Male	98	80	62
女性 Female	15	19	11
休完育嬰假且復職後12個月仍在職的員工總數 Total number of employees that returned to work after parental leave ended that were still employed 12 months after their return to work			
男女分佈 By gender			
男性 Male	92	78	61
女性 Female	15	18	11
復職率[30] Return to work rates[30]			
男女分佈 By gender			
男性 Male	95.1%	90.9%	95.40%
女性 Female	65.2%	86.4%	73.30%
留任率[31] Retention rates[31]			
男女分佈 By gender			
男性 Male	93.9%	97.5%	98.40%
女性 Female	100%	94.7%	100%

[30] 復職率是以育嬰假後實際復職的員工總數除以育嬰假後應該復職的員工總數再乘100%計算。
Return to work rate is calculated as the total number of employees who did return to work after parental leave divided by total number of employees due to return to work after taking parental leave, and then multiplied by 100%.
[31] 留任率是以育嬰假結束後且復職後12個月仍在職的員工總數除以上個報告期內育嬰假結束後復職的員工總數再乘100%計算。
Retention rate is calculated as the total number of employees retained 12 months after returning to work following a period of parental leave divided by total number of employees returning from parental leave in the prior reporting period(s), and then multiplied by 100%.

獨立保證意見聲明書
INDEPENDENT ASSURANCE OPINION STATEMENT

聲明書號碼：**SRA-HK-819790**

機電工程署
社會及環保報告 2023/24

英國標準協會與中華人民共和國香港特別行政區政府機電工程署(以下簡稱「機電署」)為相互獨立的公司及組織，英國標準協會除了針對機電署社會及環保報告 2023/24(以下簡稱「報告」)進行評估和核查外，與機電署並無任何財務上的關係。

本獨立保證意見聲明書的目的，僅作為對下列有關機電署社會及環保報告所界定範圍內的相關事項進行保證之結論，而不作為其他之用途。除對查證事實提出獨立保證意見聲明書外，對於關於其他目的之使用，或閱讀此獨立保證意見聲明書的任何人，英國標準協會並不負有或承擔任何有關法律或其他之責任。本獨立保證意見聲明書供機電署之持份者及管理人員使用。

本獨立保證意見聲明書是基於機電署提供予英國標準協會之相關資料審查所作成之結論，因此審查範圍乃基於並只限在這些提供的資料內容之內，英國標準協會認為這些資料內容都是完整且準確的。

對於這份獨立保證意見聲明書所載內容或相關事項之任何疑問，只能向機電署提出。

核查範圍
機電署與英國標準協會協議的核查範圍包括：

1. 整份報告及焦點放於系統與活動，包括機電署於2023年4月1日至2024年3月31日期間，於香港的規管服務及營運服務。報告符合全球報告倡議組織標準編制而成。

2. 第一類型中度保證等級評估機電署遵循四項報告原則：包容性、實質性、回應性及影響性的本質與程度，以及對報告中指定可持續發展的資料/數據作出評估。

意見聲明
我們可以總結，報告為機電署於本報告年度的可持續發展計劃與績效提供一個公允的觀點。我們相信報告內之經濟、社會及環境績效指標是被正確無誤地展現。報告所披露的成效指標展現了機電署為可持續發展所作出的努力，備受持份者的廣泛認同。

這次核查工作是由一組具有可持續發展報告核查能力之團隊執行。透過策劃和進行核查時所獲得的資料及說明，我們認為機電署就符合全球報告倡議組織標準之聲明，是屬公允的描述。

核查方法
為了收集能讓我們得出結論的證據，我們執行了以下工作：

- 對來自外部團體關於機電署政策的議題，進行高階審查，以確認本報告中聲明書的合適性
- 與機電署管理人員討論有關持份者參與的方式，然而，我們並無直接接觸外部持份者
- 訪問與可持續發展管理、報告編制及資料提供有關的員工
- 審查組織的主要發展內容
- 審查報告中所作宣告的支持性證據
- 審查報告的製作及管理流程是否按照包容性、實質性、回應性及影響性的原則進行

結論
我們對於包容性、實質性、回應性及影響性原則，及符合全球報告倡議組織標準的審查如下：

包容性
此報告反映機電署透過以下多種渠道作持份者參與，包括：客戶意見調查及訪問、報告重要議題調查、電話調查、會議、參觀機電署總部、客戶通訊、研討會及座談會、機電安全及節能社區推廣活動、社交媒體平台、公眾調查、合作項目、通訊、外展計劃、YouTube、傳媒聚會、就傳媒查詢回應及發表意見、員工滿意度調查、員工通訊、比賽及團隊建立活動、員工工會及員工協商委員會、高級管理層親善大使探訪、焦點討論小組、培訓課程、業界調查、工作小組等。

機電署日常運作包括不同的持份者參與方式。此報告包括持份者關注的經濟、社會及環境範疇，並以公允的水平披露。我們專業的意見認為，機電署遵循包容性原則。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

實質性
機電署發佈可持續發展資訊，讓持份者對機電署的管理及表現可作出有事實根據的判斷。我們專業的意見認為，報告遵循實質性原則，並透過合適的方法識別出機電署的實質範疇，以重要性矩陣展現出實質範疇。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

回應性
機電署實行措施以回應持份者的期望與意見，包括對內部及外部持份者的各種問卷及反饋機制。以我們專業的意見，機電署遵循回應性原則。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

影響性
機電署設立流程以定性及定量方式去了解、計量及評價其影響，讓機電署評估其影響及於報告內披露。以我們專業的意見，機電署遵循影響性原則。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

全球報告倡議組織標準
機電署向我們提供有關於已符合全球報告倡議組織標準的自我申報。從審查的結果，我們確定報告內之三個類別(環境、社會及經濟)的社會責任及可持續發展披露，是根據符合全球報告倡議組織標準披露。

以我們專業的意見認為，本報告包括機電署的社會責任及可持續發展事務。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

保證等級
我們提供的第一類型中度保證等級審查，是以本聲明書內之範圍及方法作定義。

責任
這份報告所展現的資料，是由機電署的高階管理層負責確保準確並無偏袒。我們的責任為基於所描述的範圍與方法，提供專業意見並提供持份者一個獨立的保證意見聲明書。

能力與獨立性
本核查團隊的組成包括主任驗證員，且富有經驗及接受過包括全球報告倡議組織(以下簡稱「GRI」)GRI G3、GRI G3.1、GRI G4、GRI標準、GRI認證的可持續發展專業人士、當責性原則、香港聯交所「環境、社會及管治報告指引」、聯合國全球契約十項原則、ISO 10002、ISO 14001、OHSAS 18001、ISO 45001及ISO 9001等之一系列可持續發展、環境及社會標準的訓練，具有主導擔保及核查員資格之成員組成。英國標準協會於1901年成立，是全球標準及驗證機構的領導者。本保證是依據英國標準協會公平交易準則執行。

For and on behalf of BSI:

Michael Lam
Senior Vice President, APAC Assurance

本報告驗證員

Aaron Chim
主任驗證員

獨立保證意見聲明書
INDEPENDENT ASSURANCE OPINION STATEMENT

Statement No.: **SRA-HK-819790**

Electrical and Mechanical Services Department
Social and Environmental Report 2023/24

The British Standards Institution is independent to the Electrical and Mechanical Services Department of the Government of the Hong Kong Special Administrative Region of the People's Republic of China (hereafter referred to as "EMSD" in this statement) and has no financial interest in the operation of the EMSD other than for the assessment and assurance of the EMSD Social and Environmental Report 2023/24 ("Report").

This independent assurance opinion statement has been prepared for the EMSD only for the purposes of assuring its statements relating to the Report, more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read. This statement is intended to be used by stakeholders & management of the EMSD.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by the EMSD. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to the EMSD only.

Scope
The scope of engagement agreed upon with the EMSD includes the following:

1. The assurance covers the whole Report, and focuses on systems and activities of the EMSD in Hong Kong, which include Regulatory Services and Trading Services during the period from 1 April 2023 to 31 March 2024. The Report is prepared in accordance with the GRI Sustainability Reporting Standards ("GRI Standards").

2. Type 1 Moderate Level of Assurance evaluates of the nature and extent of EMSD's adherence to four reporting principles, which include Inclusivity, Materiality, Responsiveness and Impact. The specified sustainability performance information/data disclosed in the Report has been evaluated.

Opinion Statement
We conclude that the Report provides a fair view of EMSD's sustainability programmes and performances in the reporting year. We believe that the economic, social and environmental performance indicators are fairly represented in the Report, in which EMSD's efforts being made to pursue sustainable development are widely recognised by its stakeholders.

Our work was carried out by a team of sustainability report assurors. We planned and performed this part of our work to obtain the necessary information and explanations. We considered the EMSD has provided sufficient evidence that EMSD's self-declaration of compliance with the GRI Standards were fairly stated.

Methodology
Our work was designed to gather evidence on which to base our conclusion. We have conducted the practices below:

- A top level review of issues raised by external parties that could be relevant to EMSD's policies to provide a check on the appropriateness of statements made in the Report
- Discussion with representative of senior executives on EMSD's approach to stakeholder engagement. We are here to declare that we do not have any contact with external stakeholders
- Interview with staff involved in sustainability management, report preparation and provision of report information
- Review of key organisational developments
- Review of supporting evidence for claims made in the Report
- Assessment of EMSD's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality, Responsiveness and Impact.

Conclusions
An in-depth review against the principles of Inclusivity, Materiality, Responsiveness and Impact, and in accordance with GRI Standards is set out below:

Inclusivity
The Report has reflected a fact that the EMSD is seeking the engagement of its stakeholders through numerous channels such as Customer Opinion Surveys and Interviews, Report Materiality Surveys, Telephone Surveys, Meetings, Visits to the EMSD Headquarters, Customer Newsletters, Symposiums and Seminars, Community-wide Promotion of E&M Safety and Energy Efficiency, Social Media Platforms, Public Surveys, Joint-projects, Newsletters, Outreach Programmes, YouTube, Media Gatherings, Feedback and Responses to Media Enquiries, Staff Satisfaction Surveys, Staff Newsletters, Competitions and Team-building activities, Staff Unions and Departmental Consultative Committees, Ambassador Visits by Senior Management, Focus Groups, Training Sessions, Trade Surveys, Working Groups, and more.

EMSD's operation involves various methods of engaging its stakeholders on daily basis. The Report covers economic, social and environmental aspects concerned by its stakeholder with a fair level of disclosures. In our professional opinion, the EMSD adheres to the principle of Inclusivity. Our view in area for enhancement to the Report was adopted by the EMSD before issue of this opinion statement.

Materiality
The EMSD publishes sustainability information that enables its stakeholders to make informed judgments about EMSD's management and performance. In our professional opinion, the Report adheres to the principle of Materiality and identifies EMSD's material aspects by using appropriate method of materiality analysis and demonstrating material issues in a matrix form. Area for enhancement to the Report was adopted by the EMSD before issue of this opinion statement.

Responsiveness
The EMSD has implemented practices to respond to the expectations and perceptions of its stakeholders. It includes various surveys and feedback mechanisms to both internal and external stakeholders. In our professional opinion, the EMSD adheres to the principle of Responsiveness. Area for enhancement to the Report was adopted by the EMSD before issue of this opinion statement.

Impact
The EMSD has established processes to understand, measure and evaluate its impacts in qualitative and quantitative way. These processes enable the EMSD to assess its impact and disclose them in the Report. In our professional opinion, the EMSD adheres to the principle of Impact. Areas for enhancement of the Report were adopted by the EMSD before the issue of this opinion statement.

GRI Standards Reporting
The EMSD provided us with their self-declaration of compliance in accordance with GRI Standards. Based on our verification review, we are able to confirm that social responsibility and sustainable development disclosures in all three categories (Environmental, Social and Economic) are reported in accordance with the GRI Standards.

In our professional opinion, the report covers EMSD's social responsibility and sustainability issues. Areas for enhancement of the Report were adopted by the EMSD before the issue of this opinion statement.

Assurance Level
The Type 1 Moderate Level of Assurance provided in our review is defined by the scope and methodology described in this statement.

Responsibility
It is the responsibility of EMSD's senior management to ensure the information being presented in the Report is accurate, without biases. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence
The assurance team was composed of Lead Assuror, who are experienced and trained in a range of sustainability, environmental and social standards including GRI G3, GRI G3.1, GRI G4, GRI Standards, GRI Certified Sustainability Professional, AA1000, HKEX ESG Guide, UNGC's Ten Principles, ISO 10002, ISO 14001, OHSAS 18001, ISO 45001 and ISO 9001, etc. British Standards Institution is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.

For and on behalf of BSI:

Michael Lam
Senior Vice President, APAC Assurance

Verifier of the Report

Aaron Chim
Lead Assuror

鳴謝
ACKNOWLEDGMENTS

在年報製作過程中，承蒙下列部門及機構提供協助，機電工程署特此鳴謝。
The EMSD would like to express its sincere thanks to the following departments and organisations for their support and co-operation in the course of preparing this annual report (list in alphabetical order).

漁農自然護理署	Agriculture, Fisheries and Conservation Department
土木工程拓展署	Civil Engineering and Development Department
鄉郊保育辦公室	Countryside Conservation Office
香港海關	Customs and Excise Department
衞生署	Department of Health
消防處	Fire Services Department
食物環境衞生署	Food and Environmental Hygiene Department
政府產業署	Government Property Agency
路政署	Highways Department
香港警務處	Hong Kong Police Force
醫院管理局	Hospital Authority
入境事務處	Immigration Department
九龍醫院	Kowloon Hospital
康樂及文化事務署	Leisure and Cultural Services Department
香港鐵路有限公司	MTR Corporation Limited
東區尤德夫人那打素醫院	Pamela Youde Nethersole Eastern Hospital
瑪嘉烈醫院	Princess Margaret Hospital
香港中華煤氣有限公司	The Hong Kong and China Gas Company Limited
運輸署	Transport Department
屯門醫院	Tuen Mun Hospital
市區重建局	Urban Renewal Authority

設計及製作：天域公關廣告有限公司
Design and Production: Phoenix Communications Limited

EMSD

機電工程署
香港九龍啟成街3號

Electrical and Mechanical Services Department
3 Kai Shing Street, Kowloon, Hong Kong

電話 Tel: (852) 1823　傳真 Fax: (852) 2890 7493
網址 Website: www.emsd.gov.hk
電郵 Email: info@emsd.gov.hk