

2022/23

報告 Report

機電工程營運基金  
Electrical and Mechanical Services Trading Fund

傳承創新 同心惠民  
Serving the Community with  
Heart and Innovation

機電工程署  
EMSD



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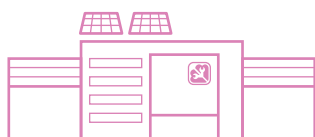
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## 抱負 VISION

## 使命 MISSION

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.

### 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

周紹喜太平紳士  
Mr Chau Siu-hei, Francis, JP

發展局副秘書長(工務)3  
Deputy Secretary for Development (Works) 3



彭耀雄太平紳士  
Mr Pang Yiu-hung, 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

機電工程署署理主任秘書  
Departmental Secretary (Acting), EMSD

\* 張遠芳太平紳士出任機電工程署副署長 / 營運服務至2022年11月27日  
Mr Cheung Yuen-fong, JP was Deputy Director/Trading Services, EMSD up to 27 November 2022



# 管理委員會 MANAGEMENT BOARD

## 01 主席 CHAIRMAN

彭耀雄太平紳士  
Mr Pang Yiu-hung, 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 陳嘉聰先生  
Mr Chan Ka-chung  
機電工程署助理署長 /1  
Assistant Director/1, EMSD

04 楊秀權先生  
Mr Yeung Sau-ken, 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 李慧儀女士  
Ms Lee Wai-yee  
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  
機電工程署署理主任秘書  
Departmental Secretary (Acting), 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

\* 張遠芳太平紳士出任機電工程署副署長 / 營運服務至2022年11月27日  
Mr Cheung Yuen-fong, JP was Deputy Director/Trading Services, EMSD up to 27 November 2022  
\* 黃偉光先生出任機電工程署助理署長 /2至2022年10月31日  
Mr Wong Wai-kwong was Assistant Director/2, EMSD up to 31 October 2022  
\* 馮子峯先生出任機電工程署助理署長 /2至2023年4月16日  
Mr Fung Chi-fung was Assistant Director/2, EMSD up to 16 April 2023  
\* 陳志偉太平紳士出任機電工程署助理署長 /3至2022年11月27日  
Mr Chan Chi-wai, Richard, JP was Assistant Director/3, EMSD up to 27 November 2022  
\* 朱雲楓先生出任管理委員會秘書至2022年11月27日  
Mr Chu Wan-fung, Ryan was the Secretary of Management Board up to 27 November 2022





## 總經理報告 GENERAL MANAGER'S REPORT



**彭耀雄太平紳士**  
**Mr Pang Yiu-hung, JP**

機電工程營運基金總經理  
General Manager, Electrical and  
Mechanical Services Trading Fund

機電工程營運基金(營運基金)在2022/23年度表現優秀。儘管面對眾多外圍挑戰，尤其在香港經歷過去三年2019冠狀病毒病疫情的嚴峻考驗，正致力全面復常之際，我們的同事秉持精益求精的精神，提供超越己任的高水準機電工程服務，績效卓著。

年內營運基金總收入達89.11億港元，升幅為2.2%，而收入回報率微跌至2.6%，蓋因我們採取向客戶部門提供額外增值服務，而非注重財務回報的營運策略。營運基金的努力獲得客戶肯定，在最新的客戶意見調查中，客戶滿意指數及整體服務競爭力指數的得分均創歷史新高。

The Electrical and Mechanical Services Trading Fund (EMSTF) delivered an impressive performance in 2022/23. Despite numerous external challenges, our colleagues demonstrated exceptional excellence by providing high-standard electrical and mechanical (E&M) services above and beyond the call of duty, especially as Hong Kong worked towards returning to full normality after enduring the adversity of the Coronavirus Disease 2019 (COVID-19) epidemic in the past three years.

The EMSTF achieved a total revenue of HK\$8,911 million in the year, representing an increase of 2.2%, while the return on revenue slightly decreased to 2.6% mainly owing to our operation strategy of delivering additional value-added services to our client departments instead of emphasising financial return. The EMSTF's efforts were recognised by our clients, as evidenced by the record high scores on Customer Satisfaction Index and Overall Service Competitiveness Index in the latest Customer Opinion Survey.

### 在四大範疇領導業界

作為政府的技術顧問及客戶部門的機電工程服務供應商，營運基金年內一直站在最前線，支援政府持續應對2019冠狀病毒病疫情所帶來的影響，為香港全面復常做好準備。同時間，我們積極應用創新科技(創科)精簡工作流程及提升機電工程服務；又加快香港邁向碳中和的進程；並拓展與內地及國際間的合作，提升機電和能源效益標準。

### 致力抗疫工作與復常準備

營運基金繼續全力以赴支援抗疫工作，尤其在我們的專業範疇盡展所長作出建樹，我們在確保通風良好方面的努力即為一例。我們的團隊為700多間安老及殘疾人士院舍和65間官立學校進行通風評估，確保這些場地符合相關要求。我們亦因應需要提供改善建議，更為學校進行通風改善工程。

### SHOWING LEADERSHIP IN FOUR AREAS

As the Government's technical advisor and the E&M service provider of client departments, the EMSTF remained at the forefront of supporting the Government's ongoing efforts in mitigating the impact of the COVID-19 epidemic and preparing the city for resumption of full normality during the year, while proactively adopting innovation and technology (I&T) to streamline workflow and facilitate E&M services, expediting Hong Kong's progress towards carbon neutrality, and expanding the Mainland and international collaborations to elevate E&M and energy efficiency standards.

### Undertaking Anti-epidemic Efforts and Preparations for Resumption of Normality

The EMSTF continued to devote commendable efforts to supporting anti-epidemic works, especially in areas where our technical expertise was most useful, such as ensuring good ventilation. Our teams conducted ventilation assessment for some 700 residential care homes for the elderly and persons with disabilities and 65 government schools to ensure compliance with relevant requirements. We also recommended improvements and even carried out ventilation enhancement works for schools where necessary.



## 總經理報告

### GENERAL MANAGER'S REPORT

#### 引領創科發展

營運基金在倡導創科新猷上擔當核心角色，這些新猷為內部運作、客戶部門以及機電行業帶來莫大裨益，並最終通過不同方式惠及普羅市民。舉例而言，我們於2022年11月引入升降機及自動梯數碼工作日誌系統。這個雲端平台簡化了承辦商、負責的人士和政府三方監控維修工作的流程，使我們在為客戶部門提供升降機及自動梯服務時更具競爭優勢。營運基金已為其維修保養的所有升降機及自動梯全面採用數碼工作日誌。

我們研發的另一項新猷，是在本署總部停車場試行的物聯網可用泊車位檢視系統。透過應用大數據分析停車場的動態使用率，我們發現可以發放更多泊車證而不會造成停車場超出負荷。在本署場地試行成功後，我們為香港警務處和康樂及文化事務署等客戶部門妥為引進該系統。

我們的創科項目在國際和本地屢獲表彰。我們在第48屆日內瓦國際發明展贏得23個獎項，又在2022年公務員優質服務獎勵計劃中榮獲13個獎項，包括「創新及科技獎(持份者協作)」金獎，以及「創新及科技獎(科技應用)」銀獎。

種種佳績激勵我們精益求精，讓創新的工作更上層樓。機電工程署(機電署)與政府部門、業界、學術界和研究機構的持份者攜手合作，成立機電人工智能實驗室，推動在機電設施應用大數據及人工智能方面的研究及發展。在我們採用或向客戶部門推廣的大部分創科方案中，人工智能均效用超著。重要的例子包括人工智能優化火化流程系統(又稱「智能火化」)、預測製冷機組製冷負荷的人工智能模型，以及為民航處總部製冷機組系統實施的人工智能能源優化方案。

誠如機電署75周年的主題「傳承創新 同心惠民」所言，我們致力向同事和業界傳授知識和經驗，使機電服務更臻卓越。本署同事積極參與內部活動，包括第三屆「Inno@E&M創新科技挑戰賽」、「國際建築機電人工智能大挑戰」，以及由工程及科技學會香港分會青年會員部主辦的青年科技專才展覽及比賽2022。此等署外活動，顯示我們致力實踐這個目標。

#### 推動碳中和

《香港氣候行動藍圖2050》確立了減碳的具體範疇，包括節能綠建、綠色運輸和全民減廢。營運基金一直為客戶部門提供綠色解決方案，在這些範疇作出積極貢獻。

#### Pioneering I&T Development

The EMSTF plays a central role in spearheading I&T initiatives that benefit our internal operation, client departments, as well as the E&M trade. These benefits ultimately filter down to the public in various ways. One example is the adoption of the Digital Log-books System for Lifts and Escalators since November 2022. This cloud-based platform streamlines the process of tripartite monitoring of maintenance work by the contractors, responsible persons and the Government, and gives us a competitive edge in providing lift and escalator services to client departments. The EMSTF has fully adopted the Digital Log-books for all the lifts and escalators it maintained.

Another initiative we undertook was the Internet of Things-based Car Park Availability System trialled at our headquarters car park. By applying big data analysis on the dynamic occupancy rate of the car park, we concluded that more parking permits could be issued without causing a car park overflow. After a successful trial at our facility, we duly introduced this system to client departments such as the Hong Kong Police Force and the Leisure and Cultural Services Department.

Our I&T projects have garnered international and local recognition. We bagged 23 awards at the 48th International Exhibition of Inventions of Geneva and won 13 awards in the Civil Service Outstanding Service Award Scheme 2022, including the Gold Prize in the Innovation and Technology Awards (Best Stakeholder Collaboration) and the Silver Prize in the Innovation and Technology Awards (Best Use of Technology).

These achievements have motivated us to take innovation to the next level. The Electrical and Mechanical Services Department (EMSD) established the E&M AI Lab in collaboration with stakeholders from the Government, industry, academia and research institutes to drive research and development in the application of big data and artificial intelligence (AI) for E&M facilities. We have witnessed the instrumental role of AI in a majority of I&T solutions we adopted or promoted to client departments. Notable examples include the AI Based Image Analytic and Control System for Cremation Process, also known as “i-Cremation”, the AI models for predicting the required cooling load of chiller plants, and the AI Energy Optimisation Solution for the chiller plant system of the Civil Aviation Department Headquarters.

Echoing the theme of our 75th anniversary, “Serving the Community with Heart and Innovation”, we are dedicated to passing on our knowledge and experience to colleagues and the trade to uphold E&M excellence. Our active participation in internal events, including the 3rd Inno@E&M Challenge and the Global AI Challenge for Building E&M Facilities, as well as external events such as the Young Professionals Exhibition and Competition 2022 organised by the Younger Members Section of the Institution of Engineering and Technology Hong Kong, demonstrated our commitment to this goal.

#### Driving Carbon Neutrality

Hong Kong's Climate Action Plan 2050 has identified specific areas regarding decarbonisation, including energy saving and green buildings, green transport and waste reduction. The EMSTF has been actively contributing to these areas by providing green solutions to client departments.

在節能綠建方面，我們致力運用人工智能優化空調系統和重新校驗建築物，以提高能源效益。未來我們會在能源管理和預測性維修方面，擴展人工智能和大數據分析的應用。

在綠色運輸方面，除了進行一系列電動車充電器安裝項目外，我們亦支援政府於2023年年底至2024年年初引入氫能重型車輛的計劃。我們正協助食物環境衛生署採購氫能洗街車，預計於明年年中交付。

為了減廢，我們持續提倡無紙化工作流程，以及推廣使用「顧客為本電子平台」以便記錄維修事宜和追蹤個案。

#### 拓展與內地及國際間的合作

營運基金一直積極推動大灣區內外的跨境合作，特別是我們正準備全面復常。我很高興看到隨着香港與內地恢復通關，我們與大灣區伙伴的面對面交流活動迅速重啟。在2023年，我們舉辦逾50項大灣區活動，即平均每周便有一項活動，而我們與大灣區的合作在三個範疇尤其穩固。

第一個重點領域是建立相互適用和認可的技術標準。在大灣區內擁有共同標準，對於促進機電從業人員、物流和作業方式的無縫暢順流動和轉移至關重要。我個人非常期盼建立一套適用於機電設施營運數據的大灣區標準，以便更容易跨境轉移人工智能技術。

另一個重要範疇是創科合作。我們舉辦多項活動和會議，例如粵港澳青年科創考察交流活動，該活動為參加者提供平台，就新材料技術與科技政策交流意見。

此外，在技術培訓方面，與內地合作令我們獲益良多。我們的見習技術員和資深技術員都透過內地技術培訓計劃，獲得寶貴的實務培訓。我們與大灣區的聯合訓練更成果甚豐，本署人員在兩年一度的世界技能大賽上取得驕人成績。該大賽評核參賽者的機電專業技能與知識，被譽為「技能界奧林匹克」。機電署兩名技術員在大賽中與來自20多個國家及地區的菁英選手競技，其中一名人員獲得總成績第五名，並奪得「空調製冷」項目優異獎章。我們會繼續為技術員和見習技術員提供寶貴的跨境技術培訓機會，例如電動車維修培訓。由於內地培訓機構掌握專有技術及擁有最新型號的電動車作培訓電動車技工之用，因此我們的技術員和見習技術員能從有關培訓中大大獲益。

Regarding energy saving and green buildings, we have been putting efforts in optimising air-conditioning systems and re-commissioning buildings by using AI to achieve higher energy efficiency. In the future, we will expand the application of AI and big data analysis for energy management and predictive maintenance.

In the area of green transport, apart from implementing a series of electric vehicle charger installation projects, we also support the Government's plan of introducing hydrogen-powered heavy vehicles in Hong Kong by late 2023 and early 2024. We are assisting the Food and Environmental Hygiene Department in sourcing hydrogen-powered street washing vehicles, which are expected to be delivered in the middle of next year.

To reduce waste, we have been advocating paperless workflow and the use of the Customer-Centric e-Platform to facilitate maintenance recording and case tracing.

#### Expanding Mainland and International Collaboration

The EMSTF has been actively promoting cross-border collaboration within and beyond the Greater Bay Area (GBA), especially as we prepared for the return to full normality. I am delighted to witness that face-to-face activities with our GBA counterparts resumed quickly following the resumption of cross-border travel. In 2023, our calendar is filled with more than 50 GBA activities, averaging nearly one activity per week. Our collaboration in the GBA has been particularly strong in three areas.

The first area of focus is the formulation of mutually applicable and recognised technical standards. Having common standards within the GBA is crucial to facilitating seamless flow of people, logistics and practices in the E&M field. Personally, I am excited about the prospect of establishing a GBA data standard for operating data of E&M facilities, which would enable greater transferability of AI across borders.

Another significant area is I&T collaboration. We organised various events and conferences, such as the Guangdong-Hong Kong-Macao Youth Innovation and Technology Exchange, which provided a platform for participants to exchange views on new materials technology as well as science and technology policies.

Moreover, technical training is an area where we have benefitted tremendously from collaboration with the Mainland. Our trainees and experienced technical staff have obtained valuable practical training through the Mainland technical training programmes. Notably, our joint training with the GBA has borne prominent results in the biennial WorldSkills Competition, hailed as the “Skills Olympics”, where participants' professional E&M skills and knowledge are evaluated. In the competition, two EMSD technicians competed against formidable contestants from more than 20 countries and regions, and one of them achieved the fifth overall and won a Medallion for Excellence in the Refrigeration and Air-conditioning trade. We will continue to provide technicians and trainees with valuable technical training opportunities across the border, such as training in the area of electric vehicle (EV) maintenance. They will benefit greatly as mainland training institutes are equipped with necessary technical expertise and the latest EV models to gear up EV mechanics.



## 總經理報告

### GENERAL MANAGER'S REPORT

我們同時繼續活躍於國際活動，現正尋求參與更多制訂標準的組織，例如參與有關人工智能的會議，透過知識交流了解最新的人工智能技術發展趨勢。我們決心引領機電行業和業界的發展，利用人工智能應用促進智能操作、節能、預測性維修和其他關鍵的機電功能。

#### 人才發展

隨著營運基金的服務範圍不斷拓展，我們深切體會到要為機電行業不斷吸納年輕人才。我相信展示機電行業的現代化形象，以及強調創科是機電工作不可或缺的元素，對於吸納年輕新血至關重要。標榜從事機電行業晉升前途良好、工作長遠安穩，而且收入穩定，亦可提升機電行業的吸引力，令更多年輕人考慮入行。我們已邁出了重要一步，把各個機電類別的技術員訓練期縮短一年，而第一批接受較短訓練期的學員將於2023年畢業。事實上，他們已證明其能力水平與過往學員相若。

我們亦在機電培訓中融入更豐富多元的創科元素，例如虛擬實境、洞穴式自動虛擬環境系統、「建築信息模擬—資產管理」、數碼系統培訓，以及為世界技能大賽而設的高水平培訓，讓機電業更能吸引精通科技的新一代。

#### 2023/24年度發展方向

展望來年，營運基金會繼續致力促進碳中和、數碼化、與大灣區及海外的合作，以及服務競爭力的工作。

我們會協助客戶部門安裝創新節能裝置、運用人工智能工具促進節能減碳，以及進行能源審計，以繼續爭取於2050年前實現碳中和的目標。

「數碼化」仍然是我們第三個五年策略計劃的重點，我們的目標是便利客戶，改善員工的專業技能和效率，以及提升內部工作流程的效能。為進一步推動人工智能應用，我們正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合作，制訂一套機電業的人工智能數據標準，作為不同人工智能項目的「共同語言」。這有助在不同系統和平台間轉移和應用人工智能，會為機電業的人工智能應用帶來革命性轉變。

Our international engagement has also remained active. We are seeking to participate in more standard-setting organisations, such as AI-related conventions, to stay updated on the latest trends in AI technology through knowledge exchanges. We are determined to lead the industry and the E&M trade in leveraging AI applications to facilitate smart operation, energy saving, predictive maintenance and other critical E&M functions.

#### TALENT DEVELOPMENT

As the EMSTF's scope of services continues to expand, we are keenly aware of the ongoing need to attract young talent to the E&M field. I believe projecting a modern image for the E&M trade, with a strong emphasis on I&T being integral to E&M work, is the key to drawing in young blood. Highlighting the availability of career progression and stable long-term employment with a consistent income will also enhance the appeal of the E&M trade as a viable career choice. We have taken a vital step by shortening technician training by a year across various E&M streams, and trainees in the first cohort undergoing the shorter apprenticeship are set to graduate in 2023. They have in fact demonstrated their ability to achieve a similar standard as previous cohorts.

Furthermore, we have incorporated richer I&T elements into E&M training, such as virtual reality, the Cave Automatic Virtual Environment system, Building Information Modelling – Asset Management and digital system training. We have also integrated elements from our high-level training for the WorldSkills Competition, making E&M more appealing to the tech-savvy generation.

#### DIRECTIONS FOR 2023/24

In the year ahead, the EMSTF will continue its commitment to carbon neutrality, digitalisation, GBA and international collaboration, and service competitiveness.

We will continue to strive for the goal of achieving carbon neutrality by 2050 by assisting client departments in implementing energy-efficient and innovative installations, using AI tools for energy saving and carbon emission reduction, and conducting energy audits.

Digitalisation remains a key focus in our third Five-year Strategic Plan, as we aim to provide greater convenience for clients, and improve the skills and efficiency of our staff as well as effectiveness of our internal workflow. To advance AI application, we are working with the Guangdong Provincial Academy of Building Research Group Company Limited and the Guangdong Province Construction Technology and Standardisation Association to develop a set of data standards for AI in the E&M industry, which will serve as a “common language” for different AI programmes. This will allow greater portability and applicability of AI across systems and platforms, and thereby leading to game-changing outcomes for AI applications in the E&M industry.

我們亦會加強與大灣區、區域及國際伙伴的合作，進一步推動數碼化進程。我們的共同目標是利用數碼化和人工智能，為客戶部門、公眾、機電業界以及我們的內部營運帶來更佳成果。例如，我們期望利用數碼工作日誌系統中的數據，提升升降機和自動梯的安全。

在服務競爭力方面，營運基金會向客戶提供優質高效的服務，以及增值服務，務求進一步提升客戶滿意指數與競爭力指數。舉例而言，我們會致力加強機電、空調、屋宇裝備和醫療設備的維修支援服務，以達到醫院管理局有所提升的標準。我們最終的目標是超越客戶的期望，堅守高專業標準。

#### 深摯謝忱

隨着香港走出第五波疫情並邁向全面復常，我們很高興能夠在機電領域，為保障社會福祉盡一分力。營運基金由衷感謝客戶一直以來投以信任並與我們保持緊密合作；亦對全體同事悉力提供卓越服務致以誠摯的感謝。

對於各商會及業界伙伴、專業團體、學術界、培訓及研究機構、非政府組織，以及內地和海外合作伙伴歷來鼎力支持和襄助，我們謹致謝忱。此外，我們的不斷進步，亦有賴公眾、傳媒、立法會議員和其他意見領袖不吝指正和反饋，在此向各位致以萬分感謝。

營運基金會努力把握每一個新機遇。承蒙大家繼續支持，我們有信心來年再創佳績。



彭耀雄

機電工程營運基金總經理

We will also strengthen collaboration with our GBA, regional and international counterparts to further drive our digitalisation progress. Our shared goal is to leverage digitalisation and AI to deliver improved outcomes to client departments, the public, the E&M trade and our internal operations. For example, we anticipate utilising data from the Digital Log-books System to improve lift and escalator safety.

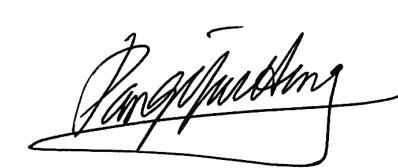
In terms of service competitiveness, the EMSTF will strive for further improvement in satisfaction and competitiveness indicators by delivering quality and efficient services and providing value-added services to our clients. For example, we will focus on enhancing electrical, mechanical, air-conditioning, building services and medical equipment maintenance support to meet the elevated standards set by the Hospital Authority. Our ultimate goal is to exceed clients' expectation and uphold our high professional standards.

#### DEEP APPRECIATION AND GRATITUDE

As Hong Kong emerged from the impact of the fifth wave of the epidemic and was returning to full normality, we are pleased to have played a role in protecting the well-being of the community from the E&M perspective. We sincerely appreciate our clients for their ongoing trust and strong partnership. Our heartfelt gratitude also goes to all our colleagues for their commitment and excellent service.

We deeply appreciate the unfailing support and collaboration of the trade associations and partners, professional bodies, academics, training and research institutions, non-governmental organisations, as well as our Mainland and overseas partners. Moreover, our continuous progress would not have been possible without the vigilance and feedback from the public, the media, members of the Legislative Council, and other opinion leaders. We owe all of them a big thank you.

The EMSTF will work hard to make the most of every new opportunity that lies ahead. With your continued support, we are confident that we will have another fruitful year.



Pang Yiu-hung

General Manager, Electrical and Mechanical Services Trading Fund



## 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

機電工程營運基金於2022/23年度的業務維持穩健增長，總收入由2021/22年度的87.19億港元增加至2022/23年度的89.11億港元，增幅約為2.2%。收入回報率稍微下降至2.6%，符合我們收回成本的營運原則。收入減少主要由於去年，特別在2019冠狀病毒病疫情期間，我們為客戶提供的增值服務大幅增加，務求與客戶部門共渡難關，讓他們保留資金提供公共服務。

The operations of the Electrical and Mechanical Services Trading Fund sustained steady growth in the year 2022/23. The total revenue increased from HK\$8,719 million in 2021/22 to HK\$8,911 million in 2022/23, representing a growth of approximately 2.2%. The return on revenue slightly decreased to 2.6%, which was aligned with our cost recovery principle. The decrease could be attributed to a significant increase in the amount of value-added services provided to our customers last year, particularly during the Coronavirus Disease 2019 (COVID-19) epidemic, which were our endeavours to ride out difficult times with our client departments and help them retain funding for delivery of public services.

### 豐碩成果

2022/23 年度可說是營運基金的豐收年。我們所說的「豐收」，並不是指收入或員工人數大幅增加，而是指三方面的重大成就。

首先，我們在2022年10月至12月進行的最新客戶意見調查中，獲得客戶熱烈回應並取得優異成績。客戶滿意指數和整體服務競爭力指數分別為7.03分及7.06分，回覆率為58.7%，三者均創歷史新高。

其次，我們的優質服務以及在推動創新科技（創科）方面的努力，在本地和國際比賽中備受肯定。機電署在2022年公務員優質服務獎勵計劃取得前所未有的佳績，共贏得13個獎項。再者，作為政府的「創新促成者」，我們致力推行不同創科項目，年內亦獲得多個獎項，例如在享負盛名的2023年日內瓦國際發明展中獲得二十三個獎項，包括一項特別獎、三項金獎、七項銀獎及十二項銅獎，成績尤其令人鼓舞。

此外，我們一直積極推廣知識管理，以提升工作效率和質素。我們在這方面的工作獲得多項殊榮，例如2022年香港最具創新力知識型機構大獎及2022年全球最具創新力知識型機構大獎。鑑於我們在第二個五年策略計劃推行期間對數碼化、培養創科文化及人才發展等方面投入資源，讓我們迎來碩果纍纍的豐收期。

### BUMPER HARVEST

2022/23 could be seen as a year of good harvest for the EMSTF. By “harvest”, we do not mean substantial increases in revenue or headcount, but rather key achievements in three aspects.

To begin with, our latest Customer Opinion Survey conducted between October and December 2022 received enthusiastic customer responses and excellent results. The Customer Satisfaction Index recorded 7.03 and the Overall Service Competitiveness Index reached 7.06, while the response rate was 58.7%, marking record highs for all three indicators.

In addition, our commitment to quality services and efforts in promoting innovation and technology (I&T) garnered significant recognition in both local and international competitions. Of note, the EMSD surpassed previous achievements in the Civil Service Outstanding Service Award Scheme by winning an impressive total of 13 awards in 2022. As the Innovation Facilitator of the Government, we spearheaded various I&T projects that won multiple awards during the year. Particularly remarkable was our performance at the prestigious International Exhibition of Inventions of Geneva 2023 where we clinched a total of twenty-three awards, including one special award, three gold, seven silver and twelve bronze medals.

Furthermore, we have always been proactive in promoting knowledge management to enhance work efficiency and quality. Our initiatives in this regard were recognised with notable accolades such as the Hong Kong Most Innovative Knowledge Enterprise (MIKE) Award 2022 and the Global MIKE Award 2022. Thanks to the investments we have made in digitalisation, fostering an I&T culture, and talent development during the implementation of the second Five-year Strategic Plan, we are now entering the harvest stage of fruitful achievements.



## 業務回顧與前瞻

### OPERATIONS REVIEW AND OUTLOOK

#### 業務亮點

過去一年，我們的同事在處理突發事件和應對挑戰時表現出色，並展現靈活變通的特質。舉例而言，在2022年6月一座電纜橋起火導致新界西地區大停電的事故中，同事齊心協力，迅速應變，全力支援處理這次區域性緊急事故，協助醫院及其他客戶設施順利渡過難關。

年內，我們與客戶部門在多個基建工程項目上緊密合作。我們為多個政府部門設計、建造及校驗香港國際機場三跑道系統的機電系統，包括海關、出入境及港口衛生管制設施。我們也在將軍澳一藍田隧道（將藍隧道）和將軍澳跨灣連接路通車前，提供機電支援及技術評估，包括系統設計的建議、測試及校驗、廠內和現場驗收測試等。

隨着這些基建工程項目展開，新商機也開始出現。我們獲委託為新北跑道及滑行道助航燈系統提供維修保養服務，以及監督將藍隧道營辦商的營運和監察將藍隧道的交通燈系統。

除此之外，我們投得三份標書，為五間醫院的機電、空調和屋宇裝備系統設備提供維修保養服務。隨着兩個十年醫院發展計劃推進，我們預期業務會進一步增長。

#### 抗疫啟示和經驗

2019冠狀病毒病疫情為我們的團隊帶來前所未有的挑戰，但同時也造就了龐大的合作和創新機遇，對我們日後的工作大有裨益。我們從抗疫工作中汲取的寶貴經驗，是創新科技方案可在應對各種挑戰時發揮重要作用。有見及此，我們的同事更積極推動創科應用及研發，例如運用機械人進行清潔消毒或運送工作，以及在病房安裝「流動組合式 — 高效能空氣微粒子過濾器」，以把普通病房改裝成二線隔離病房。

#### OPERATION HIGHLIGHTS

In the past year, our colleagues demonstrated excellent performance, agility and flexibility in handling unexpected incidents and challenges. For example, when New Territories West was hit by a major power outage after a fire broke out at a cable bridge in June 2022, our colleagues' concerted effort enabled a swift response and full support in managing the territory-wide emergency, helping hospitals and other client facilities overcome the situation smoothly.

During the year, we closely collaborated with our client departments on several infrastructure projects. We supported various government departments in designing, constructing and commissioning electrical and mechanical (E&M) systems for the Three-runway System, including customs, immigration and port health control facilities, at the Hong Kong International Airport. We also provided E&M support and technical assessment, including advice for system design, testing and commissioning, factory and site acceptance tests, for the Tseung Kwan O-Lam Tin Tunnel (TKO-LT Tunnel) and the Cross Bay Link, Tseung Kwan O prior to their commissioning.

As these infrastructure projects unfold, new business opportunities emerge. We were entrusted with the maintenance services for the Airfield Ground Lighting System of the new North Runway and taxiways, as well as overseeing the operation of the tunnel operator and monitoring the traffic signal system of the TKO-LT Tunnel.

Besides, while we secured three tenders to provide maintenance services for the E&M, air-conditioning, and building services equipment of five hospitals, we anticipate further growth in our business as the two Ten-year Hospital Development Plans progress.

#### INSIGHTS AND EXPERIENCE GAINED FROM FIGHTING THE EPIDEMIC

Despite the unprecedented challenges posed to our team, the COVID-19 crisis has given rise to enormous opportunities for collaboration and innovation that benefitted our future work. One of the valuable lessons we learned from battling the epidemic is the significant role of innovative technology solutions in addressing various challenges. With this in mind, our colleagues became more engaged in advancing I&T application as well as research and development (R&D). Examples included the use of robots for cleaning and disinfection or delivery, and the installation of Mobile Modular High Efficiency Particulate Air Filter Units for converting general wards into second-tier isolation wards.

疫情亦為部門帶來重大改變，尤其是團隊更能發揮合作精神和靈活應變。為應付不同大型抗疫工作的營運需求，包括「圍封強檢」行動，以及為逾700間安老及殘疾人士院舍進行通風評估，我們需要跨部別緊密合作和靈活調配人手。這些經驗令我們的團隊變得更靈活更堅毅。

此外，疫情徹底改變了我們的工作方式，包括更廣泛應用資訊科技，以及採用線上線下混合模式舉行活動。此轉變不僅提升了我們的工作效率，亦在創新方面開闢了新路徑。

#### 致力節能減碳

節能減碳是我們2022/23年度其中一項重點工作。為配合政府在這方面的目標，我們一直為客戶提供綠色方案，致力透過應用各項創新技術實現零碳排放及碳中和的願景，為香港的可持續城市發展出一分力。

我們的其中一項工作是優化空調系統。我們與醫院管理局（醫管局）及本地大學合作，為醫管局轄下多所建築物及醫院建立人工智能製冷機組優化系統，並為民航處總部的製冷機組系統實施人工智能能源優化方案。

此外，我們為17座醫院大樓進行重新校驗，找出可節能之處。我們的終極目標是擴展人工智能及大數據的應用，使上述能源優化系統能自動就能源管理和預測性維修作出指示，在提高能源效益及減少碳排放之餘，同時提升設備可靠性，最終達致比重新校驗更顯著的節能效果。

在發展可再生能源方面，我們積極研究在港珠澳大橋香港口岸安裝太陽能發電系統的可行性，以提升能源效益。未來，我們會開展更多可再生能源項目。

The epidemic has also brought about significant changes within our Department, with a stronger sense of unity and flexibility fostered within our team in particular. To meet the operational needs of various large-scale anti-epidemic efforts, including "restriction-testing declaration" operations and ventilation assessments for over 700 residential care homes for the elderly and persons with disabilities, seamless cross-divisional co-ordination and flexible manpower deployment were required. These experiences have made our team more agile and resilient.

Moreover, the epidemic has revolutionised our approach to work, including wider application of information technology as well as adoption of a hybrid mode that enables both physical and virtual participation for events. This shift has not only enhanced our efficiency but also opened up new avenues for innovation.

#### COMMITTED TO ENERGY SAVING AND CARBON REDUCTION

Energy saving and carbon reduction were among our key focus areas in 2022/23. In line with the Government's goals in this regard, we have been providing green solutions to our clients. Through the application of various innovative technologies, we strived to achieve the vision of zero carbon emission and carbon neutrality, contributing to the development of Hong Kong as a sustainable city.

One of the areas we worked on was the optimisation of air-conditioning systems. We collaborated with the Hospital Authority (HA) and local universities to establish the artificial intelligence (AI) chiller plant optimisation systems for various HA buildings and hospitals, and implemented the AI Energy Optimisation Solution for the chiller plant system of the Civil Aviation Department Headquarters.

Moreover, we conducted retro-commissioning for 17 hospital buildings to identify energy-saving potential, with the ultimate goal of broadening the adoption of AI and big data, so that the aforementioned energy optimisation system can automatically provide instructions on energy management and predictive maintenance, thereby raising energy efficiency and reducing carbon emissions while enhancing equipment reliability, eventually achieving more significant energy savings than retro-commissioning.

In terms of renewable energy, we actively examined the feasibility of installing a solar photovoltaic system at the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port to enhance its energy efficiency. We will undertake more renewable energy projects in the future.

### 培育年輕人才

為吸引新血加入機電署及機電行業，我們與業界保持緊密合作，舉辦和參與多項活動，例如機電業博覽2022，介紹行業發展；以及「機電·啟航2022」迎新典禮，歡迎最近加入機電行業的年輕見習技術員。

此外，我們不但縮短技術員訓練計劃的培訓期，還加入最新的數碼元素和利用創新的訓練設備（例如虛擬實境技術），以增加課程的吸引力。我們亦加強與內地及海外伙伴在人才發展和創科研發方面的合作。

### 邁向新里程

2022年年底，我們把創新和環境可持續發展納入營運基金的「抱負、使命和信念」，進一步鞏固我們對提供優質服務的承諾；展示我們決心透過創科提升服務，並且重視培養靈活和創新的企業文化。

2022/23年度，營運基金第二個五年策略計劃圓滿結束。我們很高興透過「機電數碼化」、「培育卓越團隊」和「科技·創新」三大策略，達成「機電2.0」的目標。

在第二個五年策略計劃的堅實基礎上，第三個五年策略計劃將於2023/24年度展開，並以「機電3.0 — 智能機電」為主題，透過四個創新策略，即「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」，實現計劃目標。

2023/24年度，營運基金會繼續加強與初創企業、大學和研究機構的研發協作。我們會發揮政府「創新促成者」的角色，並擔任創科方案融合者，促進各方與客戶部門的協作，讓有價值的研發成果得以商品化和廣泛應用。

### NURTURING YOUNG TALENT

To attract new talent to our Department and the industry, we have maintained close collaboration with the E&M trade by organising and participating in various events, such as the E&M Expo 2022 to introduce the development of the industry, and the “E&M GO!” Orientation Ceremony 2022 to welcome on board young technician trainees who recently joined the E&M industry.

Furthermore, in addition to shortening the training period, we have enhanced our Technician Training Scheme by incorporating the latest digitisation elements and utilising innovative training facilities, such as virtual reality technology, to make our courses more appealing. Additionally, we have strengthened our co-operation with the Mainland and overseas partners in talent development and I&T R&D.

### MOVING ON TO THE NEXT MILESTONE

At the end of 2022, we have incorporated innovation and environmental sustainability into the Vision, Mission and Values of the EMSTF to further solidify our commitment to providing excellent services, demonstrating our determination to provide I&T-driven enhancement while putting emphasis on fostering an agile and innovative corporate culture.

The year 2022/23 marked the conclusion of the EMSTF's second Five-year Strategic Plan, and we are delighted to have achieved “E&M 2.0” through implementing three strategies: “digitisation of E&M assets”, “establishing an excellent work team”, and “adoption of I&T”.

Built upon the solid foundation laid down by the second Five-year Strategic Plan, the third Five-year Strategic Plan will be launched in 2023/24 under the theme of “E&M 3.0 – Intelligent E&M”. The plan will be driven by four innovative strategies, namely “providing customer-oriented innovative services”, “building an innovative and excellent work team”, “innovating business processes”, and “strengthening innovative collaboration between stakeholders”.

In 2023/24, we expect the EMSTF to continue strengthening collaboration with start-ups, universities and research institutions on R&D. We will leverage the role of the Government's Innovation Facilitator and serve as an integrator of I&T solutions to facilitate collaboration among multiple parties and client departments, enabling the commercialisation and wide application of valuable R&D outcomes.

總括而言，第二個五年策略計劃取得空前成功，歸功於同事的盡心服務和客戶的信任。營運基金的穩健表現有賴常務委員會與各決策局的指導，以及各商會、業界伙伴、大學及學者、專業團體、培訓及研究機構等的鼎力支持。我們謹此向每一位深表謝意，並衷心感謝營運基金在本港、內地及海外的合作伙伴。

我們期盼營運基金來年在各方面百尺竿頭更進一步，共同努力再創佳績。

陳志偉

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

### 科技與數碼化引領新時代

回顧2022/23年度，機電工程營運基金成功實踐第二個五年策略計劃所訂立的策略目標。我們不但推動機電資產數碼化，並協助客戶部門及機構在日常運作中廣泛應用智能方案。在發展創新科技(創科)的大趨勢下，我們鼓勵員工積極參與創科項目及比賽，優化現有的創科應用並開發更多新技術，充分發揮我們作為政府「創新促成者」的角色。

為了實現第二個五年策略計劃的「機電2.0」願景，營運基金繼續堅持不懈，致力推動「機電數碼化」。其中一個重要的里程碑，是我們五個策略業務單位所建立的各個部別區域數碼監控中心已全面投入運作，這對於機電署因應客戶需求管理日漸增多的機電設備而言，可謂至關重要。年內，我們還建立了儀表板，實時顯示多個場地的數據。

除了區域數碼監控中心外，我們還有七個分部區域數碼監控中心，利用綜合樓宇管理系統，全天候監察衛生署轄下26個場地和政府化驗所的機電設施。為配合不同場地的運作需要，醫院及診所的淡水冷卻塔水質、火警警報系統直線電話的數據，以及醫院內醫療儲存設備的溫度及供電狀態，均由區域數碼監控中心進行遙距監察。此外，區域數碼監控中心連接自動警報/故障報告系統，當偵測到機電設備有異常情況時，會實時向相關員工發送警報通知。



### TECHNOLOGY AND DIGITALISATION USHER IN THE NEW ERA

Looking back on the year 2022/23, the Electrical and Mechanical Services Trading Fund successfully achieved the strategic goals set forth in the second Five-year Strategic Plan. In addition to driving the digitalisation of electrical and mechanical (E&M) assets, we assisted client departments and organisations in widely applying smart solutions in their daily operations. With the momentum of developing innovation and technology (I&T), we encouraged staff to actively participate in I&T projects and competitions for optimising existing I&T applications as well as developing new technologies to strengthen our role as the Innovation Facilitator of the Government.

The EMSTF remained steadfast in promoting “E&M digitisation” to achieve the vision of “E&M 2.0” under the second Five-year Strategic Plan. One of the important milestones was the full operation of the divisional Regional Digital Control Centres (RDCCs) set up by the five Strategic Business Units, which is of utmost importance to the management of increasing E&M equipment to meet our clients’ needs. During the year, dashboards were also established to provide real-time data displays for multiple venues.

In addition to the divisional RDCCs, we have seven sub-divisional RDCCs monitoring the E&M facilities round-the-clock at 26 venues under the Department of Health and those at the Government Laboratory by using the integrated Building Management System. To meet the operational needs of different venues, the water quality of the fresh water cooling towers serving hospitals and clinics, the data of the fire alarm direct link as well as the temperature and power supply status of hospitals’ medical storage equipment, are all remotely monitored inside the RDCCs. Furthermore, the RDCCs have been connected with an automated alarm/fault reporting system which would send alerts to relevant staff in real time when any abnormality of the E&M equipment is detected.



我們的區域數碼監控中心實時監察客戶設施的機電數據和能源表現，從而提升客戶機電資產的運作效率和能源效益。

Our RDCCs monitored the E&M data and energy performance of client facilities in real time, in order to enhance the operational and energy efficiency of E&M assets of clients.

營運基金在設立區域數碼監控中心方面的成果備受國際肯定。我們憑藉「智慧城市管理－區域數碼監控中心及人工智能平台」項目，在2022年亞太資訊及通訊科技大獎中贏得「科技類別－大數據分析」大獎。我們會着手把所有區域數碼監控中心整合成一個機電署中央數碼監控中心，24小時集中監控所有重要政府場地內機電設備的運作狀況，務求達致預防性維修。

落實機電資產數碼化的另一項重要措施，是發展「建築信息模擬－資產管理」系統。年內，我們為超過450個場地的機電資產數據進行整合和數碼化，並在其中逾90個場地採用建築信息模擬技術，更把「建築信息模擬－資產管理」系統的應用擴展至公共衛生檢測中心和天水圍醫院。此外，我們在2022年9月發布《建築信息模擬－資產管理標準及指引》第三版後，開展先導計劃，根據最新版本的標準及指引，為醫院管理局(醫管局)轄下南昌家庭醫學診所的建築信息模擬模型進行升級，務求推廣更廣泛應用建築信息模擬技術，並善用建築信息模擬模型的信息，優化整個資產生命周期的資產管理。

機電署在提倡應用建築信息模擬技術方面不遺餘力，成果廣受業界認同。例如，在2022建築信息模擬成就嘉許禮上，機電署榮膺「2022建築信息模擬機構」及「2022建築信息模擬培訓及研發機構」，而我們的「政府資產數碼化與建築信息模擬－資產管理系統的應用」項目則獲得「2022建築信息模擬項目」的榮譽。2022年12月，我們在發展局與建造業議會合辦的首屆香港建造業CDE－綜合數碼共用平台大獎中榮獲機構類別銅獎。此外，我們的「機電2.0－數碼化旅程」項目在2022年公務員優質服務獎勵計劃中獲頒「創新及科技獎(科技應用)」銀獎。



年內，我們為醫管局轄下南昌家庭醫學診所的建築信息模擬模型升級至第三版，以提高維修保養的效率及服務質素。

During the year, we upgraded the BIM model to version 3.0 for the Nam Cheong Family Medicine Clinic under the HA, with the aim of improving maintenance efficiency and service quality.

Our effort in setting up RDCCs was well recognised by the international community. Of note, our project titled “Smart City Management – The Regional Digital Control Centre (RDCC) & Artificial Intelligence (AI) Platform” won in the Technology – Big Data Analytics Category at the Asia Pacific Information and Communications Technology Alliance (APICTA) Awards 2022. Forging ahead, we will integrate all divisional RDCCs into an EMSD Departmental Digital Control Centre, enabling centralised and round-the-clock monitoring of the operation status of E&M systems within all critical government venues, so as to facilitate predictive maintenance.

Another key initiative in the digitisation of E&M assets is the development of the Building Information Modelling – Asset Management (BIM-AM) system. During the year, we integrated and digitised E&M asset data for over 450 venues, and adopted BIM technology in over 90 of them. Application of the BIM-AM system was extended to the Public Health Laboratory Centre and Tin Shui Wai Hospital. Furthermore, following the release of the BIM-AM Standards and Guidelines Version 3.0 in September 2022, we conducted a pilot project to upgrade the BIM model of the Nam Cheong Family Medicine Clinic under the Hospital Authority (HA), according to the latest version of BIM-AM Standards and Guidelines, with a view to promoting wider adoption of BIM technology and utilising the information contained in the BIM models to facilitate asset management throughout the entire asset lifecycle.

Our advocacy of the application of BIM technology has been widely recognised by the industry. For example, at the Celebration of BIM Achievement 2022, the EMSD was named the “BIM Organisation 2022” and the “BIM Training and R&D Organisation 2022”; the project titled “Government-wide Asset Digitalisation with the Building Information Model – Asset Management (BIM-AM) System” was awarded the “BIM Project 2022”. In December 2022, the EMSD won the Bronze award (Organisation Category) in the first Hong Kong Construction Common Data Environment Award jointly organised by the Development Bureau and the Construction Industry Council. In addition, we attained the Silver Prize in Innovation and Technology Awards (Best Use of Technology) in the Civil Service Outstanding Service Award Scheme 2022 for the Digitalisation Journey – E&M 2.0 project.



在2022建築信息模擬成就嘉許禮上，機電署榮膺「2022建築信息模擬機構」及「2022建築信息模擬培訓及研發機構」，肯定了我們在應用建築信息模擬技術方面的成果。

The EMSD was named the “BIM Organisation 2022” and the “BIM Training and R&D Organisation 2022” at the Celebration of BIM Achievement 2022, affirming our achievements in the application of BIM technology.



## 營運服務 TRADING SERVICES

近期建築信息模擬技術和其他創新技術的發展，促進了「機電裝備合成法」在屋宇裝備裝置上的應用。營運基金首次採用「機電裝備合成法」、建築信息模擬技術及多項數碼技術，為漁農自然護理署轄下的大龍獸醫化驗所更換製冷機組，工程中結合機械人切割技術及預製保溫技術，不但有助縮短建築期和節約所需工料，更可減低工程對客戶日常運作的影響。

這個創新項目在歐特克香港建築信息模擬設計大獎2022中獲得榮譽獎，而項目團隊在工程及科技學會香港分會青年會員部主辦的青年科技專才展覽及比賽2022中奪得公開組冠軍。這些成就令我們更有信心在其他項目應用「機電裝備合成法」，包括為多家醫院更換鮮風機組、製冷機組和熱水系統。我們會繼續尋找更多場地和項目，推行「機電裝備合成法」。



大龍獸醫化驗所更換製冷機組項目採用多種先進技術，例如運用「機電裝備合成法」技術預製機電組件，是行業發展的里程碑。圖為項目完成後的場地鳥瞰圖。

The Chiller Plant Replacement project at Tai Lung Veterinary Laboratory involved the adoption of multiple advanced technologies, such as prefabricating E&M components with the application of MiMEP technology, marking a milestone in the industry development. Pictured is the aerial view of the venue after completion of the project.



The recent developments in BIM technology and other innovative technologies facilitate the adoption of Multi-trade integrated Mechanical, Electrical, and Plumbing (MiMEP) technology for building services installations. The EMSTF adopted MiMEP, BIM and multiple digital technologies for the first time in the replacement of the chillers at the Tai Lung Veterinary Laboratory under the Agriculture, Fisheries and Conservation Department. Also incorporating robotic welding technology and pre-insulated pipe technology in the works, not only was the construction period shortened and material usage saved, but the impact of the works on the client's daily operations was also minimised.

This groundbreaking project received an Honourable Mention in the Autodesk Hong Kong BIM Awards 2022, while the project team won the Championship in the Open Section at the Young Professionals Exhibition and Competition 2022 organised by the Younger Members Section of the Institution of Engineering and Technology Hong Kong. These achievements greatly boost our confidence in adopting MiMEP technology in other projects, including the replacement of air handling units, chillers and hot water systems at various hospitals. We will continue to identify more potential venues and projects for implementing MiMEP technology in the future.



機電署首個採用「機電裝備合成法」的先導項目——大龍獸醫化驗所更換製冷機組，於2022年歐特克香港建築信息模擬設計大獎中獲得榮譽獎。

The Chiller Plant Replacement at Tai Lung Veterinary Laboratory, which was the EMSD's pioneering MiMEP pilot project, received an Honourable Mention at the Autodesk Hong Kong BIM Awards 2022.

屋宇裝備工程師李愷晴女士代表機電署團隊，於青年科技專才展覽及比賽2022中展示我們首個「機電裝備合成法」先導項目。團隊憑藉該項目獲得公開組冠軍。

Ms Li Hoi-ching, a building services engineer, represented the EMSD team to present our first MiMEP pilot project at the Young Professionals Exhibition and Competition 2022. The team won the Championship in the Open Section with the project.

第二代物聯網智能馬桶清潔系統由經改良的清潔機械人和衛生監察平台組成，具備自動清潔、實時數據分析及人工智能潔淨評估的功能，可確保公共設施乾淨整潔。

Consisting of an improved cleaning robot and a sanitation monitoring platform, the second generation IoT-enabled Smart Toilet Bowl Cleaning System features autonomous cleaning, real-time data analysis and AI cleanliness assessment functions to ensure the cleanliness and tidiness of public facilities.



為達成「機電2.0」的願景，除了機電數碼化外，機電署亦非常重視創新技術的開發，特別是機械人技術的研發。舉例而言，我們與香港生產力促進局合作開發第二代智能馬桶清潔系統。該系統配備物聯網監控功能，利用人工智能對馬桶內壁進行實時圖像分析，以判斷所需的清潔模式、水量、洗刷步驟和清洗頻率。我們已於機電署總部大樓的男廁測試該系統，成效令人滿意。稍後，我們會與客戶部門探討在公共廁所使用該系統。

2022年12月，我們派遣四足機械人，參與警務處於鑽石山地鐵站舉行的反恐演習。該機械人設有顯示器和通訊系統，在警察談判組進行談判時提供支援。

另一個值得一提的例子，是由我們自主研發的智能路軌維護機械人。這款多功能機械人目前在醫管局轄下的蝴蝶灣洗衣房試行，可自動清潔和檢查高架鐵軌，減少工人進行高空工作的需要，從而提高運作安全性和系統可靠度。此外，我們已展開初步可行性研究，探討在香港國際機場試用地面機械人協助清潔和維修助航燈，並計劃在2023/24年度進行原型測試。

To achieve the vision of "E&M 2.0", apart from E&M digitisation, the EMSD attaches great importance to developing innovative technologies, especially in the research and development (R&D) of robotics. For example, we collaborated with the Hong Kong Productivity Council to develop the second generation of the Smart Toilet Bowl Cleaning System equipped with Internet of Things (IoT)-enabled monitoring functions. AI is used for real-time image analysis of the inner wall of toilet bowls to determine the required cleaning mode, amount of water, scrubbing procedures and cleaning frequency. The system was tested satisfactory at a male toilet of the EMSD Headquarters Building and we will explore with client departments the application of the system in public toilets.

In December 2022, we deployed quadruped robots equipped with video displays and inter-communication systems to assist the Police Negotiation Cadre in negotiations during an anti-terrorism exercise at Diamond Hill MTR Station.

Another noteworthy example is our self-invented Smart Overhead Rail Servicing Robot. This all-in-one robot, currently under trial at the Butterfly Beach Laundry under the HA, automates cleaning and inspection of overhead rails, reducing the need for workers to work at height, and thus enhancing operational safety and system reliability. Additionally, we initiated a preliminary feasibility study on the trial of ground robots in assisting in the cleaning and maintenance of airfield ground lighting at the Hong Kong International Airport. We plan to conduct prototype testing in the year 2023/24.



機電署人員在屯門蝴蝶灣洗衣房利用智能路軌維護機械人進行路軌清潔和檢查。

The EMSD staff used the Smart Overhead Rail Servicing Robot for track cleaning and inspection at the Butterfly Beach Laundry in Tuen Mun.



## 營運服務 TRADING SERVICES



機電署在2022年公務員優質服務獎勵計劃中榮獲四個金獎、四個銀獎及五個優異獎，數目為歷年之冠，優質卓越的服務備受充分肯定。  
The EMSD was honoured to be bestowed with a record number of awards, including four gold, four silver and five meritorious awards in the Civil Service Outstanding Service Award Scheme 2022, which were great recognition of our excellent services.



機電署在第48屆日內瓦國際發明展中共獲得二十三個獎項，包括一項特別獎、三項金獎、七項銀獎和十二項銅獎，這是我們參展以來奪得最多獎項的一屆。

The EMSD won a total of twenty-three awards at the 48th International Exhibition of Inventions of Geneva, including a special award, three gold, seven silver, and twelve bronze medals, marking the most awards we have received since our first participation in the event.

我們的創新意念和創科應用在本地和國際上都獲得讚譽，當中專為香港醫療系統開發的智能鍋爐清潔及檢測機械人，在香港工程師學會創意獎（青年會員組）2022榮獲組別I—發明大獎。撰文之際，機電署在2023年日內瓦國際發明展上取得佳績，榮獲二十三個獎項，包括一項特別獎、三項金獎、七項銀獎和十二項銅獎。

為了支援並推廣在各政府部門和公營機構應用創新科技，以及推動智慧城市發展，機電署一直致力透過「機電創科網上平台」，因應客戶部門的需求，為他們配對合適的初創企業、大學以至科研機構的創科方案。「機電創科網上平台」更在2022年公務員優質服務獎勵計劃中，榮獲「創新及科技獎（持份者協作）」金獎。

Our pioneering ideas and I&T applications were well recognised both locally and internationally. A highlight is the Smart Boiler Cleaning and Inspection Robot for Healthcare System in Hong Kong which won the Grand Prize in Category I – An Invention in the Hong Kong Institution of Engineers Innovation Awards (Young Member Group) 2022. At the time of writing, the EMSD achieved excellent results at the International Exhibition of Inventions of Geneva 2023, bagging a total of twenty-three awards, including a special award, three gold, seven silver and twelve bronze medals.

To support and promote the application of innovative technologies in various government departments and public organisations as well as driving smart city development, the EMSD has been matching client departments' needs with suitable I&T solutions from start-ups, universities and R&D institutions via the E&M InnoPortal, which garnered the Gold Prize in Innovation and Technology Awards (Best Stakeholder Collaboration) in the Civil Service Outstanding Service Award Scheme 2022.



為了協助懲教署提升懲教院所的運作效率及推動在囚人士更生，我們在院所安裝配備自助電話亭、顯示屏、語音辨識技術及關鍵詞分析功能的「在囚人士綜合智能通訊系統」。

To assist the Correctional Services Department in enhancing the operational efficiency of correctional institutions and facilitating the rehabilitation of PICs, we have installed the Integrated Intelligent Communication System, which is equipped with self-service telephone kiosks, display screens, voice recognition technology and keyword analysis function, at the institutions.



年內，我們為客戶部門提供多個創科方案，例如在懲教署的羅湖懲教所及大潭峽懲教所裝設專為在囚人士而設的自助電話通訊系統——「在囚人士綜合智能通訊系統」。該系統配備自助電話亭、顯示屏、語音辨識技術和四種語言的關鍵詞識別功能，讓在囚人士可以自助方式撥打電話，而懲教人員可遙距監察通話內容，有效提高院所運作效率及推動在囚人士更生。

During the year, various I&T solutions were offered to our client departments. To cite an example, the Integrated Intelligent Communication System, a self-service telephone communication system tailored for persons in custody (PICs), was implemented at the Lo Wu Correctional Institution and the Tai Tam Gap Correctional Institution for the Correctional Services Department. Equipped with self-service telephone kiosks, display screens, voice recognition technology and keyword spotting functions in four languages, the system enables PICs to make phone calls in a self-service manner and correctional officers to remotely monitor the calls, effectively enhancing the operation efficiency of the institutions and the rehabilitation of PICs.

此外，我們利用「政府物聯網」在多所醫療及臨牀設施建立各種實時監察系統，例如在瑪麗醫院和伊利沙伯醫院安裝人工智能升降機監察系統，透過分析升降機運作數據以預測未來的維修需要。另外，為應對極端天氣引起的水浸風險，我們以瑪麗醫院作為試點，安裝了防洪監察系統，監察水浸和地下管道泄漏。系統設有超聲波水位傳感器，並連接到遠程網絡，實時監測水位的異常變動並作出通報，確保相關部門能迅速處理有關情況。

Moreover, various real-time monitoring systems were established at medical and clinical facilities by using the Government-Wide IoT Network (GWIN). For example, the AI-based lift monitoring system was installed at Queen Mary Hospital (QMH) and Queen Elizabeth Hospital to analyse lift operation data and predict future maintenance needs. In response to the flooding risk induced by extreme weather, a pilot flood monitoring system was installed at QMH for monitoring floods and underground pipeline leaks. With ultrasonic water level sensors connected to the Long Range (LoRa) network, the system detected and reported abnormal water level changes in real time, ensuring quick response by relevant parties.



## 營運服務 TRADING SERVICES



機電署利用創科方案加強工地安全，包括在東涌新市鎮擴展——填海及前期工程地盤應用安全智慧工地系統，透過「政府物聯通」基站及物聯網傳感器，遙距監察泥頭車的位置及其剎車器的操作狀況，為工人提供更安全的工作環境。

The EMSD leverages I&T solutions to enhance safety at construction sites. Such solutions included the implementation of the Smart Site Safety System at the Tung Chung New Town Extension – Reclamation and Advance Works site, where GWIN gateway and IoT sensors were used to remotely monitor the locations and hand-brake operation of dump trucks, providing a safer working environment for workers.

機電署與食環署合作引入創新科技，包括「智能火化」及其他新措施，以優化處理身後事的流程。我們獲頒2022年公務員優質服務獎勵計劃的「卓越部門合作獎」銀獎，表揚我們提升火葬場服務。

The EMSD collaborated with the FEHD to introduce innovative technologies, including “i-Cremation” and other new initiatives, to optimise the workflow for handling after-death arrangements. We were awarded the Silver Prize in Excellence in Partnership in the Civil Service Outstanding Service Award Scheme 2022, in recognition of our enhancement to crematoria services.



機電署亦在建築地盤採用「政府物聯通」，以提升工地安全。我們已為七個建築地盤建立安全智慧工地系統，包括在東涌新市鎮擴展——填海及前期工程地盤，利用「政府物聯通」監察泥頭車的位置及其剎車器的操作狀況。

The EMSD also implemented GWIN at construction sites to enhance workplace safety. The Smart Site Safety System was established at seven construction sites, including the Tung Chung New Town Extension – Reclamation and Advance Works site, where GWIN was used for monitoring the locations and hand-brake operation of dump trucks.

為應付日益增加的火化服務需求，我們在和合石火葬場試驗人工智能優化火化流程系統（又稱「智能火化」），系統預計於2023年年底正式啟用。這個「智能火化」項目，連同食物環境衛生署（食環署）與機電署合力推行其他提升公共服務的新措施，贏得2022年公務員優質服務獎勵計劃的「卓越部門合作獎」銀獎。

To cope with the increasing demand for cremation services, the AI Based Image Analytic and Control System for Cremation Process, also known as “i-Cremation”, has been piloted at the Wo Hop Shek Crematorium and is expected to be officially launched by the end of 2023. The “i-Cremation”, together with other new initiatives in enhancing public services jointly implemented by the Food and Environmental Hygiene Department (FEHD) and the EMSD, won the Silver Prize in Excellence in Partnership in the Civil Service Outstanding Service Award Scheme 2022.

其他項目包括在消防處總部、將軍澳醫院、醫管局大樓及瑪麗醫院等客戶場地，推行製冷機組優化計劃。我們開發了一個人工智能模型，根據室外溫度、濕度和場地使用情況，預測機組製冷負荷需求，以決定需要啟動的機組數量和操作參數。我們又在康樂及文化事務署轄下的香港海防博物館和香港文化博物館試用智能電掣櫃，透過無線物聯網傳感器和大數據分析技術，實時分析及遙距監察電力裝置的狀況，確保電力供應穩定。

Other projects such as optimisation of chiller plants were introduced at client venues, including the Fire Services Headquarters, Tseung Kwan O Hospital, HA Building office and QMH. AI models were developed to predict the required cooling load of the chiller plants based on outdoor temperature, humidity and site usage, so as to decide the number of chiller units and operational parameters to be activated. Also, the Smart Switchboard was piloted at the Hong Kong Museum of Coastal Defence and the Hong Kong Heritage Museum under the Leisure and Cultural Services Department. Wireless IoT sensors and big-data analytic technology were used for real-time analysis and remote monitoring of the condition of electrical installations to ensure the stability of power supply.



機電署為香港文化博物館裝設智能電掣櫃，讓職員實時分析電力裝置的運作數據，並透過物聯網平台進行遙距監察。

The EMSD installed a Smart Switchboard for the Hong Kong Heritage Museum, allowing its staff to conduct real-time analysis of the operational data of electrical installations and perform remote monitoring via an IoT platform.

「國際建築機電人工智能大挑戰」頒獎典禮於2022年9月順利舉行，活動旨在表揚在人工智能大賽中表現出色的參賽隊伍；當日本地及國際專家雲集，共襄盛舉。

The Awards Ceremony of the Global AI Challenge for Building E&M Facilities was held in September 2022 to honour participating teams who staged excellent performance in the AI Competition. This grand event gathered together local and international experts.



機電署與廣東省科學技術協會合辦的「國際建築機電人工智能大挑戰」於年內圓滿結束。活動的頒獎典禮暨機電人工智能實驗室啟動禮於2022年9月舉行。該實驗室是由機電署設立，並與來自政府、業界、學術界和研究機構等各持份者共同協作的平台，旨在促成彼此建立合作伙伴關係，以支援開發建造機電設施的大數據及人工智能技術。此外，我們成立了人工智能工作小組，與其他機構探討人工智能的應用及推廣。

Our milestone event, the Global AI Challenge for Building E&M Facilities, jointly organised by the Guangdong Provincial Association for Science and Technology and the EMSD, was concluded successfully during the year. Held in September 2022, the awards ceremony of the event also marked the commissioning of the E&M AI Lab, a platform initiated by the EMSD in collaboration with stakeholders from the Government, industry, academia and research institutes, aiming to forge effective partnerships in support of the development of big data and AI on building E&M facilities. Additionally, we have established an AI Working Group to collaborate with other organisations on potential applications and promotion of AI.

機電署近年在應用創新科技方面的努力漸見成果。在第二個五年策略計劃奠定的堅實基礎上，我們已制訂主題為「機電3.0——智能機電」的第三個五年策略計劃，該計劃將於2023年4月展開。我們會繼續協助客戶落實各種創科方案，並與各機構合作研發創新技術。另外，我們會致力培育新血，增強團隊的創新實力，以保持競爭力和把握新機遇。

The EMSD's endeavours to apply innovative technologies have shown good results in recent years. Riding on the solid foundation laid down by the second Five-year Strategic Plan, we have formulated the third Five-year Strategic Plan, with the theme of “E&M 3.0 – Intelligent E&M”, to be commenced in April 2023. We will continue to help customers adopt I&T solutions and collaborate with organisations for innovation whilst efforts will also be devoted to cultivating new talent and strengthen our teams' innovation capabilities to stay competitive and embrace new opportunities.



## 營運服務 TRADING SERVICES

### 促進數碼化發展： 推動業界應用 「建築信息模擬 — 資產管理」 DIGITALISATION ENHANCEMENT: PROMOTING THE APPLICATION OF THE BIM-AM SYSTEM IN THE INDUSTRY

高級工程師陳賀賢先生(前排左三)與其團隊負責監督「建築信息模擬 — 資產管理」系統和部門綜合數碼共用平台的研發，以及採用物聯網技術實現「數碼分身」，從而促進智慧城市的發展。

Mr Chan Hor-yin, Steve, a senior engineer (3rd left, front row) and his team have been responsible for overseeing the development of the BIM-AM system and departmental Common Data Environment, as well as adopting IoT technologies to realise digital twins, in order to promote smart city development.



自2014年開始，機電署致力推動「建築信息模擬 — 資產管理」系統的應用，並於2018年成立建築信息模擬分部。數碼科技部高級工程師陳賀賢先生憶述：「在建造業中，建築信息模擬技術在設計和施工階段成效顯著，所以在國際上廣受讚譽。機電署預料該技術會成為業界未來大趨勢，故於九年前，已開始探索在建築物使用年內應用該技術。」

陳先生與其專業團隊研發了首個「建築信息模擬 — 資產管理」系統原型，並以機電署總部作為試點，成功把該系統與無線及有線實時系統的解決方案結合。團隊在2016年取得專利，並於2017年發布首份《建築信息模擬 — 資產管理標準及指引》。去年，他們發布了第三版以及新的交付和驗收指引，供內部及業界參考。

隨着物聯網技術進步，團隊把無線傳感器與該系統結合，並於2019年試行後建構了「政府物聯通」，讓使用者能夠在「建築信息模擬 — 資產管理」系統中接近實時監察機電系統。他們亦與其他政府部門緊密合作，促進智慧城市發展。陳先生解釋道：「現在『建築信息模擬 — 資產管理』系統配合流動應用程式，可以顯示全面的機電設備數據，包括實時數據，以支援遙距監察和故障診斷。」他亦表示，希望採用人工智能技術，實現數碼分身；透過分析實時數據，達成預測性維修保養的目標。

在過去兩年，團隊獲得各個組別及客戶部門全力支持，成功為逾90個現有政府場地建立建築信息模擬模型。首屆「建築信息模擬 — 資產管理」應用比賽亦於去年舉行，反應熱烈。陳先生表示：「大多數參賽作品質素都很高，可見參賽者對技術應用相當了解；團隊多年來的不懈努力和內部培訓終於取得了成果，令我非常感動。」

團隊亦透過分享會及研討會，在本地和國際間推廣該技術的應用；並於五年前開始，協助承辦商和顧問開辦建築信息模擬課程。陳先生補充道：「作為香港『建築信息模擬 — 資產管理』的先鋒，我們需要加倍努力去完善系統，展示各種應用，並秉持既定的標準，以推進香港的數碼化發展。」

Since 2014, the EMSD has been promoting the application of Building Information Modelling – Asset Management (BIM-AM), and the Building Information Modelling Sub-division was established in 2018. “In the construction industry, BIM has gained wide recognition in the international arena due to its notable value in design and construction stages. Foreseeing that BIM will become a game changer in the future, the EMSD began to explore the application of BIM within the service life of buildings nine years ago,” Mr Chan Hor-yin, Steve, a senior engineer of the Digitalisation and Technology Division recalled.

Mr Chan and his professional team developed the first BIM-AM system prototype, and using the EMSD Headquarters as a pilot, successfully integrated BIM-AM together with wireless and wired real-time system solutions. The team secured a patent in 2016 and published the first BIM-AM Standards and Guidelines in 2017. The third version of the standards and guidelines, together with new handover and acceptance guidelines, was published last year for internal and the trade's reference.

As Internet of Things (IoT) technologies advanced, the BIM team integrated wireless IoT sensors with the BIM-AM system, and constructed the Government-Wide IoT Network after trials in 2019, enabling near real-time monitoring of the E&M systems within the BIM-AM system. They also fostered smart city development in close collaboration with other government departments. “The BIM-AM system, combined with a mobile application, can now display comprehensive E&M equipment data, including real-time data, which assists in remote monitoring and fault diagnosis,” explained Mr Chan, who also expressed the hope for adopting artificial intelligence technology to realise digital twins and thereby achieving the goal of predictive maintenance through analysis of real-time data.

With strong support from various divisions and client departments in the past two years, the BIM team has successfully constructed BIM models for over 90 existing government venues. The first BIM-AM application competition was also organised last year, and received overwhelming responses. “Most of the submissions were of high quality, which demonstrated a good understanding of BIM-AM. The team's persistent efforts and internal training over the years have finally paid off, which was profoundly moving,” Mr Chan said.

The team has also been promoting the application of BIM-AM locally and internationally through sharing sessions and conferences, and started to assist contractors and consultants in offering BIM courses five years ago. “As a BIM-AM pioneer in Hong Kong, we have to work harder to improve the system, showcase various applications and uphold established standards, so as to drive ahead the development of digitalisation in Hong Kong,” Mr Chan added.

### 年輕工程師全情投入營運基金首個 「機電裝備合成法」先導項目 WHOLEHEARTED DEDICATION OF YOUNG ENGINEERS IN THE EMSTF'S FIRST MIMEP PILOT PROJECT



李愷晴女士(右)和黃芷君女士(左)是綜合工程部的年輕工程師，她們全力策展大龍獸醫化驗所更換製冷機組項目，悉心研究如何落實「機電裝備合成法」的應用，每個環節都一絲不苟。

Ms Li Hoi-ching, Chelsea (right) and Ms Wong Tsz-kwan, Chris (left), two young engineers from the General Engineering Services Division, took forward the Chiller Plant Replacement project at Tai Lung Veterinary Laboratory with utmost dedication, exploring tirelessly the ways to implement MIMEP application and taking care of every aspect meticulously.

營運基金選定大龍獸醫化驗所更換製冷機組項目作為首個「機電裝備合成法」先導項目。綜合工程部工程師黃芷君女士解釋：「『機電裝備合成法』技術通常應用在新建成的大型建築物。然而，在是次項目中，製冷機組位於現有建築物的狹窄天台上，為項目帶來更多挑戰。正因如此，這些挑戰激發了我們應用新技術方案的創新想法。我們先利用三維雷射掃描及無人機把場地及周遭環境轉化為點雲模型，然後建立建築信息模擬模型，模擬整個施工過程，包括運輸、吊裝及模組組裝。通過全面的工程模擬，我們可更有效控制項目進度和進行場地協調，並降低潛在風險。」

綜合工程部工程師李愷晴女士補充：「我們利用建築信息模擬技術，為這次更換工程設計了八個模組，並在本地的工廠完成預製模組。在組裝過程中，我們應用了預製保溫層和機械人切割等創新技術，不但可提高準確度和效率，也可減少製造噪音和浪費材料，以及避免在狹窄環境中潛在的安全問題。」

施工前，團隊運用擴增實境技術，結合建築信息模擬模型，檢視在施工及維修期間可能遇到的限制和挑戰，以便預先制訂解決方案。黃女士說：「完工後，我們充分利用該模型，在操作和維修平台上進行實時監察，以及作進一步人工智能分析，從而優化製冷機組的運作效能。」

在無先例可循的情況下，團隊要就項目每個步驟，包括採用哪種技術，花時間研究、討論，並反覆試驗和修改，才能妥善完成工程。兩位工程師表示：「項目在疫情期間進行，物料運輸常有延誤。慶幸我們應用了『機電裝備合成法』技術，將工序簡化，令施工時間由約90天大幅縮短至38天。希望這次項目的成功經驗能為業界打下強心針，令大家更有信心在日後的維修、保養、改建及加建工程中應用該技術。」項目並於歐特克香港建築信息模擬設計大獎2022獲得榮譽獎，令團隊大感振奮。

The Chiller Plant Replacement project at Tai Lung Veterinary Laboratory was selected by the EMSTF as the first pilot Multi-trade integrated Mechanical, Electrical and Plumbing (MiMEP) project. “The MiMEP technology is typically applied in newly built large-scale buildings. However, in our project, the chillers are located on the congested rooftop of an existing building, presenting even greater challenges to the project. Yet in the light of this, the challenges sparked our innovative ideas on the application of new technological solutions. Our team embarked on transforming the site and its surrounding environment into a point cloud model by three-dimensional (3D) laser scanning and drones, and subsequently developed a Building Information Modelling (BIM) 3D model to simulate the entire construction process, encompassing delivery, hoisting and module assembly. This comprehensive simulation provided us with better control over the project progress and site co-ordination, and also helped mitigate potential risks,” Ms Wong Tsz-kwan, Chris, an engineer of the General Engineering Services Division (GESD) explained.

“Through BIM simulation, we designed eight modules for this replacement project and completed the prefabrication in a local factory. During the assembly process, we applied innovative technologies such as employment of pre-insulated pipes and robotic welding, which not only enhanced precision and efficiency but also curtailed noise, material waste and potential safety issues in crowded environments,” Ms Li Hoi-ching, Chelsea, an engineer of the GESD added.

Before construction, the team employed augmented reality technology in conjunction with the BIM model to inspect possible restrictions and challenges that may arise during construction and maintenance in order to develop solutions in advance. “Upon completion of the works, we fully utilised the BIM model for real-time monitoring in the operation and maintenance platforms and further semantic artificial intelligent analytics, in order to optimise the operational efficiency of the chiller plant,” Ms Wong said.

Without precedent cases for reference, all steps, including which technologies to adopt, required the team to spend time exploring, discussing and repeatedly experimenting and modifying in order to complete the project. The two engineers said, “The project was executed during the epidemic when material transportation delays were common. Fortunately, the application of MiMEP technology simplified the process and significantly reduced the construction time from about 90 days to 38 days. We hope the success of this project will inspire confidence in the industry to adopt MiMEP technology for future repair, maintenance, alteration and addition works.” The project was awarded an Honourable Mention at the Autodesk Hong Kong BIM Awards 2022, which was very encouraging for everyone involved.



## 營運服務 TRADING SERVICES

### 抗疫不懈 全力復常

2019冠狀病毒病疫情進入第三年，營運基金的策略業務單位繼續積極參與各項抗疫工作，與各政府部門攜手並肩，一同守護香港，戰勝疫情。我們為醫療界及相關部門提供專業及全面的技術支援，包括為醫院管理局(醫管局)提升病房設施；協助政府設立社區隔離及治療設施以應急需；以及支援客戶實施多項防疫措施。

第五波疫情爆發後，確診個案急增，升幅前所未見，導致醫療服務需求大增，醫管局因而急需加強所提供的醫療服務。有見及此，我們爭分奪秒，把更多普通病房改裝為二線隔離病房，加快隔離病房及設施的定期維修進度，並為北大嶼山醫院香港感染控制中心提供24小時技術支援。我們亦應客戶要求在醫院病房及普通科門診診所加裝「流動組合式—高效能空氣微粒子過濾器」和抽氣扇，以降低感染風險。

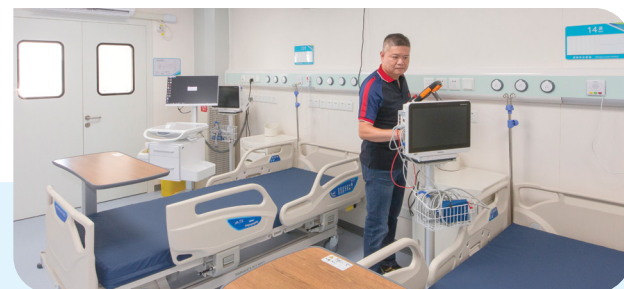
為進一步提升香港救治2019冠狀病毒病的能力，中華人民共和國中央政府協助香港特別行政區(香港特區)政府興建六個臨時社區隔離設施，以及位於落馬洲河套區的應急醫院和方艙設施。應急醫院於2022年年底移交香港特區政府營運管理後，機電署為醫管局於3月底完成機電系統及設施的基本調校及測試工作，並在其後一個月內完成多項改善工程，包括按照用家意見及消防處指示，為電力系統和消防系統進行設定工作，確保日間放射診斷服務先導計劃順利於4月推出。

### PERSISTENT ANTI-EPIDEMIC EFFORTS TO HELP RESUME NORMALCY

Entering the third year of the Coronavirus Disease 2019 (COVID-19) epidemic, our Strategic Business Units continued their unwavering efforts to participate in various anti-epidemic tasks. Working alongside various government departments, we strived to protect Hong Kong and overcome the epidemic by providing professional and comprehensive technical support to the healthcare sector and the departments concerned. Our contribution included assisting the Hospital Authority (HA) in enhancing ward facilities; helping the Government set up community isolation and treatment facilities to meet emergency needs; and supporting clients in implementing different anti-epidemic measures.

The fifth wave of the epidemic saw an unprecedented surge in confirmed cases, which resulted in a sharp rise in demand for healthcare services and therefore prompted the HA to urgently increase its service capacity. In view of this, we raced against time to convert more general wards into second-tier isolation wards, accelerate regular maintenance of isolation wards and facilities and provide round-the-clock technical support to the North Lantau Hospital Hong Kong Infection Control Centre. We also installed more Mobile Modular High Efficiency Particulate Air (HEPA) Filter Units and exhaust fans, upon clients' request, in hospital wards and General Out-patient Clinics to reduce the risk of infection.

To further enhance Hong Kong's COVID-19 treatment capabilities, the Central Government of the People's Republic of China assisted the Hong Kong Special Administrative Region (HKSAR) Government in building six temporary Community Isolation Facilities (CIFs), as well as the Emergency Hospital and Mobile Cabin Facility in the Lok Ma Chau Loop. Upon the handover of the Emergency Hospital to the HKSAR Government for operation and management at the end of 2022, the EMSD completed for the HA the basic calibration and testing of the electrical and mechanical (E&M) systems and facilities in late March, followed by a series of improvement works within a month. Based on user feedback and instructions from the Fire Services Department (FSD), we carried out customisation work on the electrical systems and fire services systems to ensure a smooth launch of the Ambulatory Diagnostic Radiology Service Pilot Programme in April.



我們協助調校及測試機電系統及設施，以應付應急醫院初期的運作需要，其後並進行了多項改善工程。我們目前正與醫管局緊密溝通，為擴大應急醫院的服務進行籌備工作。

We assisted in the commissioning and testing of E&M systems and facilities to meet the initial operational needs of the Emergency Hospital, followed by a series of improvement works. Currently, we are in close communication with the HA and preparing for the service expansion of the Emergency Hospital.



我們為啟德社區隔離設施內的各類機電設備提供操作和維修保養服務，確保機電設備運作正常，讓設施可以盡快投入服務，以應付社會對隔離設施的需求。

To meet the social needs for isolation facilities, we provided operation and maintenance services for various E&M equipment at the Kai Tak CIF to ensure proper operation of the E&M equipment, enabling its prompt commencement of service.

我們與建築署合作，為啟德社區隔離設施啟用提供支援。這個位於舊啟德機場跑道的隔離設施規模龐大，設54座樓房，每幢樓高四層，提供約3 000個單位。我們負責為機電設施進行測試和校驗，以及提供後續的維修保養服務。此外，我們為青衣、新田、洪水橋、粉嶺、元朗潭尾及港珠澳大橋香港口岸人工島的臨時社區隔離設施，提供機電技術意見和操作及維修保養服務。

We partnered with the Architectural Services Department to support the commissioning of the Kai Tak CIF. Situated at the former Kai Tak airport runway, this large-scale CIF consists of 54 blocks, each of which has four storeys, providing approximately 3 000 units. Our responsibilities included the testing and commissioning of the E&M facilities as well as the provision of subsequent maintenance services. We also provided technical advice and operation and maintenance services for other temporary CIFs in Tsing Yi, San Tin, Hung Shui Kiu, Fanling, Tam Mei in Yuen Long, and on the Hong Kong Boundary Crossing Facilities Island of the Hong Kong-Zhuhai-Macao Bridge.



## 營運服務 TRADING SERVICES

2019冠狀病毒病對長者及兒童的威脅尤甚，因此他們是最需要保護的一羣。有鑑於此，我們與社會福利署合作，為逾700間安老及殘疾人士院舍進行通風評估，以檢查通風設備是否符合相關要求，並提出改善建議。要在緊迫的時限內為分布全港各區的院舍完成通風評估絕非易事，有賴各相關部門同心協力，悉力以赴，我們最終在九個星期內順利完成評估工作。

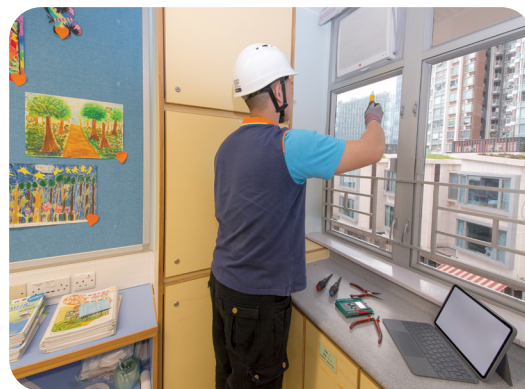
我們繼2022年年初為全港65間官立學校進行通風系統評估後，再次與教育局合作，為官立學校進行一系列通風改善工程，以保障學生和教職員的健康。第一期工程已在2022年暑假完成，而第二期工程，包括為教員室、音樂室及多功能活動室等課室以外的地方安裝抽氣扇，已於2023年年初展開。

Elderly and children are particularly vulnerable to COVID-19, and thus need the most protection against the virus. In this light, we conducted ventilation assessment for some 700 residential care homes (RCHs) for the elderly and persons with disabilities, in co-ordination with the Social Welfare Department (SWD), to check whether the ventilation equipment fulfilled relevant requirements, and put forward improvement recommendations. Having to complete the ventilation assessment for all these RCHs scattered across Hong Kong within a tight time frame was an extremely daunting task, yet the task was successfully completed within nine weeks with a concerted and dedicated effort of all the departments involved.

Further to our assessment of the ventilation systems in 65 government schools (GSs) in early 2022, we co-operated with the Education Bureau again to carry out a series of ventilation enhancement works at various GSs to safeguard the health of students and school staff. The first phase was completed during the summer holiday in 2022, whereas the second phase of the works, including the installation of exhaust fans in non-classroom areas such as staff rooms, music rooms and multi-purpose activity rooms, commenced in early 2023.

面對疫情肆虐，我們聯同社會福利署及有關決策局和部門迅速為全港逾700間安老及殘疾人士院舍評估通風系統，以減低長者感染病毒的風險。

In the face of the raging epidemic, we swiftly assessed the ventilation systems at more than 700 RCHs for the elderly and persons with disabilities all over Hong Kong in collaboration with the SWD and relevant bureaux and departments, in order to reduce the elderly's risk of virus infection.



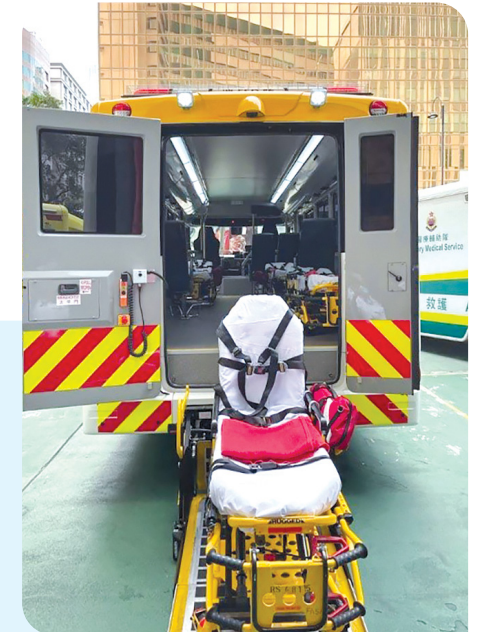
隨着第二期通風改善工程展開，機電署為馬頭涌官立小學(紅磡灣)的英語學習室加裝抽氣扇，以助保持室內空氣流通及提升空氣質素，從而保障學生及教職員的健康。

With the commencement of the second phase of the ventilation enhancement works, the EMSD installed additional exhaust fans in the English Learning Room for Ma Tau Chung Government Primary School (Hung Hom Bay) to enhance indoor ventilation and air quality, safeguarding the health of students, teachers and school staff.



為應對疫情下緊急撤離傷病老弱人士的需要，我們為消防處把四輛24座位巴士改裝為可作抬牀運送及載客兩用的車輛，有效提升運載病人的效率。

To cope with the need for emergency evacuation of patients and the vulnerable amid the epidemic, we converted for the FSD four 24-seater buses into dual-purpose vehicles that can be used as multi-stretcher and personnel carrier, effectively enhancing the efficiency of patient transport.



第五波疫情肆虐，緊急救護服務需求急增，而安老及殘疾人士院舍的院友及職員也經常需要大批撤離以進行檢疫，以上種種均對消防處運載病人的工作造成莫大挑戰。為應對迫切需要，我們為消防處把四輛新引入的24座位巴士改裝為「抬牀運送及載客兩用車」。四部車輛均設置高效能空氣微粒子過濾系統，以改善車內的空氣質素，並配備電動尾板，以便把臥牀病人連同抬牀一併運上車內。裝設有關設施亦可保障工作人員的職業安全及健康。

The fierce fifth wave of the epidemic gave rise to a surge in demand for emergency ambulance services and frequent large-scale evacuations of residents and staff in RCHs for the elderly and persons with disabilities for quarantine, posing tremendous challenges to the patient transport work of the FSD. To address the pressing need, we converted four newly introduced 24-seater buses into Multi-stretcher cum Personnel Carriers for the FSD. All four vehicles were installed with HEPA filtration systems to improve in-vehicle air quality, and electric tailgates to facilitate the lifting of bedridden patients and stretchers onto the vehicle, which at the same time ensured occupational safety and health of staff.

此外，傳統救護車亦調配用作運載確診或疑似感染個案患者。為減低交叉感染的風險和保障救護員的健康，我們改善了救護車的空調系統，並增設高效能空氣微粒子過濾系統。年內，我們已完成逾150輛救護車的有關安裝工程，並陸續為其餘救護車進行改裝。

Conventional ambulances were also deployed to transport confirmed or suspected patients. To minimise the risk of cross-infection and protect the health of the ambulancemen, we optimised the air-conditioning systems of ambulances and installed HEPA filtration systems. The installation work for over 150 ambulances were completed during the year, and that for the rest are still in progress.



## 營運服務 TRADING SERVICES

2023年年初，我們落實為消防處採購兩部新型多用途感染控制救護車。這兩部救護車專為送院前治理及運載高度傳染病患者而設計和建造，不但備有負壓通風系統，其車廂布局更可輕易進行改動，以用作撤離病人，並為接駁體外膜氧合器（俗稱「人工心肺」）儀器的患者提供緊急運送服務。我們預計有關救護車將於2025年年初交付。

我們亦運用科技協助客戶防疫抗疫。年內，我們在康樂及文化事務署轄下的元朗公共圖書館中央書庫安裝了自動圖書消毒系統，消毒效果理想。另外，我們陸續在多幢政府大樓安裝非接觸式升降機按鈕，以減少病毒經升降機按鈕傳播的風險。

我們致力抗疫工作，在2022年公務員優質服務獎勵計劃中獲得多個獎項，表現備受肯定。當中由19個決策局及部門合作興建社區隔離設施（包括規模最大的竹篙灣社區隔離設施）的「同心築」項目，榮獲「卓越部門合作獎」金獎；而「同心抗疫高效濾器」和「全天候監控為疫苗接種中心把關」項目，分別獲得「卓越團隊協作獎（危機管理）」及「卓越團隊協作獎（內部服務）」銀獎。

由於疫情好轉，政府於2023年1月復辦農曆年宵市場，連續七天在全港15個地點舉行，共有114萬人次到訪。農曆新年期間，亦有不少市民到車公廟和林村等其他熱點遊玩。鑑於人流聚集帶來潛在感染風險，當局需實施適當的人流管制措施，確保公眾安全。因此，我們使用新研發的人流控制系統協助食物環境衛生署（食環署）監控各個場地的人流。該系統利用可同時感應多人進出的高架人流統計裝置，點算通過出入口的人數，以助監察人流數量並控制場內人數。

In early 2023, we confirmed the procurement of two new Multi-purpose Infection Control Ambulances for the FSD. These ambulances are specially designed and built for pre-hospital treatment and transfer of patients with highly infectious diseases. In addition to the equipped negative pressure ventilation systems, the interior layouts of these ambulances can be changed easily to provide patient evacuation services and emergency transport services for patients connected to an extracorporeal membrane oxygenation machine. The vehicles are expected to be delivered by early 2025.

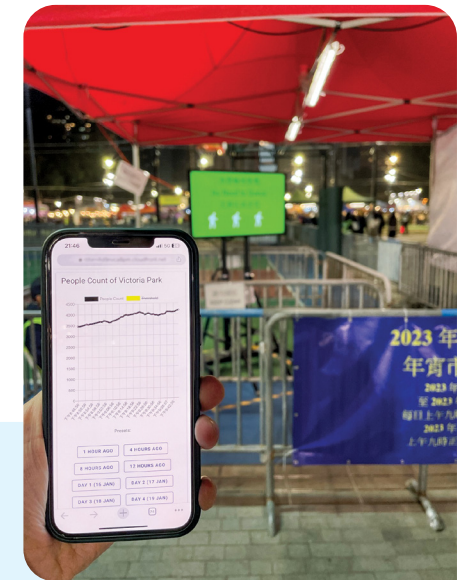
We also assisted clients in preventing and combating epidemics with technologies. During the year, an automatic book sterilising system was installed at the Central Reserve Stack of Yuen Long Public Library under the Leisure and Cultural Services Department, with satisfactory sterilising results. Moreover, contactless lift buttons were installed progressively in various government buildings to minimise the risk of virus transmission via lift buttons.

In recognition of our dedication to anti-epidemic work, we were awarded a number of prizes in the Civil Service Outstanding Service Award Scheme 2022, including the Gold Prize in Excellence in Partnership for Together We Build, a joint project by 19 bureaux and departments for building CIFs, with Penny's Bay CIF being the largest one; and the Silver Prizes in Excellence in Team Collaboration (Management of Crisis) for Together, We Filter out the Virus and in Excellence in Team Collaboration (Internal Service) for Round-the-clock Monitoring of Community Vaccination Centres.

Owing to the improved epidemic situation, the Lunar New Year (LNY) fairs resumed in January 2023 for seven consecutive days in 15 locations across the territory, attracting a total of 1.14 million visitors. During the LNY, there were also a number of people visiting other popular spots such as Che Kung Temple and Lam Tsuen. Given the potential infection risk posed by large crowds, it was necessary to implement proper crowd management to ensure public safety. Thus, we deployed for the Food and Environmental Hygiene Department (FEHD) a newly developed crowd control system for monitoring the footfall at various venues. The system employed overhead people counting devices capable of sensing multiple people passing through at the same time to count the number of visitors passing through the entrances and exits, facilitating the monitoring of footfall and the control of the number of visitors inside the venues.

我們會根據在疫情中累積的經驗再接再厲，搜羅及研發不同的創新方案，全力支援客戶部門服務市民。

Building on experience in the epidemic, we will continue to explore and develop different innovative solutions for client departments to serve the public.



為協助食環署在農曆年宵市場有效實施人流管制措施，機電署採用了人流控制系統，並在機電署總部設立中央控制中心，為該署監察人流量及提供可靠的技術支援。

To assist the FEHD in effectively implementing crowd control measures at the LNY fairs, the EMSD deployed the crowd control system and established a Central Control Centre at the EMSD Headquarters to monitor the footfall and provide reliable technical support for the department.





## 營運服務 TRADING SERVICES

### 迅速動員 克服萬難 確保應急醫院順利開展服務

RISING TO THE CHALLENGE WITH  
SWIFT MOBILISATION TO ENSURE  
SMOOTH SERVICE COMMENCEMENT  
OF EMERGENCY HOSPITAL

高級工程師葉煒堂先生(前排左三)及其團隊被委以重任，秉持不屈不撓的「機電署精神」，在短時間內為多項系統及儀器進行測試，讓中央援港應急醫院得以如期投入第一階段服務。

Mr Yip Wai-tong, a senior engineer (3rd left, front row), and his team rose to the occasion with the EMSD's spirit of resilience to perform various testing, and enabled the Central Government-aided Emergency Hospital to timely commence its phase-one services.



2022年12月30日，中央政府把中央援港應急醫院(應急醫院)移交香港特別行政區政府。其後於2023年1月13日，機電署與醫務衛生局簽訂服務水平協議，為應急醫院的機電系統和生物醫學儀器提供操作及維修保養服務。

為協助應急醫院順利啟用，衛生工程部從轄下場地及其他衛生工程部分迅速調配具備不同技能的人手，組成一支專責應對這項緊急工程的工作小組。醫院位於偏遠的落馬洲河套區，靠近邊境且毗鄰建築地盤，交通及配套設施有限。有見及此，管理層為工作小組妥善安排交通運輸配套，並設立臨時設施，以支援團隊並確保其運作順暢。衛生工程部高級工程師葉煒堂先生是工作小組一員，他在召集人手時，同事一呼百應，他對此深表讚賞。

團隊充分發揮「機電署精神」，竭盡所能在短時間內為設備進行多項測試工程。在2023年3月底，團隊已完成院內各個機電、空調及屋宇裝備系統以及生物醫療儀器、一般電子設備和操作輔助設施的基礎調校、測試工作。

葉先生表示：「在測試和校驗階段，我們致力在系統及設備開始正常運作之前，模擬故障情況和緊急轉換流程。這項工作甚具挑戰且相當艱難。再者，要將該院轉型為可長遠營運的常規醫療設施，以持續提供日常臨牀醫療服務，實在是另一重大挑戰，這需要我們與相關持份者進行有效溝通並相互理解。」

全賴團隊上下一心、羣策羣力，應急醫院已於2023年4月25日開始首階段營運，而日間放射診斷服務先導計劃也如期展開。機電署會因應醫院管理局就應急醫院訂定的另一個營運模式，繼續為該院提供校驗服務。

The Central Government handed the Central Government-aided Emergency Hospital (Emergency Hospital) over to the Government of the Hong Kong Special Administrative Region on 30 December 2022. Subsequently, on 13 January 2023, the EMSD and the Health Bureau signed a Service Level Agreement for providing operation and maintenance services for the E&M systems and biomedical equipment of the Emergency Hospital.

To facilitate the commissioning of the Emergency Hospital, the Health Sector Division (HSD) promptly redeployed internal staff with diverse skills from various venues and sub-divisions of the HSD to form a task force dedicated to this urgent task. The hospital, situated in the remote Lok Ma Chau Loop, had limited amenities and logistics support due to its proximity to the boundary and being adjacent to a construction site. In view of this, the management provided transportation and established temporary site facilities to support the team and ensure its smooth operation. Mr Yip Wai-tong, a senior engineer of the HSD as well as being a task force member, expressed deep appreciation for colleagues' swift and unwavering response to the call for assistance.

The team demonstrated the "EMSD's spirit" and dedicated themselves to completing a series of tests for the equipment within a short time frame. By the end of March 2023, the team had carried out essential adjustments and testing to various electrical, mechanical, air-conditioning, building services systems, biomedical and general electronic equipment, and auxiliary operation facilities of the hospital.

"During the testing and commissioning stage, we aimed to simulate failure scenarios and emergency changeover process before commencing normal operations of the systems and equipment. This task proved to be challenging and demanding. Furthermore, transforming the Emergency Hospital into a general healthcare facility for long-term operation that provides ongoing regular clinical services, was indeed another significant challenge, which required effective communication and mutual understanding with the stakeholders," said Mr Yip.

Thanks to the concerted effort of the team, the Emergency Hospital successfully commenced phase-one operation on 25 April 2023, with the Ambulatory Diagnostic Radiology Service Pilot Programme launched as scheduled. The EMSD will continue to provide commissioning services for the Emergency Hospital in accordance with another operation mode determined by the Hospital Authority.

### 處變不驚 靈活應對 全力支援香港國際七人欖球賽回歸 RESPONDING TO CHALLENGES WITH ADAPTABILITY AND FLEXIBILITY: FULL SUPPORT TO THE RETURN OF HONG KONG SEVENS

香港國際七人欖球賽重返香港大球場，黃嘉麟先生(右二)與團隊在陳嘉明先生(左二)帶領下，為賽事提供全面支援，並加強防疫措施。

As the Hong Kong Sevens returned to the Hong Kong Stadium, Mr Wong Ka-lun (2nd right) and the team, led by Mr Chan Ka-ming (2nd left), provided comprehensive support with strengthened epidemic prevention measures for the tournament.



香港國際七人欖球賽停辦三年，終於在2022年11月4日至6日再次在香港大球場舉行。由於該球賽是自疫情以來首個在香港舉辦的大型國際盛事，且參與者眾，因此政府十分關注賽事的防疫安排。

市政工程部電氣督察黃嘉麟先生與其團隊負責為賽事提供機電支援服務。他們除了為場地裝設機電設備及為直播系統提供技術支援外，還協助防疫工作。黃先生表示：「因疫情關係，我們必須迅速完成所有安裝工作，並加強各項防疫措施，例如設置大量空氣清新機以確保大球場內有充足的鮮風流通，採用消毒機械人為廂房進行空氣淨化，量度現場換氣量，以及為場內所有抽風、鮮風和空調系統進行調校、清洗、檢查及測試。有賴同事靈活應變，積極配合，我們終能如期完成任務。」

賽事吸引了大量海外觀眾之餘，還招來了「不速之客」——颱風尼格。八號風球在比賽前數天懸掛，因此團隊須在極短時間內拆卸戶外設備並把其遷移至室內，以及加強戶外臨時電力裝置的保護措施。颱風過後，團隊又立即把所有設備恢復至正常運作狀態，確保賽事可順利舉行。黃先生說：「儘管我們在疫情和颱風雙重夾擊下面臨重大挑戰，但同事迎難而上，全力以赴支援賽事舉行。他們隨機應變，迅速採取行動，真正展現出『香港速度』。」

團隊工作繁忙，日程緊湊，但仍抽空分享專業知識。具體而言，團隊為年輕同事舉辦培訓課程，好讓他們熟悉大球場的影音設備、直播系統及計分屏幕的操作與維修保養。黃先生表示，團隊分享親身經驗，讓年輕同事更加了解大型活動的準備工作，並汲取寶貴知識，這對他們日後的工作大有幫助。

他總結道：「衷心感謝同事盡心盡力工作和各部門通力合作！大家目標一致，同心協力，讓這項國際盛事得以圓滿舉行。」

After a three-year hiatus, the Hong Kong Sevens finally returned to the Hong Kong Stadium on 4 to 6 November 2022. As the tournament was the first major international event held in Hong Kong since the epidemic, and considering the substantial number of participants involved, the Government was concerned about its epidemic prevention arrangements.

Mr Wong Ka-lun, an electrical inspector of the Municipal Sector Division, and his team are responsible for providing electrical and mechanical support for the tournament. They not only installed E&M equipment for the venue and provided technical support for the live broadcasting system, but also assisted in epidemic prevention. "Due to the epidemic, we had to complete all installation work swiftly and step up various epidemic prevention measures, such as installing numerous air purifiers to ensure adequate fresh air ventilation in the stadium, using disinfection robots for air purification in the suites, measuring on-site air changes, and conducting adjustment, cleaning, inspection and testing for all exhaust, fresh air, and air-conditioning systems in the stadium. Thanks to colleagues' agility and proactive co-operation, we were able to complete the task on schedule," Mr Wong said.

In addition to a large international audience, the tournament had a visit from an unexpected guest, Typhoon Nalgae. Typhoon Signal No. 8 was hoisted several days before the tournament, prompting the team to disassemble the outdoor equipment and relocate them indoors, as well as strengthening the protection of the outdoor temporary power supplies, all within an extremely short period of time. As soon as the typhoon was over, the team immediately restored all equipment to operational status, ensuring the smooth running of the tournament. "We encountered significant challenges under the double blow of the epidemic and the typhoon. Nevertheless, our colleagues rose to the occasion and devoted their utmost efforts to supporting the tournament. Their flexible responses and prompt actions truly embody the 'Hong Kong speed'," Mr Wong shared.

Despite a hectic schedule, the team found time to share their expertise. Specifically, training courses were organised for young colleagues to familiarise them with the operation and maintenance of the audio-visual equipment, live broadcasting system and scoreboard of the stadium. Mr Wong said that the sharing of hands-on experience allowed young colleagues to better understand the preparation work for major events, equipping them with valuable knowledge for their future work.

"I am profoundly grateful for our colleagues' dedication and the collaboration of various departments. Everyone shared the same goal and worked together to bring this international event to a successful conclusion," he concluded.



## 營運服務 TRADING SERVICES

### 綠色城市 智慧生活

營運基金積極應用新科技，確保以經濟環保、安全可靠的方式運用機電設備及能源科技，協助客戶實踐智能節能方案，藉以加快智慧城市發展步伐，並實現碳中和。

作為政府的「創新促成者」，營運基金在年內繼續支援《香港智慧城市藍圖2.0》（《藍圖2.0》）的措施。《藍圖2.0》涵蓋六個主要智慧範疇，並提出智慧鄉村先導計劃的構想。年內的亮點之一，是我們與世界自然基金會香港分會合作進行的「智慧濕地」項目。該項目獲鄉郊保育資助計劃資助，利用物聯網技術監察米埔自然保護區內的環境，既可提升濕地管理效率，並可推廣在偏遠鄉郊地區應用物聯網技術。我們已經與環境保護署（環保署）簽訂服務水平協議，為「智慧濕地」項目提供「政府物聯網」網絡覆蓋和技術建議。

為落實《藍圖2.0》所提出的「智慧出行」措施，我們繼去年為運輸署更換9 800個停車收費錶後，年內又協助該署在路旁泊車位安裝了逾10 600個新一代太陽能停車收費錶。新一代收費錶支援多種付款方式，更配備傳感器以偵測泊車位佔用情況和作遙距監察，有關的實時資訊會經「入錶易」流動應用程式發放。此外，我們為運輸署轄下十個現有多層停車場安裝停車位指引系統、車輛搜尋系統及無票進出監控系統，所有系統均已於2023年3月投入服務。



### SMART LIVING IN A GREEN CITY

Through the active employment of new technologies, the EMSTF ensures the E&M equipment and energy technology are used in an economical, environmentally friendly, safe and reliable way to facilitate the implementation of intelligent energy-saving solutions by our clients, and thereby accelerating our smart city development and achieving carbon neutrality.

As the Government's Innovation Facilitator, the EMSTF continued in the year to support the Smart City Blueprint 2.0 for Hong Kong (Blueprint 2.0), which covered six major smart areas and put forward the idea of smart village pilot initiatives. A highlight of the year was the "Smart Wetland" project carried out in collaboration with the World Wide Fund for Nature Hong Kong. Subsidised by the Countryside Conservation Funding Scheme, the project enabled environmental monitoring of the Mai Po Nature Reserve through Internet of Things (IoT) technology, thereby enhancing wetland management efficiency as well as promoting the application of IoT in remote areas. We have signed a Service Level Agreement with the Environmental Protection Department (EPD) to provide Government-Wide IoT Network (GWIN) coverage and technical advice for the project.

To achieve the Smart Mobility initiatives under the Blueprint 2.0, further to the replacement of 9 800 parking meters for the Transport Department (TD) in the previous year, we installed for it over 10 600 new-generation solar-powered parking meters at roadside parking spaces in the year. These meters support multiple payment methods and are equipped with sensors for vehicle occupancy detection and remote monitoring. The relevant real-time information will be disseminated through the HKeMeter mobile application. In addition, we installed the Bay Guidance System, Car Searching System and Ticketless Access Control System for ten existing multi-storey car parks under the TD, all of which were put into service in March 2023.



機電署職員在米埔自然保護區內設置「政府物聯網」基站(右)，以提供「政府物聯網」網絡覆蓋，讓世界自然基金會香港分會可透過在保護區內安裝的傳感器遙距接收數據，從而監察淡水塘的水位及水質。

The EMSD staff set up a GWIN gateway (right) in the Mai Po Nature Reserve to provide GWIN coverage, allowing the World Wide Fund for Nature Hong Kong to receive data remotely from sensors installed in the reserve, and thus monitoring the water level and quality of the freshwater ponds.



機電署在多個政府場地安裝了物聯網可用泊車位檢視系統，包括大埔綜合大樓(左)和港島東體育館(右)。該系統利用紅綠雙色燈顯示個別車位的佔用狀況，並在入口處配備顯示屏，提供實時的可用泊車位資訊。

The EMSD installed the IoT-based Car Park Availability System at several government venues, including Tai Po Complex (left) and Island East Sports Centre (right). The system shows the occupancy status of individual parking spaces with red and green bicolour lights, and provides real-time information on available parking spaces with a display panel at the entrance.

繼利用物聯網的可用泊車位檢視系統在九龍公園成功試行後，我們為康樂及文化事務署（康文署）在其他市政場所安裝該系統的傳感器及室外顯示屏，以偵測車位佔用情況及實時顯示空置泊車位資料，當中以大埔綜合大樓和港島東體育館的成效尤為顯著。去年，我們又為油麻地分區警署停車場試行傳感器解決方案，結果成效理想，故此，在2023年年初亦為銅鑼灣警官會所的停車場安裝有關傳感器。目前，我們正與香港警務處探討把傳感器解決方案的應用擴展至其他地點。

《藍圖2.0》亦涵蓋「智慧環境」措施。我們參與了食物環境衛生署和康文署的智慧廁所試驗計劃，以兩署轄下17個公廁作為試點，安裝多種物聯網傳感器收集不同類型的數據，例如公廁的使用量、環境參數和設備的運作狀態等。由於試驗計劃成效優良，促成我們與漁農自然護理署合作，在四個使用率高的郊野公園廁所中裝設智慧廁所系統，以提升公共服務質素。

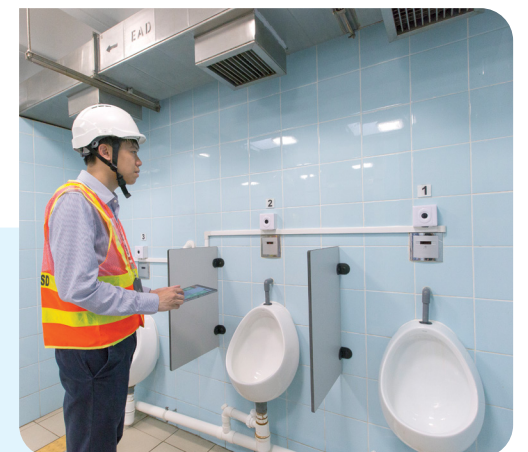
Following the successful trial of the IoT-based Car Park Availability System at the Kowloon Park, we installed sensors and outdoor display panels of the system at other municipal venues for the Leisure and Cultural Services Department (LCSD) for detecting parking space occupancy and enabling the display of real-time parking vacancy information, with particularly notable results seen at Tai Po Complex and Island East Sports Centre. Additionally, after the sensor solution had been trialled with good results in the car park at Yau Ma Tei Division Police Station last year, the car park of the Causeway Bay Police Officers' Club was also installed with sensors in early 2023. We are currently in discussion with the Hong Kong Police Force to extend the application of the sensor solution to other locations.

The Blueprint 2.0 also covers initiatives on Smart Environment. We participated in the smart toilet pilot programme in 17 toilets under the Food and Environmental Hygiene Department and the LCSD. Various IoT sensors were installed to collect different types of data, such as toilet usage, environmental parameters and operation status of equipment. The success of the programme prompted our collaboration with the Agriculture, Fisheries and Conservation Department to deploy the system in four high-usage country park toilets to improve service quality.



我們於九龍公園公廁增設智慧廁所系統，收集不同類型的數據，包括廁所及消耗品的使用情況；而廁所外亦會顯示可使用廁格數目及鄰近公廁等資料，以提升公共服務水平。

We installed the smart toilet system at public toilets in the Kowloon Park to collect various types of data including usage of toilets and consumables. Information such as the number of cubicles available and nearby public toilets are displayed outside the toilets to improve public service standards.





## 營運服務 TRADING SERVICES

在推廣「智慧生活」方面，我們與消防處合作，進一步測試「應用無人機技術的遠程網絡系統於偏遠地區提供位置追蹤」的成效。2022年8月，我們在攀山拯救專隊於船灣郊野公園訓練期間，與該隊合作測試有關技術。我們採用無人機搭載小型「政府物聯網」基站，配合遠程網絡系統和定位追蹤裝置，提高定位追蹤的準確度。有關項目於《經濟通》的「2022智慧生活夥伴大獎」中榮獲「智慧衣服／物聯網／機械人技術」類別的「傑出遠足安全系統」獎項。該項技術除了可保障遠足安全外，還可進一步在政府部門舉辦的大型戶外和水上活動中應用，以監察參加者位置，加強整體的安全措施。

在上述大獎中，我們和渠務署合作開發的「智慧渠務－防洪監察系統」，贏得「智能建設／環境科技／綠色科技」類別的「傑出智慧防洪監察系統」獎項。另外，我們還獲得「教育科技」類別的「傑出全方位PLC培訓平台」、「房地產科技」類別的「傑出鼠患管理平台」和「智慧政府」類別的「傑出建築信息模擬及資產管理系統」等多項殊榮。以上獎項充分肯定我們為建設智慧城市所作出的貢獻。



我們的團隊利用無人機搭載「政府物聯網」基站，結合定位追蹤裝置，在攀山拯救專隊成員進行訓練期間實時追蹤他們的位置。這個定位追蹤系統專為偏遠地區的行動而設，能有效協助搜救人員確定傷者或失蹤人士的位置。

By utilising the GWIN-on-Drone, which worked with positioning tracking devices, our team tracked the locations of MSRT members in real time during their training. This location tracking system is specifically designed to assist search and rescue personnel in locating the injured or missing individuals effectively for operations in remote areas.

機電署與渠務署合作開發的「智慧渠務－防洪監察系統」，在「2022智慧生活夥伴大獎」中贏得「傑出智慧防洪監察系統」獎項。

The Smart Drainage – Flood Monitoring System, developed by the EMSD in collaboration with the Drainage Services Department, received the Outstanding Smart Flooding Monitoring System award in the Smart Living Partnership Awards 2022.



To promote Smart Living, we conducted further tests on the Drone-based Long Range (LoRa) Network for Location Tracking in Remote Areas in collaboration with the Fire Services Department. In August 2022, we tested the technology with the Mountain Search and Rescue Team (MSRT) during the MSRT's training in Plover Cove Country Park by using a drone to carry a lightweight GWIN gateway (GWIN-on-Drone), which worked with the LoRa Network and positioning tracking devices, to enhance location tracking accuracy. The project was awarded the Outstanding Hiking Safety System under the Wearable/Internet of Things/Robotics category of the Smart Living Partnership Awards 2022 by etnet. In addition to hiking safety, the location tracking system can be further applied to monitoring participants' locations in large-scale outdoor and aquatic activities organised by government departments, and thereby enhancing the overall safety measures.

In the same award programme, we also won the Outstanding Smart Flooding Monitoring System award in the Smart Building/Environment/Green Technology category for the Smart Drainage – Flood Monitoring System developed in collaboration with the Drainage Services Department; the Outstanding Integrated PLC Training Platform in the Education Technology category; the Outstanding Rodent Control Management Platform in the Property Technology category; and the Outstanding Building Information Modelling Asset Management System in the Smart Government category. These awards fully acknowledged our contribution to building a smart city.

為配合《香港氣候行動藍圖2050》，營運基金積極推行多項節能減碳措施，廣受客戶和業界歡迎。我們應環保署要求，進行一系列電動車充電器安裝項目，以推廣使用電動車。有關項目包括在公眾停車場安裝數百個電動車充電器，以及裝設電力負荷管理系統和可供使用充電車位顯示系統。另外，我們正將在邊境管制站試驗充電器遙距監察系統。

在2022/23年度，我們並協助路政署在其轄下的行人天橋、行人隧道、有蓋行人路及公共運輸交匯處等，把約4 090個照明設備更換成可節省能源的發光二極管(LED)燈具。我們計劃在2023/24年度繼續把另外7 020個照明設備更換成LED燈具。

營運基金繼續致力為醫療設施提供增值服務，務求達到減碳和可持續發展的目標。為進一步提升醫療設備維修保養的服務質素和效率，我們在2022/23年度開發了醫療儀器維修表格電子平台，並先行應用於輸液泵維修，讓本署人員可使用平板電腦存取不同品牌、型號的輸液泵的電子維修報表，不但可以簡化工作流程，以無紙化模式達致環保，更確保了維修質量並符合ISO 13485標準。我們計劃日後擴展平台的使用範圍，涵蓋其他醫療設備，以提升服務。



新推出的醫療儀器維修表格電子平台，可連結至維修保養手冊及內置的選項清單，並且與流動裝置兼容，讓員工能更輕易、快捷及準確地填寫醫療儀器的維修保養表格，較使用紙本表格更為方便，大大提高工作效率及服務質素。

The new BES e-form platform, which was not only linked to maintenance manuals and built-in checklists but also compatible with mobile devices, enables our staff to complete forms for repair and maintenance of medical equipment more easily, quickly and accurately than using paper forms, significantly enhancing work efficiency and service quality.

In response to the Hong Kong's Climate Action Plan 2050, the EMSTF put forward a number of initiatives to save energy and reduce carbon emission, which were well received by customers and the industry. At the request of the EPD, we launched a series of electric vehicle (EV) charger installation projects to promote the use of EVs, including the installation of hundreds of EV chargers at public car parks, and the setup of the load management systems and EV charging space availability display systems. In addition, trials of a remote monitoring system for EV chargers are being conducted at boundary control points.

In the year 2022/23, we also supported the Highways Department (HyD) in replacing nearly 4 090 lighting fixtures with energy-efficient light emitting diode (LED) luminaries at the footbridges, subways, covered walkways and public transport interchanges under the purview of the HyD. This initiative will continue in 2023/24 as we plan to replace an additional 7 020 lighting fixtures with LED luminaries.

The EMSTF remains committed to providing value-added services to healthcare facilities to achieve carbon reduction and sustainable development goals. To further enhance our service quality and efficiency for medical equipment maintenance, the EMSTF developed a Biomedical Engineering Services (BES) e-form platform which is pilot used for the repair of infusion pumps in the year 2022/23. This platform allows our staff to access the electronic repair forms of different brands and models of the infusion pumps via tablets, not only streamlining the workflow and achieving environmental benefits by going paperless but also ensuring maintenance quality assurance to comply with ISO 13485. We also plan to extend the usage of the e-form platform to other medical equipment in the future to improve our service.





## 營運服務 TRADING SERVICES

此外，我們為17座醫院大樓進行重新校驗，以找出可節能之處。我們亦與醫院管理局（醫管局）及本地大學合作，為醫管局轄下的多所建築物和醫療設施建立人工智能製冷機組優化系統。截至2023年1月初，該系統已在將軍澳醫院試行約一年，共節省了5.5%能源。

我們為民航處總部製冷機組系統實施的人工智能能源優化方案，亦成功減少能源消耗量達3%，成績令人滿意。

近年，營運基金積極提升港珠澳大橋香港口岸設施的能源效益，包括進行有關安裝太陽能發電系統的可行性研究，進行照明設備改造工程，應用人工智能技術優化區域供冷系統，以及自行開發太陽能發電的自動化學劑投藥系統。該化學劑投藥系統用於區域供冷系統的海水冷凝器，以防止海洋生物滋生。值得一提的是，我們亦為旅檢大樓的雨水收集缸進行改善工程。所收集的雨水原本僅用作灌溉，但為了善用雨水資源，我們安裝了加壓系統與雨水收集缸相連接，透過加壓系統抽出收集缸的雨水，用以清洗污水井，從而節省清水資源。

未來，營運基金會持續不斷地研發和使用新智能技術，以提高能源效益，為我們的客戶及市民提供更優質的服務。

Apart from that, we conducted retro-commissioning for 17 hospital buildings to identify energy-saving potential, and collaborated with the Hospital Authority (HA) and local universities to develop the artificial intelligence (AI) chiller plant optimisation system for various HA buildings and healthcare premises. A trial of the system at Tseung Kwan O Hospital for about a year until early January 2023 resulted in a 5.5% energy saving.

It is also noteworthy that the implementation of the AI Energy Optimisation Solution for the chiller plant system of the Civil Aviation Department Headquarters achieved promising results, with energy consumption reduced by 3%.

In recent years, the EMSTF has been making great effort to enhance energy efficiency of the facilities at the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port by conducting a feasibility study on the installation of a solar photovoltaic system, carrying out lighting retrofit works, applying AI for optimisation of the district cooling system, and developing self-initiated solar-powered automatic chemical dosing system for the seawater condensers in the district cooling system to prevent marine organisms from growing. Also worth mentioning is the improvement work of the rainwater harvesting tanks at the Passenger Clearance Building. Originally, the collected rainwater was used only for irrigation. To make better use of the collected rainwater, the rainwater tanks are now connected to a newly installed pressure system, with which the water is pumped to clean the sewage tanks, and thus saving fresh water resources.

Looking forward, the EMSTF will continue to develop and implement new intelligent technologies to improve energy efficiency and provide services of even higher quality to our clients and the community.



為達至提高能源效益和節能的目標，我們利用人工智能優化醫管局大樓的製冷機組，以分析及調節製冷機組的效能。

To achieve better energy efficiency and conservation, we applied AI for chiller plant optimisation at the HA Building for analysing and adjusting the performance of chiller units.



### 智慧渠務系統防治洪水更臻完善 PERFECTING SMART DRAINAGE SYSTEM FOR FLOOD PREVENTION

「智慧渠務 — 防洪監察系統」自2019年開發以來，發展漸趨成熟，這實在要歸功於工程師林坤然先生（右）和電子督察黃俊傑先生（左）孜孜不倦地創新突破。

The Smart Drainage – Flood Monitoring System has gradually matured since its development in 2019, thanks to the breakthroughs made by Mr Lam Kwan-yin, Henry, an engineer (right), and Mr Wang Chun-kit, Johnny, an electronics inspector (left).

為應對氣候變化對環境及社會構成的重大風險，機電署和渠務署合作開發「智慧渠務 — 防洪監察系統」。該系統在颱風季節開始運作，持續追蹤河流、海洋和渠道的實時水位及流量變化，有助及早偵測和預測潛在的水浸風險。

負責項目統籌的保安及車輛工程部工程師林坤然先生表示：「我們目前已安裝了近140個監測點，新系統自2019年起實施，利用政府的低功率廣域網路物聯網感應器及遠距離無線攝影機，在現有排水系統內作跨平台實時防洪監察及警報。系統並整合香港天文台的數據，以進行更準確的分析。」

保安及車輛工程部電子督察黃俊傑先生具備豐富前線經驗，「新系統更具成本效益，其成本僅為傳統測量站的二十分之一。該系統以電池運作，無需鋪設電線，安裝時間只需約一星期。此外，為了延長電池壽命，我們與渠務署協商，因應天氣變化調節量度頻率，以達節能之效。」

機電署最近獲委以重任，在雨季來臨前為流浮山鴨仔坑這個高風險及不穩定的水浸點裝設防洪監察系統。黃先生表示：「團隊在一周內迅速完成任務，而該監測點在其後的一場紅色暴雨中發揮作用，大大突顯了該系統的重要性。此外，我們開始對電池的生命周期進行監察，以預測何時需要更換及維修電池，這項工作有助及早規劃材料採購及維修時間表。」

這個利用低功率廣域網路物聯網感應器及遠距離無線攝影機作防洪監察的智慧渠務系統，在2023年日內瓦國際發明展榮獲銅獎。林先生說：「獲獎固然令人鼓舞，但能夠保護公眾安全及財產才是最有意義的。我希望不斷完善系統，把其應用擴展至更多地點，日後能造福更多市民。」

To address the substantial risks posed by climate change to the environment and society, the EMSD and the Drainage Services Department (DSD) collaborated to develop the Smart Drainage – Flood Monitoring System. This system, which began operation during the typhoon season, continuously tracks real-time variations in water levels and flows across rivers, seas, and channels, facilitating early detection and prediction of potential flooding risks.

“Nearly 140 monitoring points have been installed so far,” said Mr Lam Kwan-yin, Henry, the engineer of the Security and Vehicle Services Division (SVSD) in charge of project co-ordination. “Since 2019, we have implemented a new system utilising low-power wide-area network Internet of Things sensors (LPWAN IoT sensors) and Long Range cameras (LoRaCam) of the Government, enabling real-time cross-platform flood monitoring and alarm within the existing drainage system. Moreover, integrating data from the Hong Kong Observatory, we have more precise analysis.”

“The new system offers greater cost-effectiveness, costing only 1/20 of the traditional gauging stations,” said Mr Wang Chun-kit, Johnny, an electronics inspector of the SVSD with extensive frontline experience. “The new system operates on batteries, eliminating the need for wiring, and requires only about a week for installation. In addition, to optimise the battery life, in consultation with the DSD, we adjust the measurement frequency in response to weather changes, in order to reduce energy consumption.”

The EMSD was recently entrusted with the crucial task of installing the flood monitoring system at the high risk precarious water-logging spot of Ap Tsai Hang, Lau Fau Shan prior to the rainy season. Mr Wang said, “The team efficiently completed the task within a week, and the monitoring point demonstrated its efficacy during a subsequent red rainstorm, underscoring the importance of this system. We also began battery life monitoring to predict when the battery needs replacement and maintenance, which facilitates advance planning for material procurement and maintenance schedules.”

The Smart Drainage System for Flood Monitoring using LPWAN IoT sensors and LoRaCam received a bronze award at the International Exhibition of Inventions of Geneva 2023. “Winning the award is certainly encouraging, but being able to protect public safety and property is what truly makes our efforts worthwhile,” said Mr Lam. “I hope to continuously refine the system and see its application expand to more locations, so that even more people will benefit in the future.”



## 營運服務 TRADING SERVICES

### 客戶伙伴 全力支援

為客戶的基建項目提供專業意見及支援，以及機電操作和維修保養服務，是營運基金的核心業務之一。我們的服務涵蓋多個範疇，包括道路與航空交通、邊境管制口岸、政府建築物，以及康樂場地和醫療設施等公共設施。

完善的基建配套是城市可持續發展的基石，香港深明此道。儘管面對第五波疫情，本港仍繼續推動基建發展。年內，我們與客戶部門緊密合作，推動公共基建發展，開展多個基建項目。我們的其中一項重大成就，是協助政府多個部門設計、建造和校驗香港國際機場三跑道系統的機電和電子系統，包括海關、出入境及港口衛生設施，以及採購相關家具及設備。此外，我們為香港機場管理局（機管局）提供新北跑道及滑行道助航燈系統的維修保養服務。

2022年4月，距離新北跑道啟用日期僅三個月，我們受機管局委託，為臨時航空交通管制指揮塔提供全面保養和維修服務。為了確保指揮塔的設施能順利交接並及時投入運作，我們馬上全力開展準備工作。由於時間緊迫，我們運用建築信息模擬技術來進行交接前的檢驗。建築信息模擬模型具備巡檢功能，讓我們可以在實地視察前先掌握指揮塔內各項機電設施的安裝情況，亦可預測日後的潛在維修保養問題。這種創新的檢驗方式成效卓著，項目最終如期順利交接。



機電署負責為香港國際機場新北跑道及其滑行道助航燈系統提供全天候維修保養服務。未來，我們會繼續積極研究創新方案，例如利用地面機械人協助清潔和維修助航燈，以加強工作安全和效率。

The EMSD is responsible for round-the-clock maintenance of the Airfield Ground Lighting System of the new North Runway and its taxiways at the Hong Kong International Airport. We will continue to actively explore innovative solutions, such as using ground robots for cleaning and maintaining ground lighting, to enhance work safety and efficiency.



### CLIENTS' TRUSTED PARTNER AT ALL TIMES

Providing professional advice and support, as well as E&M operation and maintenance services to clients for their infrastructure projects, is one of the core businesses of the EMSTF. Our services cover a wide range of areas, including road and air transport, boundary control points, government premises and public facilities, such as recreational venues and medical facilities.

Sound infrastructure is the cornerstone of a sustainable city, and Hong Kong recognises this fact. Even in the face of the fifth wave of the epidemic, the city continued its infrastructure development. Throughout the year, we worked closely with our client departments to promote public infrastructure development and launched several infrastructure projects. One of our significant achievements was supporting various government departments in the design, construction and commissioning of E&M and electronic systems, including customs, immigration and port health facilities, as well as the procurement of relevant furniture and equipment, for the Three-runway System at Hong Kong International Airport. Also, we provided maintenance services for the Airfield Ground Lighting System of the new North Runway and taxiways for the Airport Authority Hong Kong (AAHK).

In April 2022, just three months before the new North Runway was put into operation, we were entrusted by the AAHK to provide comprehensive maintenance and repair services for the Interim Air Traffic Control Tower (IAT). To ensure a smooth handover and timely commissioning of the IAT facilities, we immediately launched the preparation work in full scale. Given the tight schedule, we employed the Building Information Modelling (BIM) technology to conduct a pre-handover inspection. The BIM model has a walk-through inspection function, which assisted us to gauge the installation condition of the E&M facilities in the IAT prior to on-site inspection, and anticipate potential maintenance issues in the future. With the aid of this effective and innovative inspection approach, the IAT facilities were eventually delivered within the given time frame.



年內，我們為將軍澳—藍田隧道的機電系統設計提供專業意見，並就不同系統和設備進行測試和校驗，包括將軍澳跨灣連接路拱橋的現場驗收測試，以確保隧道順利開通。

During the year, we offered professional advice on the design of E&M systems of the Tseung Kwan O-Lam Tin Tunnel, and carried out testing and commissioning of various systems and equipment, including the site acceptance test of the arch bridge of the Tseung Kwan O Cross Bay Link, to ensure the smooth opening of the tunnel.



支援道路基建是營運基金的另一項重點工作。年內其中一個亮點是在將軍澳—藍田隧道（將藍隧道）及將軍澳跨灣連接路通車前，為土木工程拓展署和運輸署提供機電支援及技術評估服務。我們為隧道機電系統的設計提供專業意見，進行測試及校驗，並見證廠內和現場驗收測試。我們於2022年8月首次進行隧道風扇的起動測試，其後並對相應的機電系統進行密集式現場驗收測試。為了配合隧道在2022年12月11日如期通車，我們竭力配合土木工程拓展署的工程進度，包括通宵工作以竭盡全力在四個月內完成所有檢驗測試。我們也監督隧道營辦商的工作並監察交通信號系統的運作。另外，為配合將軍澳隧道自將藍隧道通車當日起實施豁免收費，我們安排停用收費設施，並提供專業技術支援，以確保順利過渡。

Supporting road infrastructure is another focus area of the EMSTF. One of the highlights in the year was providing E&M support and technical assessment services to the Civil Engineering and Development Department (CEDD) and Transport Department (TD) prior to the opening of the Tseung Kwan O-Lam Tin Tunnel (TKO-LT Tunnel) and Tseung Kwan O Cross Bay Link. We provided professional advice on the design of E&M systems of the tunnel, carried out testing and commissioning, and witnessed the factory and site acceptance tests. The first start-up test for the tunnel ventilation fans was conducted in August 2022, followed by intensive site acceptance tests for the corresponding E&M systems. To meet the commissioning date of 11 December 2022, we spared no effort to cope with CEDD's project progress, including working overnight and endeavouring to witness all inspection tests within four months. We also oversaw the work of the tunnel operator and monitored the operation of the traffic signal system. In addition, to tie in with the implementation of a toll waiver for the Tseung Kwan O Tunnel starting from the commissioning date of the TKO-LT Tunnel, we arranged for the cessation of operation of the toll collection facilities and provided professional technical support to ensure a smooth transition.



## 營運服務 TRADING SERVICES

我們在道路基建方面的支援亦包括隧道／管制區改善工程，例如更換啟德隧道、東區海底隧道、香港仔隧道、大老山隧道、獅子山隧道及青馬管制區的交通管制及監察系統。我們也為運輸署在中環及灣仔繞道隧道現有的交通事故自動偵察系統增設逆線行車偵察功能，以及設置行人闖入檢測系統，以監察不當或非法進入隧道範圍的情況。

展望將來，我們計劃在西區海底隧道專營權於2023年下半年交還政府後承接隧道的監察服務。為實現政府的智慧城市發展願景，我們會分階段推行「易通行」不停車繳費服務，讓駕駛者無須在收費亭停車即可繳付隧道費，以促進智慧出行。

機電署亦為邊境管制站設施提供支援。我們正為施工中的新皇崗口岸進行機電設施設計和安裝工作。

為客戶部門提供機電設施的操作和維修保養服務以及項目管理服務，也是我們的核心工程服務之一。年內，我們協助香港海關（海關）翻新海關總部大樓的傳媒接待室。為配合海關對影音系統的要求，我們把原本的音響系統，換上由兩台發光二極管顯示屏組成的兩幅巨型電視屏幕。我們亦為海關的人員提供有關操作新影音系統的培訓，並於綵排和活動中提供現場支援。這個項目的主要挑戰是時間限制，整項工程須在四個月內完成，時間緊迫。然而，我們的團隊靈活應變，項目終於如期在2023年2月竣工，海關亦得以在2023年3月1日在該接待室舉行2022年工作回顧記者會。



我們在海關總部大樓安裝了新設備，包括傳媒接待室的大屏幕和先進混音器（左），以便更精確調校聲音；此外，還有智能電掣房監察系統（右），以加強電力裝置的維修保養。

We installed new equipment in the Customs Headquarters Building, including a large monitor and an advanced audio mixer at its media briefing room (left) for more precise control of sound, as well as a smart switch room monitoring system (right) to strengthen maintenance of electrical installations.

Our support for road infrastructure also covers tunnel/control area improvement projects, such as replacing the traffic control and surveillance systems in several tunnels, including the Kai Tak Tunnel, the Eastern Harbour Crossing, the Aberdeen Tunnel, the Tate's Cairn Tunnel, the Lion Rock Tunnel and the Tsing Ma Control Area. Moreover, we assisted the TD in adding a wrong-way traffic detection feature to the existing Automatic Incident Detection System and providing the Human Intrusion System at the Central-Wan Chai Bypass Tunnel to monitor improper or illegal entry into the tunnel.

Looking ahead, we are planning to provide monitoring service for the Western Harbour Crossing after the Government takes over the tunnel upon the end of its franchise in the second half of 2023. To realise the Government's vision of smart city development, we will implement in phases the HKeToll, a free-flow tolling service that enables drivers to pay tolls without stopping at toll booths, thus facilitating smart travel.

The EMSD provides support for border control point facilities too. Currently, we are working on the design and installation of E&M facilities at the new Huanggang Port, which is still under construction.

Providing operation and maintenance service of E&M facilities as well as project management service for client departments is also one of our core engineering services. During the year, we provided support to the Customs and Excise Department (C&ED) in the renovation of the media briefing room in the Customs Headquarters Building. To meet the C&ED's requirements for the audio-visual system, we replaced the original audio system with two giant TV walls, which were formed by two sets of light emitting diode display panels. In addition, we provided various training sessions on the operation of the new audio-visual system for C&ED staff and on-site support during rehearsals and events. The main challenge of the project was time constraint, as we had to complete the entire project within four months. Nevertheless, our team, being flexible and adaptable, completed the project in February 2023 as scheduled, and hence the 2022 year-end press conference of the C&ED was held successfully at the venue on 1 March 2023.



今年我們亦承接了多座新落成的政府建築物及設施的機電操作和維修保養服務，例如屯門滅火輪消防局、銅鑼灣警官會所、設有體育館和游泳池的大埔東昌街康體大樓、位於古洞北的福利服務綜合大樓和位於啟德的稅務中心等，不一而足。

為確保香港的醫療設施足以應付臨牀及營運需求，機電署致力為公立醫院及政府診所提供優質的機電維修保養服務。今年，我們投得三份標書，為仁濟醫院、律敦治醫院、東華東院、春勘角慈氏護養院以及雅麗氏何妙齡那打素醫院提供機電、空調和屋宇裝備系統的維修保養服務。我們又與醫務衛生局簽訂服務水平協議，為落馬洲河套區的應急醫院提供機電、空調和屋宇裝備系統維修保養服務及生物醫學工程服務。此外，我們也承接了東區尤德夫人那打素醫院新複合手術室的機電服務，並於新建的南昌家庭醫學診所試行「建築信息模擬——資產管理」技術。



機電署負責為屯門滅火輪消防局的緊急發電機、低壓電掣房及防水閘等設備進行維修及保養，以確保設備運作暢順，並切合場地的特定需要。

The EMSD is responsible for the repair and maintenance of equipment such as the emergency generator, low-voltage switch room and flood gates at the Tuen Mun Fireboat Station, ensuring smooth operation of the equipment and fulfilling the specific needs of the venue.



機電署為新落成的稅務中心裝設各項節能設施，包括智能空調和照明系統。這些系統具有自動調節功能，有助節省用電。

The EMSD equipped the newly built Inland Revenue Centre with energy-efficient facilities, such as smart air-conditioning and lighting systems, featuring automatic adjustments to reduce electricity consumption.

This year, we have also taken on the E&M operation and maintenance services for several new government buildings and facilities, for instance the Tuen Mun Fireboat Station, the Causeway Bay Police Officers' Club, the Tai Po Tung Cheong Street Leisure Building, which comprises a sports centre and a swimming pool, the Multi-welfare Services Complex in Kwu Tung North and the Inland Revenue Centre at Kai Tak, just to name a few.

To ensure that the medical facilities in Hong Kong are able to meet clinical and operational needs, the EMSD is dedicated to providing high-quality E&M maintenance services for public hospitals and government clinics. This year, we were awarded three bids to provide maintenance of the electrical, mechanical, air-conditioning and building services (EMABS) systems for the Yan Chai Hospital, the Ruttonjee Hospital, the Tung Wah Eastern Hospital, the Cheshire Home, Chung Hom Kok, and the Alice Ho Miu Ling Nethersole Hospital. We also signed a Service Level Agreement with the Health Bureau for providing maintenance of the EMABS systems and Biomedical Engineering Services for the Emergency Hospital in the Lok Ma Chau Loop. Additionally, we have taken on the E&M services for the new hybrid operating theatre at the Pamela Youde Nethersole Eastern Hospital and the trial application of Building Information Modelling – Asset Management technology at the new Nam Cheong Family Medicine Clinic.





## 營運服務 TRADING SERVICES



我們為新落成的屯門醫院手術室擴建大樓提供專業的機電工程服務，俾能為病人提供全天候的最佳護理。

We provided professional E&M services for the newly completed Tuen Mun Hospital Operating Theatre Extension Block, enabling the hospital to provide patients with round-the-clock optimal care.



在兩個十年醫院發展計劃下，多個興建、重建及擴建醫院的項目正在進行中。除了為新醫院的機電、空調和屋宇裝備設施提供專業意見及進行操作和維修保養服務外，我們早在項目初期的概念設計階段已參與其中，運用專業知識提升新醫院的服務水平，並確保新醫院的各個系統便於維修。年內竣工的項目包括屯門醫院手術室擴建大樓，而威爾斯親王醫院重建項目、北區醫院擴建工程，以及啟德發展區的新急症醫院興建工程也在有條不紊地進行。我們亦參與本港首間中醫醫院的自動存儲系統及輸送系統的採購工作，該醫院預計於2025年年底投入服務。

除了為客戶提供機電維修保養服務，我們亦提供緊急支援服務，並致力促進行業發展，以及支援客戶推行惠澤社羣的項目。其中一個項目是協助食物環境衛生署（食環署）在葵涌火葬場附近設置流產胎火化設施，並為相關設施提供維修保養服務。該設施命名為「永愛堂」，象徵永遠的關懷和愛護。該火化設施由食環署管理，設有兩個小型火化爐，專為胎齡未滿24周的流產胎提供火化服務。「永愛堂」的落成

A series of hospital construction, redevelopment and expansion projects are currently underway under the two Ten-year Hospital Development Plans. In addition to providing professional advice on EMABS equipment at new hospitals and carrying out operation and maintenance services, we were involved in the early conceptual design stage, through which we utilised our expertise to enhance the serviceability and maintainability of the new hospitals. Projects completed in the year included the Tuen Mun Hospital Operating Theatre Extension Block, while the redevelopment project of the Prince of Wales Hospital, the expansion of the North District Hospital and the construction of the new acute hospital at Kai Tak Development Area have also been taken forward in an orderly manner. We are also involved in the procurement of the automated storage system and conveyor system for the first Chinese Medicine Hospital in Hong Kong, which is expected to come into operation by the end of 2025.

In addition to providing E&M maintenance services, we offer emergency support services to our clients, promote industry development and support clients in implementing projects that benefit the community. One such project with the Food and Environmental Hygiene Department (FEHD) was the provision of cremation services of abortuses and maintenance services of associated facilities near the Kwai Chung Crematorium. The cremation facility named Home of Forever Love, symbolises eternal care and love. Managed by the FEHD, this cremation facility, which houses two small-scale cremators, is dedicated to abortuses of less than 24 weeks' gestation. Its establishment represents a

標誌着香港法例的重大突破，因為過往不足24周的流產胎不能在政府火葬場進行火化，「永愛堂」為這些珍貴的小生命提供莊嚴的安息之所，也有助舒緩父母的悲傷情緒。

significant breakthrough in Hong Kong legislation as miscarried fetuses under 24 weeks were not allowed to be cremated in government crematoria in the past. The Home of Forever Love provides a dignified resting place for the precious little ones and helps alleviate parents' painful emotions.



位於葵涌火葬場附近的「永愛堂」，是全港首個專門提供流產胎火化及相關服務的設施。機電署為場地內兩個小型火化爐及其他機電設備提供維修保養服務。

Located near the Kwai Chung Crematorium, the Home of Forever Love serves as the first facility in Hong Kong dedicated to providing cremation of abortuses and related services. The EMSD provides maintenance services for two small-scale cremators and other E&M equipment at the venue.



在另一個項目，我們利用專業知識服務社區，為香港導盲犬訓練學校安裝模擬行人過路燈系統，以便進行導盲犬引路訓練。

In another project, we made use of our expertise to serve the community by installing a Pedestrian Crossing Light System for the Hong Kong Seeing Eye Dog Training School to facilitate road-leading training for guide dogs.

我們也提供車輛採購和維修保養服務，為其他政府部門提供支援。舉例而言，我們在2023年上半年為香港警務處採購並向其交付了36輛機動三輪車。這款車輛是政府車隊的新車型，擁有三個車輪，與傳統電單車相比，行駛時更穩定及提供更佳的牽引控制。這種三輪設計降低了翻車事故的風險，顯著提升行駛安全，特別有利於低速行駛。

We also support other government departments by providing vehicle procurement and maintenance services. For example, in the first half of 2023, we procured and delivered 36 motor tricycles to the Hong Kong Police Force. This vehicle type is new to the government fleet and features three wheels, providing better stability and traction control during operation compared to conventional motorcycles. The three-wheel design is particularly advantageous for low-speed operation, as it reduces the risk of tip-over accidents and significantly increases operational safety.



機電署為香港警務處引入新型機動三輪車，並提供專業意見和維修保養服務。新車的三輪設計更方便駕駛者操控，而且穩定性更佳，可加強保障警員執勤安全。

The EMSD introduced new motor tricycles to the Hong Kong Police Force and provided professional advice and maintenance services. The three-wheel design of the new vehicles provides better driving manoeuvrability and higher stability, enhancing the safety of police officers during their execution of duties.



## 營運服務 TRADING SERVICES



2022年6月，新界西地區發生大規模停電，導致多個客戶場地及設施無法正常運作。經機電署團隊同心協力通宵搶修後，受影響場地的電力供應於翌日早上陸續恢復。

In June 2022, a major power outage struck districts in New Territories West, leading to operational disruptions at numerous client sites and facilities. After our team worked concertedly to make urgent repairs overnight, the power supply to affected venues was progressively restored the next morning.



機電署在緊急情況下的迅速反應及支援，對協助客戶維持安全可靠的公共服務至關重要。2022年6月21日晚上，位於元朗朗屏的一條電纜橋發生火警，導致新界西地區大規模停電。我們的團隊迅速趕到現場提供緊急支援，迅速修復元朗、屯門及天水圍地區受影響的交通燈系統，避免翌日出現交通混亂情況。此外，由於該些地區的醫院、健康中心、警署、消防局及康樂場地同樣受到停電影響，我們迅速檢查所有相關設施，並為醫院和其他客戶部門提供了即時和有效的支援，獲得客戶高度讚賞。

香港經常發生電壓驟降，尤其在雨季及颱風季節情況更甚。有見及此，我們一直積極探討有關緩解措施，減低電壓驟降帶來的嚴重影響。我們在2023年2月10日舉行「測試高壓電力設備」分享會，分享我們為醫院提供的電壓驟降緩解措施，即電壓驟降緩解過渡裝置。我們亦正研究把電壓驟降緩解過渡裝置的應用範圍擴大至所有醫院及其他重要場地的可行性。

展望未來，我們會繼續為客戶提供優質服務，研發更多工程解決方案，全力支援客戶推動基建發展，完善社區設施配套，以提升公共服務效能，改善民生，提升香港的競爭力。

The EMSD's prompt response and support for emergencies have been crucial in helping our clients maintain safe and reliable public services. On the evening of 21 June 2022, a fire broke out at a cable bridge in Long Ping, Yuen Long, causing a major power outage in the New Territories West. Our team promptly arrived at the scene to provide emergency support and quickly restored the affected traffic light systems in Yuen Long, Tuen Mun and Tin Shui Wai, avoiding traffic chaos on the next day. Besides, since hospitals, health centres, police and fire stations, and recreational venues in the districts were also affected by the power outage, we quickly inspected all related facilities and provided prompt and firm support to hospitals and other client departments, earning high acclaim from clients.

In response to frequent voltage dips in Hong Kong, particularly during the rainy and typhoon seasons, we have been actively exploring mitigation measures to minimise the severe effects of voltage dips. At the "Testing High Voltage Power Equipment" sharing session held on 10 February 2023, we shared the voltage dip mitigation measure we provided for hospitals, namely the voltage dip ride-through device. We are also reviewing the feasibility of extending the use of voltage dip ride-through devices to all hospitals and other critical venues.

Looking to the future, we will continue to provide high-quality services to our clients by developing more engineering solutions and supporting them in taking forward infrastructure development as well as improving community facilities, with a view to enhancing public service efficiency, improving people's livelihood, and strengthening Hong Kong's competitiveness.

## 以專長服務社會： 裝設導盲犬引路訓練設施

SERVING THE COMMUNITY WITH EXPERTISE:  
PRODUCING FACILITIES FOR GUIDE DOG  
ROAD-LEADING TRAINING



工程師吳文韜先生(左)和區域經理莫惠寶先生(右)帶領團隊為香港導盲犬訓練學校安裝模擬行人過路燈，作為本地導盲犬引路訓練之用。

Mr Ng Man-to, an engineer (left) and Mr Mok Wai-po, a regional manager (right) led a team to install the Pedestrian Crossing Light System for Guide Dog Training at the Hong Kong Seeing Eye Dog Training School to facilitate local guide dogs' road-leading training.

以往導盲犬主要在公共街道上進行引路訓練，但此舉可能會對其他道路使用者構成危險，並會限制訓練過程。為應對這些挑戰，團隊提供了模擬行人過路燈的解決方案，不單確保導盲犬和視障人士在進行引路訓練時的安全，更提升訓練的靈活性，大大減少外在因素的干擾。

邊境及運輸工程處工程師吳文韜先生表示：「我們使用現有的交通燈，並根據學校的特殊需要制訂設計。這是本港首次把此類裝置應用在導盲犬引路訓練。」

該項目是史無前例的新嘗試。團隊需要全面考慮設計、改裝、承造和測試等各個環節，並根據學校環境和導盲犬訓練方法，提出可行和容易操作的技術方案。為配合使用者的需要，團隊為系統進行特別改裝。此外，系統改裝後，使用者更可按訓練內容，調節綠燈時間、發聲器的音量和角度。有關控制器的設定已進行調校、更新軟件和改裝線路，表現穩定可靠。

邊境及運輸工程處區域經理莫惠寶先生補充道：「學校環境始終與公共街道不同，需要進行獨特的改裝。例如，由於裝置只用作校內訓練，我們便調低系統的靈敏度，以避免頻繁檢查。此外，因為學校鄰近民居，所以我們加設獨立的發聲器開關鍵，避免發聲器的聲響影響附近的居民。」

模擬行人過路燈系統於2022年10月中旬順利完成，並於12月8日正式投入服務，為本地導盲犬引路訓練開啟新紀元。吳先生表示：「我們一直希望以專長回饋社會，該項目讓我們了解到本港目前的導盲犬遠遠供不應求。現在有了模擬行人過路燈，希望能夠有助學校進行導盲犬引路訓練，令視障人士更快獲配導盲犬。」

In the past, guide dogs mainly received road-leading training on public streets, but this might pose dangers to other road users and impose limitations on the training process. To meet these challenges, the team offered the solution of the Pedestrian Crossing Light System for Guide Dog Training. In addition to ensuring the safety of both guide dogs and visually impaired people during road-leading training, this solution also enhanced training flexibility and minimised interruptions from external factors.

"We used existing traffic lights and customised the design to meet the special needs of the school. This marks the first application of such a device in road-leading training for guide dogs in Hong Kong," said Mr Ng Man-to, an engineer of the Boundary Crossing Facilities and Transport Services Division (BTSD).

The project was a pioneering endeavour without precedent. The team had to comprehensively consider various aspects from design, modification, construction to testing, and propose feasible and user-friendly technical solutions based on the school's environment and guide dog training methods. To suit the users' needs, the system was specifically modified. Moreover, upon modification, it featured adjustable timing of the green light, as well as volume and angle of the speaker, which may be modified in accordance with the training content. The controllers concerned also underwent changes in tuning settings, software updates and wiring modifications, staging stable and reliable performance.

"The school environment is always different from public streets, necessitating some unique modifications. For example, since the device is only used for in-school training, we have reduced the system sensitivity to avoid frequent inspections. Also, as the school is located near residential areas, we have added an independent on/off switch to prevent the sound of the speaker from disturbing residents nearby," added Mr Mok Wai-po, a regional manager of the BTSD.

Officially launched on 8 December 2022, the system has heralded a new era of road-leading training for local guide dogs following its successful completion in mid-October 2022. "We have always aimed to contribute to society with our expertise. Through this project, we have come to realise that the supply of guide dogs in Hong Kong falls short of the demand. Now, with the Pedestrian Crossing Light System for Guide Dog Training, we hope to facilitate guide dogs' road-leading training in the school and expedite the allocation of guide dogs to visually impaired people," Mr Ng said.



## 企業管理 CORPORATE STEWARDSHIP

2022年年初，香港飽受2019冠狀病毒病第五波疫情衝擊，因此2022/23年度實在充滿挑戰。儘管面對重重困難，各個企業單位竭盡全力，支援策略業務單位、客戶、機電業界、機電署同事以至廣大市民正面應對挑戰，與香港社會攜手踏上復常之路。

在抗疫之餘，我們亦協助完成營運基金第二個五年策略計劃，並制訂將於2023/24年度展開的第三個五年策略計劃，以實現「加強多方協作，運用創新科技，創造公眾價值，同心建社惠民」的企業目標。

2022/23 was a challenging year as the fifth wave of the Coronavirus Disease 2019 (COVID-19) epidemic hit Hong Kong hard in early 2022. Yet in the face of endless difficulties, our corporate units offered full support to all Strategic Business Units (SBUs), clients, the electrical and mechanical (E&M) trade, our colleagues and the community in meeting the challenges head-on, moving forward together with Hong Kong society on the path towards normality.

Apart from combating the epidemic, we assisted in completing the EMSTF's second Five-year Strategic Plan and formulating the third Five-year Strategic Plan which will commence in 2023/24, all to achieve the corporate goal of "strengthening collaboration between various parties and creating public value for community betterment together through innovation and technology".



我們在2022年7月及11月舉辦第三個五年策略計劃制訂工作坊，邀請員工就營運基金的遠景和未來發展發表意見，以協助制訂策略方向及框架，以及未來的策略行動。

The third Five-year Strategic Plan Formulation Workshops were organised in July and November 2022 to engage our staff to express their opinions on the vision and future development of the EMSTF in order to help formulate the strategic direction and framework, as well as strategic tasks for the future.

2022/23 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 2022/23

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 (%)

99 99.96



客戶滿意指數 [以8分為滿分計]  
Customer Satisfaction Index [on an 8-point scale]

6.8 7.03<sup>2</sup>



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)

5.0<sup>3</sup> 1.71



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)

4.5 5.03



年內續訂的服務水平協議 (%)  
SLAs Renewed during the Year (%)

95 99.94



收入回報率 (%)  
Return on Revenue (%)

1.8 2.6



員工建議計劃書<sup>1</sup> (份)  
Staff Suggestion Proposals<sup>1</sup> (no.)

75 117



違反法例次數 (宗)  
Statutory Non-compliance (no.)

0 0



新業務及業務增長 (百萬元)  
New Business and Growth of Business (\$M)

613.1 639.0



員工滿意度指數<sup>1</sup> [以10分為滿分計]  
Staff Satisfaction Rating<sup>1</sup> [on a 10-point scale]

6.8 7.6<sup>4</sup>



達到服務水平協議所訂的表現目標 (%)  
Service Level Agreement (SLA) Service Performance Target Compliance (%)

99 99.98



耗電量<sup>1</sup> (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<sup>1</sup> (kWh)  
[EMSD Headquarters Building, Corporate Data Centre and all SBUs Major Venues]

7 825 918 7 346 990<sup>5</sup>

1 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。

2 數字為2022年的調查結果。

3 此為警戒水平，並非目標。

4 數字為2021年的調查結果。下一次調查將於2023年進行。

5 2022/23財政年度經調整後的耗電量(扣除客戶使用量)。

1 This item applies to the EMSD as a whole. Other items apply to the EMSTF only.

2 Results are derived from the survey conducted in 2022.

3 This is an alert level, not a target.

4 Results are derived from the survey conducted in 2021. The next survey will be conducted in 2023.

5 Normalised electricity consumption (exclude client usage) as of Financial Year 2022/23.



## 應對緊急情況

### 持續抗疫

為了在疫情期間維持機電署的核心運作和必要的客戶服務，我們經常檢視及更新業務持續計劃，確保為維持重要服務作好充分準備，並能迅速應變，緩減疫情對重要服務的影響。我們向所有策略業務單位提供充足的防疫物資，包括個人防護裝備、快速抗原測試套裝和口罩，以應付運作需要。

在這場漫長的抗疫戰中，我們與其他政府部門合作，參與多項地區工作，包括在2022年4月向鰂魚涌居民派發「防疫服務包」，以及在各區住宅大廈和屋苑進行「圍封強檢」和突擊行動。此外，我們支援策略業務單位為多家安老及殘疾人士院舍進行通風評估工作，以助及早採取改善措施。

我們積極投入抗疫工作，因而在2022年公務員優質服務獎勵計劃中獲得多個獎項，當中與18個決策局和部門合作興建社區隔離設施的「同心築」項目，更榮獲該計劃的「卓越部門合作獎」金獎，充分肯定我們為客戶和社區進行抗疫工作所付出的努力。此外，兩位最近退休的營運基金同事獲頒授2022年行政長官公共服務獎狀，表揚他們在抗疫方面的貢獻。我們對於抗疫工作備受肯定，深感榮幸，亦很高興能為抗疫出一分力。



在第五波疫情期間，本署人員不但向市民派發防疫服務包(左)，還在有關的住宅樓宇進行突擊行動，查核住戶的檢測證明(右)，竭盡全力防止病毒擴散。

During the fifth wave of the epidemic, our staff not only distributed anti-epidemic service bags to the public (left), but also conducted blitz operations to verify the testing certification of residents in various residential buildings concerned (right), making strenuous efforts to prevent the spread of the virus.

### 為未來事故動員

為進一步加強政府的應變能力，行政長官在2022年《施政報告》中公布，於2022年第四季增設「全政府動員」級別，各部門會預先制訂指定人員名單，確保在事故或重大危機出現時，能立即動員公務員組成應急隊伍，即時提供人力支援及輔助隊伍。

## RESPONDING TO EMERGENCIES

### Continued Efforts against COVID-19

To maintain the EMSD's core operations and essential client services during the epidemic, our Business Continuity Plan was frequently reviewed and updated so as to ensure adequate preparedness to sustain our critical services and prompt responses to minimise the impact of the epidemic on such services under COVID-19. Adequate anti-epidemic supplies including personal protective equipment, rapid antigen test kits and masks were provided to all SBUs to meet operational needs.

In fighting this protracted battle, we collaborated with other government departments and took part in various community-level initiatives, including delivering anti-epidemic service bags to Quarry Bay residents in April 2022 and conducting "restriction-testing declaration" and blitz operations in residential buildings and housing estates in various districts. We also supported the SBUs in their ventilation assessment work at many residential care homes for the elderly and persons with disabilities for facilitating prompt improvement measures.

Actively engaged in the anti-epidemic work, we won multiple awards in the Civil Service Outstanding Service Award Scheme 2022, in recognition of our efforts to combat the epidemic for clients and the community. Among them, Together We Build, a joint project we carried out with 18 bureaux and departments for building the Community Isolation Facilities (CIFs), won the Gold Prize in Excellence in Partnership. Furthermore, two recently retired EMSTF colleagues were awarded the Chief Executive's Commendation for Government/Public Service 2022 for their contribution to the anti-epidemic work. We are honoured for the recognition and delighted to have played a role in fighting the epidemic.

### Mobilisation for Future Incidents

In order to further strengthen the Government's emergency response capabilities, the Chief Executive announced in the 2022 Policy Address the introduction of a "government-wide mobilisation" level in the fourth quarter of 2022. Under the system, a list of designated personnel would be drawn up by various departments in advance to ensure that civil servants could be mobilised promptly to form a quick response unit so as to provide immediate manpower support and auxiliary teams during incidents or major crises.

政府於2023年2月16日進行代號為「達陣I」的首次演練。約300名來自六個部門的人員，包括50名機電署同事，於指定時間內到達北角社區會堂集合，模擬在執行海嘯疏散行動前聽取簡報。他們並在演練後參與小組討論，與行政長官、公務員事務局局長及其他高級官員分享及交流意見。

## 支援客戶及機電業界

### 為客戶提供創科方案

推動創新科技(創科)發展是營運基金在日常工程服務及整體策略發展上的重點，年內亮點包括為社區疫苗接種中心和社區隔離設施提供創科方案及持續的機電工程支援；以及在2023年1月，於15個年宵市場利用高架三維影像傳感器監察人流數量，以在有需要時實施人流管制。

我們建立的政府首個智能貨倉，在提升倉庫的儲存量及運作效率方面成效顯著，客戶和潛在用戶均大感興趣。年內我們為政府決策局、部門及中醫醫院安排參觀智能貨倉，亦於「機電創科開放日2022」展示智能貨倉項目，以推廣在倉庫管理中使用機械人技術。

為了實現營運基金第二個五年策略計劃「機電2.0」的願景，我們引入數碼化資產管理系統，以提升客戶於主要政府場地的機電資產日常操作及維修效能。該系統設有更方便使用及簡單直接的圖像用戶界面，有助營運基金團隊提升日常工作效率，確保客戶的機電設備運作順暢，俾能提供優質公共服務。



The first drill, code-named "Exercise Touchdown I", was held on 16 February 2023. About 300 staff members from six departments, including 50 staff from the EMSD, gathered at the North Point Community Hall within the specified time to simulate receiving a pre-operation briefing for a tsunami evacuation. They also participated in subsequent group discussions to share their views and feedback with the Chief Executive, Secretary for the Civil Service and other senior officials.

## SUPPORTING CLIENTS AND E&M TRADE

### I&T Solutions for Clients

Promoting the development of innovation and technology (I&T) is the EMSTF's focus in both its day-to-day engineering services and overall strategic development. Highlights of the year included the provision of I&T solutions and ongoing E&M support for Community Vaccination Centres and CIFs; and the use of overhead three-dimensional video sensors to monitor the footfall at 15 Lunar New Year fairs in January 2023 for implementing crowd control measures when necessary.

Our ai (artificial intelligence) Store, the Government's first smart warehouse, had proved so successful in increasing the storage capacity and operational efficiency of our warehouse that great interest arose among clients and other potential users. During the year, visits to our smart warehouse were arranged for government bureaux, departments and Chinese Medicine Hospital stakeholders. It was also showcased at the Inno@E&M Open Day 2022 to promote the use of robotics in warehouse management.

To realise the EMSTF's vision of "E&M 2.0" in its second Five-year Strategic Plan, a digitalised asset management system (AMS) has been introduced to enhance the daily operation and maintenance (O&M) of our clients' E&M assets at major government venues. Using a more user-friendly and intuitive graphical user interface of the AMS, the EMSTF teams can improve day-to-day work efficiency and ensure smooth operation of clients' E&M equipment which can enable the provision of quality public services.



我們邀請客戶代表參觀由機電署建立的政府首個智能貨倉，體驗以創科實踐和應用促進智慧城市發展。

We invited customer representatives to visit our ai Store, the Government's first smart warehouse, and experience how the implementation and application of I&T could enhance smart city development.





在7月份舉行的「機電創科日2022」上，機電署與三所學術機構簽訂合作備忘錄，致力共同支援政府部門應用各種創科方案。

The EMSD signed memoranda of co-operation with three academic institutions at the E&M I&T Day 2022 in July to jointly support government departments in applying I&T solutions.

### 在多個平台推廣創科

我們不遺餘力，透過各式各樣的活動向業界、社會大眾和持份者推廣創科。2022年7月，我們以視像會議形式舉辦「機電創科日」，以「機電裝備合成法」和智慧機電應用方案為主題，讓業界就有關主題分享創科經驗。活動當日，機電署更與香港浸會大學、香港都會大學和職業訓練局簽署合作備忘錄，進一步擴大創科合作網絡。

### Promoting I&T on Various Platforms

We spared no efforts in promoting I&T to the trade, the public and other stakeholders via a variety of activities and events. Of note was the E&M I&T Day held in July 2022 via video conference for the trade to share their I&T experience under the themes of Multi-trade integrated Mechanical, Electrical and Plumbing (MiMEP) Technology and Smart Engineering Solutions. At the event, the EMSD also signed memoranda of co-operation with the Hong Kong Baptist University, the Hong Kong Metropolitan University and the Vocational Training Council (VTC), further expanding our I&T co-operation network.

另一項新活動是在2022年5月至11月舉辦的「智在GWIN」物聯網機電應用挑戰賽。活動目的是加深市民對「政府物聯網」的認識，讓他們了解該技術如何透過實時監察機電系統，提高公共服務質素。比賽邀請小學、中學及大專學生提交方案，推廣在日常生活中更廣泛使用「政府物聯網」和優化智慧城市管理。

A new initiative was the "Smart@GWIN" E&M IoT (Internet of Things) Application Challenge held from May to November 2022. It was aimed at raising public awareness and understanding of the Government-Wide IoT Network (GWIN) and how it could enhance the quality of public services by monitoring various E&M systems in real time. The Challenge called for GWIN-inspired projects from primary, secondary and tertiary students to promote the wider use of GWIN in daily life and optimise smart city management.



機電署致力加深市民對「政府物聯網」的認識，推廣在日常生活應用該技術。我們舉辦「智在GWIN」物聯網機電應用挑戰賽，鼓勵學生構思「政府物聯網」的應用方案，讓公共服務發揮最大價值，造福社會。

The EMSD is committed to raising public awareness of the GWIN and promoting its application in our daily lives. The "Smart@GWIN" E&M IoT Application Challenge was held to encourage students to explore solutions for the use of GWIN and maximise the value of public services for the community.



為慶祝香港特別行政區成立25周年，我們於機電署總部大樓舉辦為期三天的「機電創科開放日2022」，向市民展示創科在機電工程服務中的應用，並深入闡釋這些技術如何使他們在日常生活中得益。

In celebration of the 25th anniversary of the establishment of the HKSAR, a three-day Inno@E&M Open Day 2022 was held at the EMSD Headquarters to showcase the I&T applications in E&M engineering services to the public and provide in-depth explanation of how these technologies could benefit them in their daily lives.

此外，我們舉辦了「機電創科開放日2022」，向市民展示創科在機電工程服務和智慧城市發展中的應用，而活動更是香港特別行政區成立25周年的慶祝活動之一。開放日於11月舉行，為期三天，設有創科展覽、攤位、講座、工作坊、導賞、虛擬實境體驗及遊戲設施，吸引約17 000名各界人士參加。

In addition, the Inno@E&M Open Day 2022 was organised to showcase I&T applications in E&M engineering services and smart city development to the public, and it was one of the celebratory events of the 25th anniversary of the establishment of the Hong Kong Special Administrative Region (HKSAR). The three-day event held in November featured exhibition of I&T projects, fun booths, seminars, workshops, guided tours, virtual reality experience and gaming facilities, which attracted about 17 000 participants from all walks of life.

### 客戶滿意度上升

全賴員工努力不懈，辛勤工作，我們在2022年10月至12月進行的最新一次營運基金客戶意見調查中，獲得客戶踴躍發表意見，回應率達58.7%；並取得優異成績，以8分為滿分計算，客戶滿意指數為7.03分，整體服務競爭力指數為7.06分。回應率和兩項指數的得分均創新高，可見客戶對營運基金服務的滿意度有所提升。此外，我們在2022年公務員優質服務獎勵計劃中獲得13個獎項，包括「卓越部門精進服務獎（大部門組別）」金獎，優質服務備受肯定。我們會參考調查結果、客戶意見和建議，致力持續改進服務。

### Increased Customer Satisfaction

Thanks to the hard work of our staff, we received enthusiastic response from clients, with a response rate of 58.7%, and achieved outstanding results, with Customer Satisfaction Index scored 7.03 and Overall Service Competitiveness Index scored 7.06 on a scale of 8, in the EMSTF's latest Customer Opinion Survey conducted between October and December 2022. The response rate and the two indexes hit record highs, indicating clients' increased satisfaction with our services. Another recognition of our quality services came in the EMSD receiving 13 awards in the Civil Service Outstanding Service Award Scheme 2022, including the Gold Prize in Excellence in Service Enhancement (Large Department Category). We will strive for continuous improvement with reference to the survey results, client feedback and suggestions.

機電署在2022年公務員優質服務獎勵計劃中得到「卓越部門精進服務獎（大部門組別）」金獎，獲表揚在持續提升服務方面的優秀表現。

The EMSD received the Gold Prize in Excellence in Service Enhancement (Large Department Category) in the Civil Service Outstanding Service Award Scheme 2022, in recognition of the Department's exceptional performance in continuous service enhancement.





## 企業管理

### CORPORATE STEWARDSHIP

#### 培養創新文化

機電署非常重視培養部門的創新文化。我們在2022年舉辦了第三屆「Inno@E&M創新科技挑戰賽」，在部門內推動技術創新。比賽收到超過180個創新方案，反應熱烈。對外方面，我們積極參與其他部門和機構舉辦的資訊科技活動，展示機電署的創科成就，例如在建造創新博覽會2022展示「建築信息模擬 — 資產管理」的成果、「機電裝備合成法」的效能及區域供冷系統項目。我們亦會參與在2023年4月舉行的香港國際創科展2023，展示機電署的智慧城市項目和得獎創科項目，包括「建築信息模擬 — 資產管理」應用實例、升降機及自動梯數碼工作日志，以及透過「機電創科網上平台」為客戶部門的服務願望與初創企業的創科解決方案配對的成功個案。



第三屆「Inno@E&M創新科技挑戰賽」收到逾180個參賽項目，數目為歷屆最多。比賽成功激勵本署人員積極創新，實踐創科解決方案，應對內部和客戶部門的需求。

The 3rd Inno@E&M Challenge received over 180 entries, the highest number of entries ever, and successfully encouraged our staff to actively innovate and implement I&T solutions to meet internal and client departments' needs.

我們於2022年12月舉行的建造創新博覽會設置展覽攤位，與建造及機電業界交流，分享我們在「建築信息模擬 — 資產管理」工作、「機電裝備合成法」及區域供冷系統項目的經驗。

We set up an exhibition booth to share about our BIM-AM work, MiMEP technology and District Cooling System project and exchange experience with the construction and E&M industries at the Construction Innovation Expo held in December 2022.



#### 提升部門效率

年內，營運基金持續利用創科提高內部運作效率。舉例來說，我們為專業職系員工的電子評核表格加入新功能，提醒評核和加簽人員在撰寫評核報告和給予工作表現評級時，注意評語和評級的普遍問題，提高評核質素。此外，我們在2023年1月推出新的採購平台「部門運作支援系統」，提升採購效率。

#### Cultivating an Innovation Culture

The EMSD attaches great importance to fostering an innovative culture. We organised the 3rd Inno@E&M Challenge in 2022 to promote technological innovation in-house. The response was overwhelming, with more than 180 innovative proposals received. Externally, we participated in I&T events hosted by other departments and organisations to showcase our I&T achievements, such as showcasing our Building Information Modelling – Asset Management (BIM-AM) achievements, MiMEP capabilities and the District Cooling System project at the Construction Innovation Expo 2022. We will also take part in the InnoEX 2023 in April 2023 to exhibit the EMSD's smart city projects and award-winning I&T projects including BIM-AM application cases, the Digital Log-books System for Lifts and Escalators, and the success stories of matching the service wishes of client departments with the I&T solutions proposed by start-ups through the E&M InnoPortal.

#### Boosting Internal Efficiency

The year saw continuous momentum in using I&T to enhance the EMSTF's internal operation efficiency. For example, a new function was added to our e-appraisal form for professional grades to alert the appraising and countersigning officers to common irregularities in comments and ratings during appraisal writing and performance ratings, raising the quality of appraisals. Meanwhile, a new procurement platform, the Departmental Operation Supporting System (DOSS), was launched in January 2023 to enhance procurement efficiency.

2022年12月，我們舉辦年度「品質及安全日」，邀得演講嘉賓就「機電裝備合成法」和創新及安全設計分享真知灼見。在活動中，我們亦向員工團隊頒發獎項，表揚他們努力不懈提升工作安全和服務質素，以及營造綠色文化，活動並設有冠軍隊伍分享環節。

Our annual Quality and Safety Day was held in December 2022, with speakers sharing their views on the MiMEP technology and innovation and design for safety. Prizes were presented to staff teams to commend their continued efforts in enhancing work safety and service quality, as well as creating an environment-friendly culture. There were also the champion teams' sharing sessions.



職業安全健康局首席顧問楊冠全博士(右二)及香港科技園公司首席項目總監何國聰先生(左三)出席「2022品質及安全日」，擔任主禮嘉賓。

Dr Winson Yeung, Principal Consultant of the Occupational Safety and Health Council (2nd right), and Mr Tony Ho, Chief Project Development Officer of the Hong Kong Science and Technology Parks Corporation (3rd left), attended the Quality and Safety Day 2022 as the officiating guests.

機電署作為靈活的學習型機構，知識管理可謂至關重要。為了便利員工更有效地檢索、分享和應用不同類型的知識，我們在2022年10月推出「知識管理網站3.0」。網站功能優化，可提升用戶體驗，並加強部門各個知識羣體之間的連繫。

Knowledge management is vital to us being an agile learning organisation. To facilitate more effective retrieval, sharing and application of different types of knowledge by staff, we launched the Knowledge Management Portal (KMP) 3.0 in October 2022, with enhanced features to improve user experience and better connect the Department's various knowledge community groups.

事實上，除了「知識管理網站」外，我們還有其他知識管理措施，包括為不同工程專業成立特定機電團隊，以及在特定客戶場地設立「卓越中心暨優秀訓練基地」，向新一代見習技術員傳授技術和經驗。年內，特定機電團隊在中環添馬海水泵房進行了一次恢復供電演練，而位於港澳碼頭「卓越中心暨優秀訓練基地」則進行了水翼船船台大型翻新工程。年輕的見習技術員可透過這些項目增進技術和充實經驗。

In fact, our knowledge management is not confined to the KMP but also involves other initiatives, such as setting up Special Duty Units (SDUs) for different engineering disciplines and Centres of Excellence (CoEs) at specific client venues, both aimed at passing on the technical expertise and experience to the new generation of Technician Trainees (TTs). During the year, the SDU held an electricity resumption drill at the Tamar Seawater Pump House in Central, while the CoE at the Hong Kong-Macau Ferry Terminal carried out major refurbishment works for hydrofoil platforms. Young TTs were able to gain technical skills and experience through these exercises.

我們在2022年10月獲香港理工大學頒發香港最具創新力知識型機構大獎2022；並在同年12月獲全球最具創新力知識型機構大獎委員會頒發全球最具創新力知識型機構大獎2022。兩個獎項印證了我們推動並運用創新和知識管理，將部門知識轉化為優質服務和方案，為持份者創造價值，成績斐然。

In addition to receiving the Hong Kong Most Innovative Knowledge Enterprise (MIKE) Award 2022 from the Hong Kong Polytechnic University in October 2022, we also garnered the Global MIKE Award 2022 from the International Global MIKE Award Committee in December of the same year. Both are recognition for our achievements in creating great value for stakeholders by promoting and leveraging innovation and knowledge management, and turning enterprise knowledge into superior services and solutions.



我們致力推動創科的應用及知識管理，有關工作備受肯定。2022年10月及12月，我們分別獲香港理工大學及全球最具創新力知識型機構大獎委員會頒發香港最具創新力知識型機構大獎及全球最具創新力知識型機構大獎。

We are committed to promoting the application of I&T and knowledge management, and our efforts are widely recognised. In October and December 2022, we were awarded the Hong Kong MIKE Award by the Hong Kong Polytechnic University and the Global MIKE Award by the International Global MIKE Award Committee respectively.



## 企業管理 CORPORATE STEWARDSHIP

### 擴大人才庫

機電署不斷致力吸引具備潛質的人才加入機電行業。一如往年，我們聯同香港機電業推廣工作小組，在2022年10月合辦「機電·啟航2022」迎新典禮，歡迎750多名在本地機構擔任見習技術員的年輕人加入機電行業；以及在2023年3月於職業訓練局葵涌大樓舉行的機電業博覽2023，讓參觀者了解行業發展，吸引有興趣的年輕人入行。

### Enlarging the Talent Pool

The EMSD continued its efforts in attracting prospective talent to join the E&M trade. As in previous years, we co-organised with the Hong Kong Electrical and Mechanical Trade Promotion Working Group the “E&M GO!” Orientation Ceremony 2022 in October 2022 to welcome on board more than 750 young people who had recently joined the E&M industry as TTs in local organisations; and the E&M Expo 2023 in VTC Kwai Chung Complex in March 2023 to showcase to visitors the development of the industry and attract interested youngsters to join in.



由機電署聯同機電業界組成的香港機電業推廣工作小組，多年來積極培育業界生力軍。2022年10月，工作小組舉行「機電·啟航2022」迎新典禮，約有750名年輕機電學員出席。

The Hong Kong Electrical and Mechanical Trade Promotion Working Group, formed by members from the EMSD and the E&M trade, has been nurturing new talent for the trade over the years. The “E&M GO!” Orientation Ceremony 2022 was held by the working group in October 2022, with around 750 young E&M trainees attended.

為了向機電業界推廣優良操作和維修作業，以加強作業水平，機電署與業界緊密合作，就暖通空調裝置、升降機及自動梯裝置、消防裝置及設備等機電資產，編製《優良操作和維修作業手冊及指引》，並推出電子平台，方便使用者閱讀手冊和觀看個案短片，以作學習和分享之用。2022年9月，我們舉辦了「機電優良作業推廣典禮」，獲得約40個專業團體和來自機電業界及學術界的機構支持及參與。

To promote best practices in O&M among the E&M trade to enhance the work standards, the EMSD collaborated closely with the trade to compile O&M Best Practices Booklets and Handbooks on E&M assets such as heating, ventilation and air-conditioning installations, lift and escalator installations and fire service installations, and launched an e-platform to provide easy access to the handbooks and case videos for learning and sharing. The Electrical & Mechanical Best Practices Ceremony was also held in September 2022, with the support and participation of around 40 professional institutes and organisations from the E&M trade and academia.

為協助承辦商維持優良的工作標準，我們在年內舉行了四場機電署承辦商研討會，向承辦商簡介最新的健康和安全管理、誠信管理和「新工程合約4」的合約管理事宜等資訊。此外，我們在2022年9月與職業安全健康局和香港科技園公司合辦首屆安全研討會。在研討會上，講者分享以智能機電系統保障工地安全的經驗，超過210名公私營機構代表出席。

To help contractors maintain a high standard of work, four sessions of the EMSD Contractors Forum were held during the year to brief contractors on, among others, the latest health and safety measures, integrity management and contract management of the New Engineering Contract 4. Moreover, the first Safety Conference was held jointly with the Occupational Safety and Health Council and the Hong Kong Science and Technology Parks Corporation in September 2022. More than 210 representatives from the public and private sectors attended the conference, in which speakers shared their experience in using smart E&M systems to keep construction sites safe.



2022年9月，機電署舉辦「機電優良作業推廣典禮」，正式啟用機電優良作業電子平台。典禮當日有近300位來自機電業界、學術界，以及物業管理行業的代表出席。

The Electrical and Mechanical Best Practices Ceremony was held in September 2022 to launch an e-platform on E&M best practices. The ceremony was well attended by about 300 representatives from the E&M trade, academia and property management sector.

### 與內地協作

疫情無阻我們與內地伙伴交流，以及在大灣區進行人才發展工作，為部門和行業培育年輕一代。

### Collaboration with the Mainland

The epidemic has not stopped our exchange with partners on the Mainland and the talent development work in the Greater Bay Area (GBA) to nurture the young generation for the Department and the industry.

當中最值得一提的是與廣州市人力資源和社會保障局轄下技師學院加強培訓合作，包括在2022年6月至9月期間由廣州市技師學院、廣州市工貿技師學院和廣州市機電技師學院舉辦的線上培訓課程，內容涵蓋電氣、空調和屋宇裝備，共有54名見習技術員參加。我們又分別在2022年6月和10月，為廣州市技師學院的學生和廣州市機電技師學院領導及資產管理員舉辦以「建築信息模擬—資產管理」系統為題的線上分享會。

Most notable was the deepening of our training co-operation with technician colleges under the Guangzhou Municipal Human Resources and Social Security Bureau, including online training programmes on electrical, air-conditioning and building services delivered by the Guangzhou Technician College, the Guangzhou Industry and Trade Technician College and the Guangzhou Electromechanical Technician College from June to September 2022, with 54 TTs participating in the programmes. Online sharing sessions on BIM-AM technology were also held for students of the Guangzhou Technician College, and top management and asset managers of the Guangzhou Electromechanical Technician College in June and October 2022 respectively.

2022年8月，機電署與廣東省科學技術協會和澳門工程師學會合作舉辦為期兩天的粵港澳青年科創考察交流活動。活動以線上線下混合模式進行，讓參加者就新材料技術、科技政策和初創企業成功故事交流分享。

In August 2022, the EMSD, the Guangdong Provincial Association for Science and Technology and the Macau Institute of Engineers joined efforts to organise the two-day Guangdong-Hong Kong-Macao Youth Innovation and Technology Exchange in a hybrid mode with both physical and virtual access for participants. It provided an opportunity for participants to exchange their views on new materials technology, science and technology policies, and success stories of start-ups.



為深化粵港兩地技術合作及培育大灣區人才，機電署為廣州市技師學院的學生及廣州市機電技師學院的領導及資產管理員舉辦「建築信息模擬—資產管理」系統線上技術分享會，分享應用該技術的經驗。

To deepen technical co-operation between Guangdong and Hong Kong and nurture talent in the Greater Bay Area, the EMSD held online technical sharing sessions on BIM-AM technology for students of the Guangzhou Technician College and top management and asset managers of the Guangzhou Electromechanical Technician College to share the experience in BIM-AM application.



## 企業管理 CORPORATE STEWARDSHIP

### 關顧員工

#### 「國家主席重要講話精神」座談會及國家事務培訓

國家主席習近平先生於慶祝香港回歸祖國25周年大會暨香港特別行政區第六屆政府就職典禮上發表重要講話。為了加深員工對講話核心要義的了解，機電署署長及兩位副署長在2022年10月主持兩場「國家主席重要講話精神」座談會，向中高層管理人員作詳細講解，特別是「四個必須」和「四點希望」，分享如何在機電署的工作中體現其精神，並在問答環節解答員工的問題。

除此之外，為了加強員工的國家事務培訓，我們與國家行政學院合辦兩個線上國情研習班，各有40名機電署員工參加。參加者均認為課程有助他們了解國家發展策略重點，以及香港在促進大灣區發展所扮演的角色。



國家行政學院在2022年10月至12月期間為機電署舉辦了兩個線上國情研習班，由多個領域的知名專家學者教授不同課程，包括深入學習貫徹二十大精神、中國政治制度與政府架構等內容。

The Chinese Academy of Governance provided two online National Studies Programmes for the EMSD between October and December 2022. Well-known experts and scholars in various fields gave lectures on the in-depth study and implementation of the spirit of the 20th National Congress of the Communist Party of China, the political system and government structure of China, etc.

#### 預防員工染疫

疫情期間，我們致力保障員工的健康和安全。過去一年，每當出現疑似感染或確診個案時，我們都會安排在總部大樓內進行消毒，總數超過一千次。即使在第五波疫情緩和後，我們仍然採用多種創科技術，包括紫外線消毒機械人、發燒偵測系統、空氣淨化機和自動感應消毒站，進行徹底清潔和消毒以及感染監察，以保護員工免受感染。

#### 員工福利及支援

在這場抗疫戰中，我們繼續為員工舉辦線上和實體活動。與往年一樣，我們委託香港家庭福利會為機電署員工提供免費輔導熱線服務。我們亦舉辦了八場關於心理、情緒和生理健康的線上研討會，吸引1100人參加。

今年的員工康體活動多姿多彩，特別是隨著疫情在2022年下半年漸趨緩和，社交距離措施逐步放寬，活動更添繽紛。有關活動包括在總部露天廣場進行的「水耕種植Fun Fun樂」、「機電廚神大比拼」比賽、「吉澳、鴨洲、荔枝窩元旦一日遊」、「愛跑·東涌呀」慈善跑，以及多場足球和乒乓球比賽等。

### CARING ABOUT OUR STAFF

#### Sessions on “Spirit of the President’s Important Speech” and National Studies Training

President Xi Jinping delivered an important speech at the meeting celebrating the 25th anniversary of Hong Kong’s return to the motherland and the inaugural ceremony of the sixth-term HKSAR Government. To deepen staff understanding of the core essence of the speech, the Director of Electrical and Mechanical Services and the two Deputy Directors held two sessions on “Spirit of the President’s Important Speech” in October 2022 to elaborate on the subject matter, in particular the “four musts” and “four proposals”, to middle and senior management staff, share with them the ways to manifest the spirit in the EMSD’s work, and answer their questions in the Q&A discussion.

Apart from that, to enhance national studies training for our staff, we co-ordinated with the Chinese Academy of Governance to organise two online National Studies Programmes, each with 40 EMSD staff members joining. Participants found the training highly useful in understanding the national development strategies and priorities, as well as Hong Kong’s role in promoting the GBA development.

#### Safeguarding Staff against COVID-19 Infection

We strived to protect the health and safety of staff members during the epidemic. Disinfection at the headquarters building, which was carried out for more than a thousand times, was arranged whenever there were suspected or confirmed cases of COVID-19 over the past year. Even when the fifth wave of the epidemic subsided, we still carried out thorough cleaning and disinfection as well as infection monitoring, by deploying an array of IoT solutions, including ultraviolet disinfection robots, fever screening systems, air purifiers and touchless sanitising stations, to safeguard staff against infection.

#### Welfare and Assistance for Staff

Throughout the battle against the epidemic, we continued to organise both online and face-to-face activities for our staff. As in previous years, we commissioned the Hong Kong Family Welfare Society to provide free counselling hotline service to the EMSD staff. Eight webinars on mental, emotional and physical health were held, attracting 1100 participants.

The year also saw a kaleidoscope of recreational and sports activities, especially when the epidemic situation eased and social distancing measures were gradually relaxed in the second half of 2022. These included hydroponic planting events at the headquarters piazza, the “EMSD Master Chef” competition, a New Year day trip to Kat O, Ap Chau and Lai Chi Wo, Lifewire Run 2022 – Tung Chung, and various football and table tennis tournaments, just to name a few.



機電署員工康樂會不但舉辦各類體育活動，並安排本地一日遊，讓同事欣賞鄉郊的自然風光及歷史名勝。  
The EMSD Staff Club not only organised a variety of sports activities, but also arranged a local day tour for the staff to enjoy the natural scenery and historical spots of the rural areas.



#### 提升員工滿意度

兩年一度的員工滿意度調查為我們提供有關員工意見的重要資訊，可供參考以作持續改進。繼2021年員工滿意度調查的員工滿意度指數及回應率創新高後，我們正籌備於2023年7至8月進行下一輪調查。此外，我們很榮幸在香港人力資源管理學會舉辦的卓越人力資源獎2022，獲頒「優秀員工投入獎(企業類別)」。

從員工滿意度調查和其他渠道收集所得的員工意見，有助我們改善署內設施，回應員工的需要。舉例而言，我們優化了總部的授乳室，透過安裝物聯網傳感器，維持空氣質素及保持雪櫃溫度穩定，另外亦增設了電子預訂系統。我們會在2023年增建一間設有七個房間的授乳室，預計於第三季完成。此外，我們一個部別辦公室翻新後，獲得綠建環評室內建築鉑金評級，其節能效益表現及室內環境質素尤其獲得肯定。



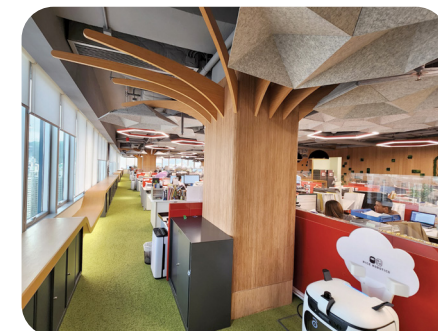
機電署首次在香港人力資源管理學會舉辦的卓越人力資源獎獲頒「優秀員工投入獎(企業類別)」，我們在人力資源管理方面的出色表現獲得嘉許。

The EMSD was for the first time awarded the Elite Employee Engagement Award (Organisational Category) in the Human Resources Excellence Awards organised by the Hong Kong Institute of Human Resources Management, recognising our outstanding performance in human resources management.

#### Enhancing Staff Satisfaction

The biennial Staff Satisfaction Survey (SSS) provides important information on employee views which we can make reference to in pursuing continuous improvement. Further to the 2021 SSS which saw a record-high satisfaction rating and response rate, preparation for the next SSS to be conducted between July and August 2023 is now underway. In addition, we are honoured to have won the Elite Employee Engagement Award (Organisational Category) in the Human Resources Excellence Awards 2022, organised by the Hong Kong Institute of Human Resources Management.

Staff feedback obtained from SSS exercises and other channels have inspired us to enhance workplace facilities to meet specific staff needs. A case in point was upgrading the existing lactation room at the headquarters with the installation of IoT sensors to maintain air quality and keep the refrigerator temperature stable, plus the introduction of an electronic booking system. An additional lactation room with seven cubicles will be provided and is expected to be completed by the third quarter of 2023. Also worth mentioning is a newly renovated divisional office, which was awarded the BEAM Plus Interiors Platinum rating in recognition of its energy efficiency performance and indoor environmental quality in particular.



我們一個部別辦公室獲得綠建環評室內建築鉑金評級。辦公室設計以綠色環境和自然採光為主，着重可持續發展和能源效益，為同事提供舒適的工作環境。

A divisional office was awarded the BEAM Plus Interiors Platinum rating. Focusing on a green environment with natural sunlight, the office design emphasised sustainable development and energy efficiency, providing a comfortable working environment for colleagues.



## 企業管理

### CORPORATE STEWARDSHIP

#### 社區服務和參與

機電署秉承優良傳統，致力回饋社會。我們的義工在疫情期間繼續積極幫助有需要的人士，社區服務在2023年年初大致回復正常。

##### 以科技支援導盲犬訓練

香港第一所導盲犬訓練學校於2022年12月正式開幕。該校設於由發展局資助翻新的空置校舍，專門訓練導盲犬協助視障人士。我們的團隊運用專業知識，為校舍安裝及調節模擬交通燈，讓導盲犬在近似真實的環境下，學習帶領視障人士過馬路。



##### 扶助貧困

我們的義工隊與慈善團體仁愛堂合作，發起「編編送暖行動」，舉辦頸巾編織班，讓機電署同事學習編織技巧，親手編織頸巾給有需要的長者，為慈善出一分力。行動最終送出超過230條頸巾，為長者送上暖暖心意。

我們又與發展局和其他工務部門攜手合作，利用機電知識，在全港各區為貧困家庭提供免費家居維修服務，有關服務深受使用者歡迎。

疫情期間，為配合政府創造臨時職位的政策，營運基金推出首輪計劃，提供約1 450個臨時職位，有關職位的工作範疇包括改善客戶資產和宣傳教育。首輪計劃的臨時職位已於2022年6月結束。其後兩輪計劃亦已展開，截至2023年3月底，營運基金再額外開設240個職位，以提升現有服務。

我們為有需要的家庭提供家居維修義工服務，關懷弱勢社羣。  
Caring about the disadvantaged in the community, we provided free home repair service for underprivileged households.

#### COMMUNITY SERVICE AND ENGAGEMENT

The EMSD carries on the fine tradition of giving back to the community. Our volunteers continued to serve the needy throughout the epidemic, and our community services resumed normal in general in early 2023.

##### Supporting Guide Dog Training with Technology

Hong Kong's first guide dog training school officially opened in December 2022. Established on the premises of a vacant school renovated with the funding of the Development Bureau (DEVB), the Hong Kong Seeing Eye Dog Training School specifically trains guide dogs to help the visually impaired. Utilising professional knowledge, our team installed and fine-tuned simulation traffic lights at the facility so that guide dogs could learn to guide the visually impaired to cross the roads in a highly realistic setting.

年內，我們繼續運用專業機電知識貢獻社會，為導盲犬訓練學校設計及安裝模擬行人過路燈訓練系統，並根據訓練需要改裝設備，以便更靈活進行訓練。

During the year, we continued to make use of our E&M expertise to serve the community. We designed and installed the Pedestrian Crossing Light System for Guide Dog Training at the Hong Kong Seeing Eye Dog Training School, and modified the equipment according to training needs to allow greater flexibility.

##### Helping the Needy

Working with the charity Yan Oi Tong, our volunteer team launched the "Knit for Warmth" campaign with a series of scarf knitting classes organised to enable EMSD colleagues to learn knitting skills and knit scarves for the needy elderly for a worthy cause. Eventually, more than 230 hand-knitted scarves were distributed to the elderly, bringing care and warmth to them.

We also joined hands with the DEVB and other works departments to provide free home repair services to underprivileged households across the territory by making use of our E&M expertise. Such services were well received by the recipients.

To support the Government's initiative to create temporary jobs for the community under the epidemic, the EMSTF launched the first round of programme, in which about 1 450 temporary jobs were created for carrying out client asset enhancement and publicity work. The temporary jobs under the first round of programme were completed in June 2022. The next two rounds of the programme have also begun, further creating 240 posts as at end of March 2023 to enhance existing services.



##### 公眾教育流動宣傳車

我們深信走進社區向市民，特別是學生和兒童，進行宣傳教育，是提高公眾機電安全和節能意識的有效方法。為此，我們首輛流動宣傳車「機智生活體驗館」在2022年7月正式登場。車上除了設有有趣的展板和融合創科的互動遊戲外，更有「機智啱啱」和「智析寶寶」擔當導賞員，向參觀者介紹機電安全、能源效益及創科等資訊。在2022年7月至9月期間，宣傳車走進校園及走訪全港多處地方，吸引超過7 500人參觀。



##### Mobile Truck for City-wide Public Education

We believe that going into the community to conduct publicity and educational activities for the public, especially students and children, is an effective way to raise their awareness of E&M safety and energy efficiency. In this connection, our first mobile promotion truck, The Bearbot Lifestyle Experience, made its official debut in July 2022. Apart from the fun display panels and I&T-driven interactive games, the truck also featured our mascots Witty Bear and KnowBot acting as tour guides to introduce information on E&M safety, energy efficiency and I&T to visitors. From July to September 2022, the publicity vehicle visited schools and travelled to many districts across the territory, attracting over 7 500 visitors.

我們首輛流動宣傳車「機智生活體驗館」走訪香港多間學校及不同地區，以輕鬆有趣的方法，積極向學生及市民推廣機電知識。

Our first mobile promotion truck, The Bearbot Lifestyle Experience, visited schools and travelled to various districts in Hong Kong to actively promote E&M knowledge to students and citizens in an interesting way.

為慶祝機電署成立75周年，我們在2023年2月1日，於機電署總部大樓露天廣場為「機智啱啱」和「智析寶寶」的塑像舉行揭幕儀式，其後並向同事送上水果，共享喜悅。

To celebrate the 75th anniversary of the EMSD, an unveiling ceremony of Witty Bear and KnowBot statues was held at the piazza of EMSD Headquarters, followed by distribution of fruits to colleagues to share the joy on 1 February 2023.



#### 鑽禧誌慶 展望未來

為更充分地描繪部門的願景和時代精神，我們在2022年年底修訂了機電署的抱負、使命和信念，加入創科和環保元素。更新版進一步加強我們對提供優質服務的承諾，並帶領機電署邁向科技新紀元。

2023年是機電署成立75周年。在2月1日機電署成立誌慶當天，我們在總部大樓露天廣場舉行典禮，公布周年標誌和周年主題「傳承創新同心惠民」，並進行機電署親善大使「機智啱啱」和「智析寶寶」塑像的揭幕儀式。我們將舉行一連串慶祝活動，活動的壓軸高潮是年底舉行的機電署75周年典禮暨同樂日，屆時會邀請客戶、業界和公眾一同參與。

過去70多年，機電署有幸服務大眾，與市民休戚與共，與香港同行同進。我們會本着創新和服務社羣的精神，與各界攜手共創更美好的明天。

#### CELEBRATING DIAMOND JUBILEE AND LOOKING AHEAD

To better capture our aspirations and the spirit of the times, we updated the EMSD's Vision, Mission and Values (VMV) in late 2022 with elements of I&T and environmental friendliness incorporated. The revised VMV further reinforces our commitment to providing excellent services and leads us towards a new era of technology.

The year 2023 marks the 75th anniversary of the EMSD. On 1 February, our birthday, a ceremony was held at the piazza of EMSD Headquarters Building. In the ceremony, the anniversary logo with the theme of "Serving the Community with Heart and Innovation" was announced and the statues of our mascots Witty Bear and KnowBot unveiled. A series of celebratory events will be rolled out, which will culminate in the EMSD 75th Anniversary Ceremony cum Fun Day to be held by the end of this year to engage our clients, the trade and the public.

The EMSD is grateful for the opportunity to have served and grown with Hong Kong for more than seven decades. In the spirit of innovation and serving the community, we aim to co-create an even brighter future with all walks of life.



# 審計署署長報告

## REPORT OF THE DIRECTOR OF AUDIT



香港特別行政區政府  
審計署

**Audit Commission**  
**The Government of the Hong Kong**  
**Special Administrative Region**

### 獨立審計師報告

#### 致立法會

##### 意見

茲證明我已審核及審計列載於第69至95頁機電工程營運基金的財務報表，該等財務報表包括於2023年3月31日的財務狀況表與截至該日止年度的全面收益表、權益變動表和現金流量表，以及財務報表的附註，包括主要會計政策概要。

我認為，該等財務報表已按照香港會計師公會頒布的《香港財務報告準則》真實而中肯地反映機電工程營運基金於2023年3月31日的狀況及截至該日止年度的運作成果及現金流量，並已按照《營運基金條例》(第430章)第7(4)條所規定的方式妥為擬備。

##### 意見的基礎

我已按照《營運基金條例》第7(5)條及審計署的審計準則進行審計。我根據該等準則而須承擔的責任，詳載於本報告「審計師就財務報表審計而須承擔的責任」部分。根據該等準則，我獨立於機電工程營運基金，並已按該等準則履行其他道德責任。我相信，我所獲得的審計憑證是充足和適當地為我的審計意見提供基礎。

### INDEPENDENT AUDITOR'S REPORT

#### To the Legislative Council

##### Opinion

I certify that I have examined and audited the financial statements of the Electrical and Mechanical Services Trading Fund set out on pages 69 to 95, which comprise the statement of financial position as at 31 March 2023, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the financial statements give a true and fair view of the state of affairs of the Electrical and Mechanical Services Trading Fund as at 31 March 2023, and of its results of operations and cash flows for the year then ended in accordance with Hong Kong Financial Reporting Standards ("HKFRSs") issued by the Hong Kong Institute of Certified Public Accountants ("HKICPA") and have been properly prepared in accordance with the manner provided in section 7(4) of the Trading Funds Ordinance (Cap. 430).

##### Basis for opinion

I conducted my audit in accordance with section 7(5) of the Trading Funds Ordinance and the Audit Commission auditing standards. My responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the financial statements* section of my report. I am independent of the Electrical and Mechanical Services Trading Fund in accordance with those standards, and I have fulfilled my other ethical responsibilities in accordance with those standards. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

# 審計署署長報告

## Report of the Director of Audit

### 機電工程營運基金總經理就財務報表須承擔的責任

機電工程營運基金總經理須負責按照香港會計師公會頒布的《香港財務報告準則》及《營運基金條例》第7(4)條擬備真實而中肯的財務報表，及落實其認為必要的內部控制，使財務報表不存有因欺詐或錯誤而導致的重大錯誤陳述。

在擬備財務報表時，機電工程營運基金總經理須負責評估機電工程營運基金持續經營的能力，以及在適用情況下披露與持續經營有關的事項，並以持續經營作為會計基礎。

### 審計師就財務報表審計而須承擔的責任

我的目標是就整體財務報表是否不存有任何因欺詐或錯誤而導致的重大錯誤陳述取得合理保證，並發出包括我意見的審計師報告。合理保證是高水平的保證，但不能確保按審計署審計準則進行的審計定能發現所存有的任何重大錯誤陳述。錯誤陳述可以由欺詐或錯誤引起，如果合理預期它們個別或滙總起來可能影響財務報表使用者所作出的經濟決定，則會被視作重大錯誤陳述。

在根據審計署審計準則進行審計的過程中，我會運用專業判斷並秉持專業懷疑態度。我亦會：

- 識別和評估因欺詐或錯誤而導致財務報表存有重大錯誤陳述的風險；設計及執行審計程序以應對這些風險；以及取得充足和適當的審計憑證，作為我意見的基礎。由於欺詐可能涉及串謀、偽造、蓄意遺漏、虛假陳述，或凌駕內部控制的情況，因此未能發現因欺詐而導致重大錯誤陳述的風險，較未能發現因錯誤而導致者為高；
- 了解與審計相關的內部控制，以設計適當的審計程序。然而，此舉並非旨在對機電工程營運基金內部控制的有效性發表意見；

### *Responsibilities of the General Manager, Electrical and Mechanical Services Trading Fund for the financial statements*

The General Manager, Electrical and Mechanical Services Trading Fund is responsible for the preparation of financial statements that give a true and fair view in accordance with HKFRSs issued by the HKICPA and section 7(4) of the Trading Funds Ordinance, and for such internal control as the General Manager, Electrical and Mechanical Services Trading Fund determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the General Manager, Electrical and Mechanical Services Trading Fund is responsible for assessing the Electrical and Mechanical Services Trading Fund's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting.

### *Auditor's responsibilities for the audit of the financial statements*

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Audit Commission auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with the Audit Commission auditing standards, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Electrical and Mechanical Services Trading Fund's internal control;



審計師就財務報表審計而須承擔的責任(續)

- 評價機電工程營運基金總經理所採用的會計政策是否恰當，以及其作出的會計估計和相關資料披露是否合理；
- 判定機電工程營運基金總經理以持續經營作為會計基礎的做法是否恰當，並根據所得的審計憑證，判定是否存在與事件或情況有關，而且可能對機電工程營運基金持續經營的能力構成重大疑慮的重大不確定性。如果我認為存在重大不確定性，則有必要在審計師報告中請使用者留意財務報表中的相關資料披露。假若所披露的相關資料不足，我便須發出非無保留意見的審計師報告。我的結論是基於截至審計師報告日止所取得的審計憑證。然而，未來事件或情況可能導致機電工程營運基金不能繼續持續經營；及
- 評價財務報表的整體列報方式、結構和內容，包括披露資料，以及財務報表是否中肯反映交易和事項。

我與機電工程營運基金總經理溝通計劃的審計範圍和時間以及重大審計發現等事項，包括我在審計期間識別出內部控制的任何重大缺陷。

審計署署長  
(署理審計署助理署長莫澤文  
代行)  
審計署  
香港  
金鐘道66號  
金鐘道政府合署  
高座6樓

2023年9月26日

Auditor's responsibilities for the audit of the financial statements (continued)

- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the General Manager, Electrical and Mechanical Services Trading Fund;
- conclude on the appropriateness of the General Manager, Electrical and Mechanical Services Trading Fund's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Electrical and Mechanical Services Trading Fund's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Electrical and Mechanical Services Trading Fund to cease to continue as a going concern; and
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with the General Manager, Electrical and Mechanical Services Trading Fund regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Terry Mok  
Assistant Director of Audit (Acting)  
for Director of Audit  
Audit Commission  
6th Floor, High Block  
Queensway Government Offices  
66 Queensway  
Hong Kong

26 September 2023

全面收益表  
STATEMENT OF COMPREHENSIVE INCOME

截至2023年3月31日止年度  
(以港幣千元位列示)

for the year ended 31 March 2023  
(Expressed in thousands of Hong Kong dollars)

	附註 Note	2023	2022
來自客戶合約之收入	(4)	8,910,569	8,718,993
運作成本	(5)	(8,674,507)	(8,464,185)
運作盈利		236,062	254,808
其他收入	(6)	395,149	312,350
年度盈利		631,211	567,158
其他全面收益		-	-
年度總全面收益		631,211	567,158
固定資產回報率	(7)	15.8%	18.2%

第74至95頁的附註為本財務報表的一部分。

The notes on pages 74 to 95 form part of these financial statements.



# 財務狀況表

## STATEMENT OF FINANCIAL POSITION

於2023年3月31日  
(以港幣千元位列示)

as at 31 March 2023  
(Expressed in thousands of Hong Kong dollars)

		附註 Note	2023	2022
<b>非流動資產</b>	<b>Non-current assets</b>			
物業、設備及器材	Property, plant and equipment	(8)	1,349,513	1,281,766
使用權資產	Right-of-use assets	(9(a))	64,871	64,844
無形資產	Intangible assets	(10)	201,474	154,670
外匯基金存款	Placement with the Exchange Fund	(11)	4,030,000	5,000,000
			5,645,858	6,501,280
<b>流動資產</b>	<b>Current assets</b>			
存貨	Inventories		61,443	68,419
外匯基金存款	Placement with the Exchange Fund	(11)	2,776,478	1,445,529
應收帳款及其他應收款項	Trade and other receivables	(12), (13(a))	83,291	94,862
應收關連人士帳款	Amounts due from related parties	(13(a)), (21)	385,289	392,783
銀行存款	Bank deposits		2,745,000	3,470,000
現金及銀行結餘	Cash and bank balances		13,579	11,346
			6,065,080	5,482,939
<b>流動負債</b>	<b>Current liabilities</b>			
客戶按金	Customers' deposits	(14)	(2,148,082)	(1,770,269)
應付帳款及其他應付款項	Trade and other payables		(1,006,141)	(1,279,510)
應付關連人士帳款	Amounts due to related parties	(21)	(212,444)	(201,068)
租賃負債	Lease liabilities	(9(b))	(16,797)	(14,582)
僱員福利撥備	Provision for employee benefits	(15)	(77,561)	(88,001)
遞延收入	Deferred revenue	(13(b))	(1,022,628)	(1,138,054)
			(4,483,653)	(4,491,484)
<b>流動資產淨額</b>	<b>Net current assets</b>		1,581,427	991,455
<b>總資產減去流動負債</b>	<b>Total assets less current liabilities</b>		7,227,285	7,492,735
<b>非流動負債</b>	<b>Non-current liabilities</b>			
租賃負債	Lease liabilities	(9(b))	(49,006)	(50,565)
僱員福利撥備	Provision for employee benefits	(15)	(469,079)	(474,581)
			(518,085)	(525,146)
<b>資產淨額</b>	<b>NET ASSETS</b>		6,709,200	6,967,589

# 財務狀況表

## Statement of Financial Position

於2023年3月31日  
(以港幣千元位列示)

as at 31 March 2023  
(Expressed in thousands of Hong Kong dollars)

		附註 Note	2023	2022
<b>資本及儲備</b>	<b>CAPITAL AND RESERVES</b>			
營運基金資本	Trading fund capital	(16)	706,600	706,600
保留盈利	Retained earnings	(17)	6,002,600	6,260,989
			6,709,200	6,967,589

第74至95頁的附註為本財務報表的一部分。

The notes on pages 74 to 95 form part of these financial statements.

彭耀雄  
總經理  
機電工程營運基金

PANG YIU HUNG  
General Manager  
Electrical and Mechanical Services Trading Fund

2023年9月26日

26 September 2023



## 權益變動表

### STATEMENT OF CHANGES IN EQUITY

截至2023年3月31日止年度 for the year ended 31 March 2023  
(以港幣千元位列示) (Expressed in thousands of Hong Kong dollars)

	附註 Note	2023	2022
在年初的結餘	Balance at beginning of year	6,967,589	6,483,279
年度總全面收益	Total comprehensive income for the year	631,211	567,158
政府法定回報	Statutory return to the Government (17)	(889,600)	(82,848)
<b>在年終的結餘</b>	<b>Balance at end of year</b>	<b>6,709,200</b>	<b>6,967,589</b>

第74至95頁的附註為  
本財務報表的一部分。

The notes on pages 74 to 95 form part of these financial statements.

## 現金流量表

### STATEMENT OF CASH FLOWS

截至2023年3月31日止年度 for the year ended 31 March 2023  
(以港幣千元位列示) (Expressed in thousands of Hong Kong dollars)

	附註 Note	2023	2022
<b>營運活動的現金流量</b>	<b>Cash flows from operating activities</b>		
運作盈利	Profit from operations	236,062	254,808
調整：	Adjustments for:		
折舊及攤銷	Depreciation and amortisation	145,936	209,444
租賃負債的利息支出	Interest expense on lease liabilities	794	506
出售物業、設備及器材和 無形資產的虧損	Loss on disposals of property, plant and equipment, and intangible assets	—	416
存貨的減少 / (增加)	Decrease/(Increase) in inventories	6,976	(2,780)
應收帳款及其他應收款項 的增加	Increase in trade and other receivables	(9,100)	(2,585)
應收關連人士帳款的 減少 / (增加)	Decrease/(Increase) in amounts due from related parties	7,494	(22,505)
客戶按金的增加	Increase in customers' deposits	377,813	217,716
應付帳款及其他應付款項 的(減少) / 增加	(Decrease)/Increase in trade and other payables	(273,369)	300,919
應付關連人士帳款的 增加 / (減少)	Increase/(Decrease) in amounts due to related parties	11,376	(2,194)
僱員福利撥備的減少	Decrease in provision for employee benefits	(15,942)	(7,561)
遞延收入的(減少) / 增加	(Decrease)/Increase in deferred revenue	(115,426)	293,858
<b>來自營運活動的現金淨額</b>	<b>Net cash from operating activities</b>	<b>372,614</b>	<b>1,240,042</b>
<b>投資活動的現金流量</b>	<b>Cash flows from investing activities</b>		
原有限為3個月以上的 銀行存款的減少	Decrease in bank deposits with original maturities over three months	440,000	—
購買物業、設備及器材和 無形資產	Purchase of property, plant and equipment, and intangible assets	(244,557)	(268,639)
出售物業、設備及器材所得	Proceeds from disposals of property, plant and equipment	—	329
外匯基金存款的增加	Increase in placement with the Exchange Fund	(360,949)	(289,341)
已收利息	Interest received	415,820	293,964
<b>來自 / (用於) 投資活動的 現金淨額</b>	<b>Net cash from/(used in) investing activities</b>	<b>250,314</b>	<b>(263,687)</b>
<b>融資活動的現金流量</b>	<b>Cash flows from financing activities</b>		
已付政府法定回報	Statutory return paid to the Government	(889,600)	(82,848)
支付租賃負債	Payments of lease liabilities (9(b))	(16,095)	(15,109)
<b>用於融資活動的現金淨額</b>	<b>Net cash used in financing activities</b>	<b>(905,695)</b>	<b>(97,957)</b>
<b>現金及等同現金的 (減少) / 增加淨額</b>	<b>Net (decrease)/increase in cash and cash equivalents</b>	<b>(282,767)</b>	<b>878,398</b>
<b>在年初的現金及等同現金</b>	<b>Cash and cash equivalents at beginning of year</b>	<b>2,801,346</b>	<b>1,922,948</b>
<b>在年終的現金及等同現金</b>	<b>Cash and cash equivalents at end of year (18)</b>	<b>2,518,579</b>	<b>2,801,346</b>

第74至95頁的附註為  
本財務報表的一部分。

The notes on pages 74 to 95 form part of these financial statements.



# 財務報表附註

## NOTES TO THE FINANCIAL STATEMENTS

(除另有註明外，所有金額均以港幣千元位列示)

(Amounts expressed in thousands of Hong Kong dollars, unless otherwise stated)

### 1 總論

前立法局在1996年6月26日根據《營運基金條例》(第430章)第3、4及6條通過決議，在1996年8月1日成立機電工程營運基金(「基金」)，為客戶提供全面的機電及電子工程服務、車輛工程服務，以及工程及顧問服務。

政府各決策局、各部門及各自主機構均可自由選擇採用本基金或其他服務機構的服務，以切合他們部分或全部的機電服務需要。

### 2 主要會計政策

#### 2.1 符合準則聲明

本財務報表是按照香港公認的會計原則及香港財務報告準則(此詞是統稱，當中包括香港會計師公會頒布的所有適用的個別香港財務報告準則、香港會計準則及詮釋)編製。基金採納的主要會計政策摘要如下。

香港會計師公會頒布了若干新增或經修訂的香港財務報告準則並於基金的本會計期首次生效或可供提前採納。基金因首度採納其中適用的準則而引致本會計期及前會計期的會計政策改變(如有)已反映在本財務報表，有關資料載於附註3。

#### 2.2 編製財務報表的基準

本財務報表的編製基準均以原值成本法計量。

編製符合香港財務報告準則的財務報表需要管理層作出判斷、估計及假設。該等判斷、估計及假設會影響會計政策的實施，以及資產、負債、收入與支出的呈報款額。該等估計及相關的假設，均按以往經驗及其他在有關情況下被認為合適的因素而制訂。倘若沒有其他現成數據可供參考，則會採用該等估計及假設作為判斷有關資產及負債的帳面值的基準。估計結果或會與實際價值有所不同。

### GENERAL

The Electrical and Mechanical Services Trading Fund (the Fund) was established on 1 August 1996 under the Legislative Council Resolution passed on 26 June 1996 pursuant to sections 3, 4 and 6 of the Trading Funds Ordinance (Cap. 430) to provide comprehensive electrical, mechanical and electronic services, vehicle services, and project and consultancy services to clients.

Government bureaux, departments and autonomous bodies have the freedom to use the services of the Fund or to choose alternative service providers to meet part or all of their electrical and mechanical service needs.

### SIGNIFICANT ACCOUNTING POLICIES

#### Statement of compliance

These financial statements have been prepared in accordance with accounting principles generally accepted in Hong Kong and Hong Kong Financial Reporting Standards (HKFRSs), a collective term which includes all applicable individual HKFRSs, Hong Kong Accounting Standards and Interpretations issued by the Hong Kong Institute of Certified Public Accountants (HKICPA). A summary of the significant accounting policies adopted by the Fund is set out below.

The HKICPA has issued certain new or revised HKFRSs that are first effective or available for early adoption for the current accounting period of the Fund. Note 3 provides information on the changes, if any, in accounting policies resulting from initial application of these developments to the extent that they are relevant to the Fund for the current and prior accounting periods reflected in these financial statements.

#### Basis of preparation of the financial statements

The measurement basis used in the preparation of the financial statements is historical cost.

The preparation of financial statements in conformity with HKFRSs requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

# 財務報表附註

## Notes to the Financial Statements

### 2 主要會計政策 (續)

#### 2.2 編製財務報表的基準 (續)

該等估計及其所依據的假設會作持續檢討。如修訂會計估計只影響修訂期，有關修訂會在該修訂期內確認；如修訂影響本會計期及未來的會計期，則會在修訂期及未來的會計期內確認。

基金在實施會計政策方面並不涉及任何關鍵的會計判斷。無論對未來作出的假設，或在報告日估計過程中所存在的不明朗因素，皆不足以構成重大風險，導致資產和負債的帳面金額在來年大幅修訂。

若干比較數字已重新列示，以配合本年度基金財務報表的呈報方式。

#### 2.3 金融資產及金融負債

##### 2.3.1 初始確認及計量

基金的金融資產包括外匯基金存款、應收帳款及其他應收款項、應收關連人士帳款、銀行存款，以及現金及銀行結餘。

基金的金融負債包括客戶按金、應付帳款及其他應付款項、應付關連人士帳款，以及租賃負債。

基金在成為有關金融工具的合約其中一方之日確認有關金融資產及金融負債。於初始確認時，金融資產及金融負債按公平值計量，再加上或減去因收購該等金融資產或發行該等金融負債而直接引致的交易成本。

### SIGNIFICANT ACCOUNTING POLICIES (continued)

#### Basis of preparation of the financial statements (continued)

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

There are no critical accounting judgements involved in the application of the Fund's accounting policies. There are also no key assumptions concerning the future, or other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities in the next year.

Certain comparative figures have been restated to conform to the current year presentation of the Fund's financial statements.

#### Financial assets and financial liabilities

##### Initial recognition and measurement

The Fund's financial assets comprise placement with the Exchange Fund, trade and other receivables, amounts due from related parties, bank deposits, and cash and bank balances.

The Fund's financial liabilities comprise customers' deposits, trade and other payables, amounts due to related parties and lease liabilities.

The Fund recognises financial assets and financial liabilities on the date it becomes a party to the contractual provisions of the instrument. At initial recognition, financial assets and financial liabilities are measured at fair value plus or minus transaction costs that are directly attributable to the acquisition of the financial assets or the issue of the financial liabilities.



2 主要會計政策 (續)

2.3 金融資產及金融負債 (續)

2.3.2 分類及其後計量

基金將其所有金融資產分類為其後以實際利率法按攤銷成本值計量，因為有關金融資產以收取合約現金流為目的的業務模式而持有，且合約現金流僅為所支付的本金及利息。金融資產的虧損準備根據附註 2.3.4 所述的預期信用虧損模型計量。

實際利率法是計算金融資產或金融負債的攤銷成本值，以及攤分及確認有關期間的利息收入或支出的方法。實際利率是指可將該金融資產或金融負債在有效期間內的預計現金收支，折現成該金融資產的帳面總值或該金融負債的攤銷成本值所適用的貼現率。基金在計算實際利率時，會考慮該金融工具的所有合約條款以估計現金流量，但不會計及預期信用虧損。有關計算包括與實際利率相關的所有收取自或支付予合約各方的費用、交易成本及所有其他溢價或折讓。

基金將其所有金融負債分類為其後以實際利率法按攤銷成本值計量，惟租賃負債按附註2.5 所述計量。

基金僅在管理某金融資產的業務模式出現變動時，才將有關資產重新分類。金融負債不作重新分類。

2.3.3 註銷確認

當從金融資產收取現金流量的合約權利屆滿時，或該金融資產連同擁有權的絕大部分風險及回報已轉讓時，該金融資產會被註銷確認。

當合約指明的債務被解除或取消，或到期時，該金融負債會被註銷確認。

SIGNIFICANT ACCOUNTING POLICIES (continued)

Financial assets and financial liabilities (continued)

Classification and subsequent measurement

The Fund classifies all financial assets as subsequently measured at amortised cost using the effective interest method, on the basis that they are held within a business model whose objective is to hold them for collection of contractual cash flows and the contractual cash flows represent solely payments of principal and interest. The measurement of loss allowances for financial assets is based on the expected credit loss model as described in note 2.3.4.

The effective interest method is a method of calculating the amortised cost of a financial asset or a financial liability and of allocating and recognising the interest income or interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts or payments through the expected life of the financial asset or financial liability to the gross carrying amount of the financial asset or to the amortised cost of the financial liability. When calculating the effective interest rate, the Fund estimates the expected cash flows by considering all contractual terms of the financial instrument but does not consider the expected credit losses. The calculation includes all fees received or paid between parties to the contract that are an integral part of the effective interest rate, transaction costs and all other premiums or discounts.

The Fund classifies all financial liabilities as subsequently measured at amortised cost using the effective interest method, except for lease liabilities as stated in note 2.5.

The Fund reclassifies a financial asset when and only when it changes its business model for managing the asset. A financial liability is not reclassified.

Derecognition

A financial asset is derecognised when the contractual rights to receive the cash flows from the financial asset expire, or where the financial asset together with substantially all the risks and rewards of ownership have been transferred.

A financial liability is derecognised when the obligation specified in the contract is discharged or cancelled, or when it expires.

2 主要會計政策 (續)

2.3 金融資產及金融負債 (續)

2.3.4 金融資產減值

基金就按攤銷成本值計量的金融資產（應收帳款除外）採用由 3 個階段組成的方法計量預期信用虧損及確認相應的虧損準備及減值虧損或回撥，預期信用虧損的計量基礎取決於自初始確認以來的信用風險變化：

第1階段：12個月預期信用虧損

若自初始確認以來，金融工具的信用風險並無大幅增加，全期預期信用虧損中反映在報告日後 12 個月內可能發生的違約事件引致的預期信用虧損的部分予以確認。

第2階段：全期預期信用虧損 — 非信用減值

若自初始確認以來，金融工具的信用風險大幅增加，但並非信用減值，全期預期信用虧損（反映在金融工具的預期有效期內所有可能出現的違約事件引致的預期信用虧損）予以確認。

第3階段：全期預期信用虧損 — 信用減值

若金融工具已視作信用減值，會確認全期預期信用虧損，利息收入則應用實際利率計入攤銷成本值而非帳面值總額計算。

應收帳款的虧損準備一直按相等於全期預期信用虧損的金額計量。

SIGNIFICANT ACCOUNTING POLICIES (continued)

Financial assets and financial liabilities (continued)

Impairment of financial assets

The Fund applies a three-stage approach to measure expected credit losses on financial assets (other than trade receivables) measured at amortised cost and to recognise the corresponding loss allowances and impairment losses or reversals, with the change in credit risk since initial recognition determining the measurement bases for expected credit losses:

Stage 1: 12-month expected credit losses

For financial instruments for which there has not been a significant increase in credit risk since initial recognition, the portion of the lifetime expected credit losses that represent the expected credit losses that result from default events that are possible within the 12 months after the reporting date are recognised.

Stage 2: Lifetime expected credit losses – not credit impaired

For financial instruments for which there has been a significant increase in credit risk since initial recognition but that are not credit impaired, lifetime expected credit losses representing the expected credit losses that result from all possible default events over the expected life of the financial instruments are recognised.

Stage 3: Lifetime expected credit losses – credit impaired

For financial instruments that have become credit impaired, lifetime expected credit losses are recognised and interest income is calculated by applying the effective interest rate to the amortised cost rather than the gross carrying amount.

Loss allowances for trade receivables are always measured at an amount equal to lifetime expected credit losses.



2 主要會計政策 (續)

2.3 金融資產及金融負債 (續)

2.3.4 金融資產減值 (續)

如何釐定信用風險大幅增加

在每個報告日，基金藉比較金融工具於報告日及於初始確認日期在餘下的預期有效期內出現違約的風險，以評估金融工具的信用風險有否大幅增加。有關評估會考慮數量及質量歷史資料，以及具前瞻性的資料。若發生一項或多於一項對某金融資產的估計未來現金流量有不利影響的事件，該金融資產會被評定為信用減值。

基金在個別或綜合基準上評估自初始確認以來信用風險有否大幅增加。就綜合評估而言，金融工具按共同信用風險特質的基準歸類，並考慮投資類別、信用風險評級及其他相關因素。

外部信用評級為投資級別的銀行存款被視為屬低信用風險。其他金融工具若其違約風險低，且交易對手或借款人具備雄厚實力在短期內履行其合約現金流量責任，會被視為屬低信用風險。此等金融工具的信用風險會被評定為自初始確認以來並無大幅增加。

若金融資產無法收回，該金融資產會與相關虧損準備撇銷。該等資產在完成所有必要程序及釐定虧損金額後撇銷。其後收回先前被撇銷的金額會在全面收益表內確認。

SIGNIFICANT ACCOUNTING POLICIES (continued)

Financial assets and financial liabilities (continued)

Impairment of financial assets (continued)

*Determining significant increases in credit risk*

At each reporting date, the Fund assesses whether there has been a significant increase in credit risk for financial instruments since initial recognition by comparing the risk of default occurring over the remaining expected life as at the reporting date with that as at the date of initial recognition. The assessment considers quantitative and qualitative historical information as well as forward-looking information. A financial asset is assessed to be credit impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred.

The Fund assesses whether there has been a significant increase in credit risk since initial recognition on an individual or collective basis. For collective assessment, financial instruments are grouped on the basis of shared credit risk characteristics, taking into account investment type, credit risk ratings and other relevant factors.

Placements with banks with an external credit rating of investment grade are considered to have a low credit risk. Other financial instruments are considered to have a low credit risk if they have a low risk of default and the counterparty or borrower has a strong capacity to meet its contractual cash flow obligations in the near term. The credit risk on these financial instruments is assessed as not having increased significantly since initial recognition.

When a financial asset is uncollectible, it is written off against the related loss allowance. Such assets are written off after all the necessary procedures have been completed and the amount of the loss has been determined. Subsequent recoveries of amounts previously written off are recognised in the statement of comprehensive income.

2 主要會計政策 (續)

2.3 金融資產及金融負債 (續)

2.3.4 金融資產減值 (續)

計量預期信用虧損

金融工具的預期信用虧損是對該金融工具在預期有效期內的公平及經概率加權估計的信用虧損（即所有短缺現金的現值）。短缺現金為按照合約應付予基金的現金流量與基金預期會收到的現金流量兩者間的差距。若金融資產在報告日視作信用減值，基金根據該資產的帳面值總額與以折現方式按該資產的原訂實際利率計算的估計未來現金流量的現值兩者間的差距計量預期信用虧損。

2.4 物業、設備及器材

於1996年8月1日撥歸基金的物業、設備及器材，最初的成本值是按前立法局所通過成立基金的決議中所列的估值入帳。自1996年8月1日起購置的物業、設備及器材均按實際成本入帳。

以下物業、設備及器材項目以成本值扣除累計折舊及任何減值虧損列帳（附註2.7）：

- 建築物；以及
- 設備及器材，包括電腦器材、車輛、傢具及固定裝置，以及其他器材。

折舊是按照物業、設備及器材的估計可使用年期，以直線法攤銷扣除估計剩餘值後的項目成本值。經全面評估後，自2022年4月1日起，某些物業、設備及器材的估計可使用年期更改如下：

	修訂前的 估計可 使用年期	修訂後的 估計可 使用年期
— 建築物	10 - 35年	35年
— 電腦器材	4 - 20年	5 - 10年
— 車輛	5 - 9年	4 - 9年
— 傢具及固定裝置	5 - 7年	7 - 15年
— 其他器材	5 - 20年	7 - 20年

SIGNIFICANT ACCOUNTING POLICIES (continued)

Financial assets and financial liabilities (continued)

Impairment of financial assets (continued)

*Measurement of expected credit losses*

Expected credit losses of a financial instrument are an unbiased and probability-weighted estimate of credit losses (i.e. the present value of all cash shortfalls) over the expected life of the financial instrument. A cash shortfall is the difference between the cash flows due to the Fund in accordance with the contract and the cash flows that the Fund expects to receive. For a financial asset that is credit impaired at the reporting date, the Fund measures the expected credit losses as the difference between the asset's gross carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate.

Property, plant and equipment

Property, plant and equipment appropriated to the Fund on 1 August 1996 were measured initially at deemed cost equal to the value contained in the Legislative Council Resolution for the setting up of the Fund. Property, plant and equipment acquired since 1 August 1996 are capitalised at the actual costs incurred.

The following items of property, plant and equipment are stated at cost less accumulated depreciation and any impairment losses (note 2.7):

- buildings; and
- plant and equipment, including computer equipment, motor vehicles, furniture and fixtures, and other equipment.

Depreciation is calculated to write off the cost of items of property, plant and equipment, less their estimated residual value, on a straight-line basis over their estimated useful lives. After a comprehensive review, the estimated useful lives of certain property, plant and equipment have been revised, with effect from 1 April 2022, as follows:

	Estimated useful lives before the revision	Estimated useful lives after the revision
— Buildings	10 - 35 years	35 years
— Computer equipment	4 - 20 years	5 - 10 years
— Motor vehicles	5 - 9 years	4 - 9 years
— Furniture and fixtures	5 - 7 years	7 - 15 years
— Other equipment	5 - 20 years	7 - 20 years



## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.4 物業、設備及器材 (續)

基金的建築物所在的土地視為非折舊資產。

出售物業、設備及器材的損益以出售所得淨額與資產的帳面值之間的差額來決定，並在出售日於全面收益表內確認。

### 2.5 租賃

租賃會於其生效日在財務狀況表內確認為使用權資產及相應的租賃負債，惟涉及租賃期為12個月或以下的短期租賃及低價值資產租賃的相關款項會在租賃期內以直線法計入全面收益表。

使用權資產會按成本值扣除累計折舊及減值虧損計量(附註2.7)。該使用權資產按租賃期及資產的估計可使用年期兩者中的較短者以直線法折舊。

租賃負債按在租賃期應支付的租賃款項的現值計量，並以租賃隱含利率折現，或如該利率未能確定，則以基金的遞增借款利率折現。租賃負債其後按租賃負債計提的利息與所支付的租賃款項，及任何源於租賃負債重估或租賃修改的重新計量作調整。

### 2.6 無形資產

無形資產包括購入的電腦軟件牌照及已資本化的電腦軟件程式開發成本值。若電腦軟件程式在技術上可行，而基金有足夠資源及有意完成開發工作，有關的開發費用會被資本化。無形資產按成本值扣除累計攤銷及任何減值虧損列帳(附註2.7)。

無形資產的攤銷按估計可使用年期以直線法列入全面收益表。經全面評估後，自2022年4月1日起，有關的估計可使用年期由4至20年更改為5至10年。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Property, plant and equipment (continued)

The land on which the Fund's buildings are situated is regarded as a non-depreciating asset.

Gains or losses arising from the disposal of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognised in the statement of comprehensive income on the date of disposal.

### Leases

A lease is recognised in the statement of financial position as a right-of-use asset with a corresponding lease liability at the lease commencement date, except that payments associated with short-term leases having a lease term of 12 months or less and leases of low-value assets are charged to the statement of comprehensive income on a straight-line basis over the lease term.

A right-of-use asset is measured at cost less accumulated depreciation and impairment losses (note 2.7). The right-of-use asset is depreciated on a straight-line basis over the shorter of the lease term and the asset's estimated useful life.

The lease liability is measured at the present value of the lease payments payable over the lease term, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Fund's incremental borrowing rate. The lease liability is subsequently adjusted by the effect of the interest on and the settlement of the lease liability, and the remeasurement arising from any reassessment of the lease liability or lease modification.

### Intangible assets

Intangible assets include acquired computer software licences and capitalised development costs of computer software programmes. Expenditure on development of computer software programmes is capitalised if the programmes are technically feasible and the Fund has sufficient resources and the intention to complete development. Intangible assets are stated at cost less accumulated amortisation and any impairment losses (note 2.7).

Amortisation of intangible assets is charged to the statement of comprehensive income on a straight-line basis over the assets' estimated useful lives. After a comprehensive review, the estimated useful lives, with effect from 1 April 2022, have been revised from 4 to 20 years to 5 to 10 years.

## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.7 非金融資產的減值

非金融資產(包括物業、設備及器材、使用權資產和無形資產)的帳面值在每個報告日評估，以確定有否出現減值跡象。若有減值跡象而資產的帳面值高於其可收回數額時，則有關減值虧損會在全面收益表內確認。資產的可收回數額為其公平值減出售成本與使用值兩者中的較高者。

### 2.8 存貨

存貨是提供服務所需的材料。它們是以成本值與可實現淨值之中較低者列帳，成本值是以加權平均成本法計算。所有存貨虧損及撇帳至可實現淨值的虧損會在虧損發生時確認為當期的一項開支。

提供服務時被支用的存貨，其帳面值會於確認其相關收入的同一期間確認為一項開支。

### 2.9 等同現金

等同現金指短期及流通性高的投資，該等項目在購入時距期滿日不超過3個月，並隨時可轉換為已知數額的現金，而其價值變動的風險不大。

### 2.10 遞延收入

在基金移轉服務予客戶前，若客戶支付代價，或基金具有無條件限制的代價收款權，基金會將其合約負債確認為遞延收入。基金在移轉服務以履行其履約責任時，會註銷確認遞延收入，並就收入加以確認。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Impairment of non-financial assets

The carrying amounts of non-financial assets, including property, plant and equipment, right-of-use assets and intangible assets, are reviewed at each reporting date to identify any indication of impairment. If there is an indication of impairment, an impairment loss is recognised in the statement of comprehensive income whenever the carrying amount of an asset exceeds its recoverable amount. The recoverable amount of an asset is the higher of its fair value less costs of disposal and value in use.

### Inventories

Inventories are materials to be consumed in the rendering of services. They are stated at the lower of cost and net realisable value, cost being determined using the weighted average cost method. The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period in which the write-down or loss occurs.

When inventories are consumed in the rendering of services, the carrying amount of those inventories is recognised as an expense in the period in which the related revenue is recognised.

### Cash equivalents

Cash equivalents are short-term highly liquid investments that are readily convertible to known amounts of cash and subject to an insignificant risk of changes in value, having been within three months of maturity at acquisition.

### Deferred revenue

If a customer pays consideration, or the Fund has an unconditional right to consideration, before the Fund transfers a service to the customer, the Fund recognises its contract liability as deferred revenue. The Fund derecognises the deferred revenue and recognises revenue when the Fund transfers the service and, therefore, satisfies its performance obligation.



## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.11 僱員福利

基金的僱員包括公務員及合約員工。薪金、約滿酬金及年假開支均在僱員提供有關服務所在年度以應計基準確認入帳。就公務員而言，僱員附帶福利開支包括香港特別行政區政府(「政府」)給予僱員的退休金及房屋福利，均在僱員提供有關服務所在年度支銷。

就按可享退休金條款受聘的公務員的長俸負債已包括於支付予政府有關附帶福利開支中。就其他員工向強制性公積金計劃的供款於全面收益表內支銷。

### 2.12 收入的確認

基金會在向客戶移轉所承諾的服務以履行其履約責任時，按基金預期就交換該項服務所應得代價的金額，確認客戶合約的收入。

利息收入按實際利率法以應計方式確認。

### 2.13 外幣換算

本年度的外幣交易按交易日的現貨匯率換算為港元。以非港元為單位的貨幣資產及負債按報告日的收市匯率換算為港元。外幣換算產生的匯兌收益及虧損會在全面收益表中確認。

### 2.14 撥備及或有負債

如基金須就已發生的事件承擔法律或推定責任，而又可能需要付出經濟代價以履行該項責任，基金會在能夠可靠地估計涉及的金額時，為該項在時間上或金額上尚未確定的責任撥備。如金錢的時間價值重大，則會按預計履行該項責任所需開支的現值作出撥備。

若承擔有關責任可能無須付出經濟代價或是無法可靠地估計涉及的金額，該責任便會以或有負債的形式披露，除非須付出經濟代價的可能性極低。至於只能由日後是否發生某宗或多宗事件才確定會否出現的或然責任，亦會以或有負債的形式披露，除非須付出經濟代價的可能性極低。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Employee benefits

The employees of the Fund comprise civil servants and contract staff. Salaries, staff gratuities and annual leave entitlements are accrued and recognised as expenditure in the year in which the associated services are rendered by the staff. For civil servants, staff on-costs, including pensions and housing benefits provided to the staff by the Government of the Hong Kong Special Administrative Region (the Government), are charged as expenditure in the year in which the associated services are rendered.

For civil servants employed on pensionable terms, their pension liabilities are discharged by reimbursement of the staff on-costs charged by the Government. For other staff, contributions to the Mandatory Provident Fund Scheme are charged to the statement of comprehensive income as incurred.

### Revenue recognition

The Fund recognises revenue from contracts with customers when it satisfies a performance obligation by transferring a promised service to a customer, at the amount of consideration to which the Fund expects to be entitled in exchange for the service.

Interest income is recognised as it accrues using the effective interest method.

### Foreign currency translation

Foreign currency transactions during the year are translated into Hong Kong dollars using the spot exchange rates at the transaction dates. Monetary assets and liabilities denominated in currencies other than Hong Kong dollars are translated into Hong Kong dollars using the closing exchange rate at the reporting date. Exchange gains and losses are recognised in the statement of comprehensive income.

### Provisions and contingent liabilities

Provisions are recognised for liabilities of uncertain timing or amount when the Fund has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events, are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

## 財務報表附註

### Notes to the Financial Statements

## 2 主要會計政策 (續)

### 2.15 關連人士

基金是根據《營運基金條例》成立，並屬政府轄下的一個獨立會計單位。年內，基金在日常業務中曾與各關連人士進行交易。這些關連人士包括政府各決策局及部門、其他營運基金，以及受政府所管制或政府對其有重大影響力的財政自主機構。

## 3 會計政策改變

香港會計師公會頒布了若干新增或經修訂的香港財務報告準則並於基金的本會計期首次生效。適用於本財務報表所呈報年度的會計政策，並未因這些發展而有任何改變。

基金並沒有採納在本會計期尚未生效的任何新準則或詮釋(附註23)。

## 4 來自客戶合約之收入

		2023	2022
機電及電子工程服務	Electrical, mechanical and electronic services	7,973,625	7,680,316
車輛工程服務	Vehicle services	454,162	439,560
工程及顧問服務	Project and consultancy services	445,557	563,032
其他	Others	37,225	36,085
<b>總額</b>	<b>Total</b>	<b>8,910,569</b>	8,718,993

基金在客戶合約方面的履約責任，主要涉及向客戶提供全面的機電及電子工程服務、車輛工程服務，以及工程及顧問服務。就按服務水平協議提供的服務而言，客戶須就每項服務按季預繳固定金額的服務費。基金是在提供服務的同時履行履約責任，並隨時間移轉按直線法確認收費。至於按其他合約提供的服務，基金是在提供服務的同時履行履約責任，並按成本比例法確認服務費。

## SIGNIFICANT ACCOUNTING POLICIES (continued)

### Related parties

The Fund is a separate accounting entity within the Government established under the Trading Funds Ordinance. During the year, the Fund has entered into transactions with various related parties, including government bureaux and departments, other trading funds and financially autonomous bodies controlled or significantly influenced by the Government, in the ordinary course of its business.

## CHANGES IN ACCOUNTING POLICIES

The HKICPA has issued certain new or revised HKFRSs that are first effective for the current accounting period of the Fund. There have been no changes to the accounting policies applied in these financial statements for the years presented as a result of these developments.

The Fund has not applied any new standard or interpretation that is not yet effective for the current accounting period (note 23).

## REVENUE FROM CONTRACTS WITH CUSTOMERS

The Fund's performance obligations in contracts with customers mainly involve providing comprehensive electrical, mechanical and electronic services, vehicle services, and project and consultancy services to the customers. For provision of services under service level agreements, a customer is required to pay a fixed amount of service fee quarterly for each service in advance. The Fund satisfies its performance obligation as the service is rendered and recognises the fee over time on a straight-line basis. For provision of services under other contracts, the Fund satisfies its performance obligation as the service is rendered and recognises a service fee based on a cost-to-cost method.



## 5 運作成本 OPERATING COSTS

		2023	2022
員工費用	Staff costs	3,059,532	2,974,621
材料	Materials	536,035	504,111
承辦商費用	Contractors cost	4,462,404	4,348,357
租金及管理費用	Rental and management charges	38,155	35,610
一般運作及行政開支	General operating and administration expenses	431,157	391,187
折舊及攤銷	Depreciation and amortisation	145,936	209,444
審計費用	Audit fees	1,288	855
<b>總額</b>	<b>Total</b>	<b>8,674,507</b>	8,464,185

## 6 其他收入 OTHER INCOME

		2023	2022
銀行存款利息	Interest income from bank deposits	61,103	5,352
外匯基金存款利息	Interest income from placement with the Exchange Fund	334,046	306,998
<b>總額</b>	<b>Total</b>	<b>395,149</b>	312,350

## 7 固定資產回報率 RATE OF RETURN ON FIXED ASSETS

固定資產回報率是以總全面收益（不包括利息收入）除以固定資產平均淨值計算，並以百分比的方式表達。固定資產只包括物業、設備及器材和無形資產。預期基金可以達到由財政司司長根據《營運基金條例》釐定的每年固定資產目標回報率為6.4%（2022: 6.4%）。

The rate of return on fixed assets is calculated as total comprehensive income (excluding interest income) divided by average net fixed assets, and expressed as a percentage. Fixed assets include property, plant and equipment, and intangible assets only. The Fund is expected to meet a target rate of return on fixed assets of 6.4% (2022: 6.4%) per year as determined by the Financial Secretary under the Trading Funds Ordinance.

## 8 物業、設備及器材 PROPERTY, PLANT AND EQUIPMENT

		土地及 建築物 Land and buildings	電腦器材 Computer equipment	車輛 Motor vehicles	傢具及 固定裝置 Furniture and fixtures	其他器材 Other equipment	總額 Total
<b>成本</b>	<b>Cost</b>						
在2021年4月1日	At 1 April 2021	950,100	265,337	67,648	404,450	259,016	1,946,551
添置	Additions	–	61,245	6,189	74,686	39,801	181,921
出售	Disposals	–	–	(6,810)	(188)	(1,987)	(8,985)
在2022年3月31日	At 31 March 2022	950,100	326,582	67,027	478,948	296,830	2,119,487
在2022年4月1日	At 1 April 2022	950,100	326,582	67,027	478,948	296,830	2,119,487
添置	Additions	–	67,658	1,723	54,096	28,217	151,694
在2023年3月31日	At 31 March 2023	950,100	394,240	68,750	533,044	325,047	2,271,181
<b>累計折舊</b>	<b>Accumulated depreciation</b>						
在2021年4月1日	At 1 April 2021	247,032	148,698	51,780	168,153	78,043	693,706
年內費用	Charge for the year	7,778	43,314	6,355	64,303	31,046	152,796
出售 / 註銷回撥	Written back on disposals	–	–	(6,810)	(132)	(1,839)	(8,781)
在2022年3月31日	At 31 March 2022	254,810	192,012	51,325	232,324	107,250	837,721
在2022年4月1日	At 1 April 2022	254,810	192,012	51,325	232,324	107,250	837,721
年內費用	Charge for the year	7,778	28,590	3,278	24,725	19,576	83,947
在2023年3月31日	At 31 March 2023	262,588	220,602	54,603	257,049	126,826	921,668
<b>帳面淨值</b>	<b>Net book value</b>						
在2023年3月31日	At 31 March 2023	687,512	173,638	14,147	275,995	198,221	1,349,513
在2022年3月31日	At 31 March 2022	695,290	134,570	15,702	246,624	189,580	1,281,766

物業、設備及器材的估計可使用年期的修訂（見附註2.4）使本年度的折舊減少7,500萬港元。

The revisions of estimates of the useful lives of property, plant and equipment (see note 2.4) have decreased depreciation for the year by HK\$75.0 million.



9 租賃

LEASES

(a) 使用權資產

Right-of-use assets

		2023	2022
<b>建築物</b> <b>Buildings</b>			
<b>成本</b>	<b>Cost</b>		
在年初	At beginning of year	91,579	72,646
添置	Additions	15,957	26,889
到期租賃合約	Expiry of lease contracts	—	(7,956)
在年終	At end of year	107,536	91,579
<b>累計折舊</b>	<b>Accumulated depreciation</b>		
在年初	At beginning of year	26,735	20,266
年內費用	Charge for the year	15,930	14,425
到期租賃合約	Expiry of lease contracts	—	(7,956)
在年終	At end of year	42,665	26,735
<b>帳面淨值</b>	<b>Net book value</b>		
在年終	At end of year	64,871	64,844

(b) 租賃負債

Lease liabilities

		2023	2022
流動	Current	16,797	14,582
非流動	Non-current	49,006	50,565
<b>總額</b>	<b>Total</b>	<b>65,803</b>	65,147

下表顯示租賃負債的變動，包括現金和非現金變動。

The table below shows changes in lease liabilities, including both cash and non-cash changes.

		2023	2022
在年初	At beginning of year	65,147	52,861
來自融資現金流量的變動：	Changes from financing cash flows:		
支付租賃負債	Payments of lease liabilities	(16,095)	(15,109)
非現金變動：	Non-cash changes:		
租賃負債的利息支出	Interest expense on lease liabilities	794	506
與新租賃相關的租賃負債增加	Increase in lease liabilities relating to new leases	15,957	26,889
在年終	At end of year	65,803	65,147

9 租賃 (續)

LEASES (continued)

(b) 租賃負債 (續)

Lease liabilities (continued)

租賃負債的剩餘合約期限列載如下，有關資料是根據合約未貼現的現金流量列出：

The remaining contractual maturities of lease liabilities, which are based on contractual undiscounted cash flows, are shown below:

		2023	2022
1年內	Within one year	17,703	15,109
1年後至2年內	After one year but within two years	17,923	16,150
2年後至5年內	After two years but within five years	31,961	32,427
5年後	After five years	542	2,778
<b>總額</b>	<b>Total</b>	<b>68,129</b>	66,464

(c) 於全面收益表內確認與租賃有關的支出項目

Expense items in relation to lease recognised in the statement of comprehensive income

		2023	2022
租賃負債的利息支出	Interest expense on lease liabilities	794	506

(d) 租賃之現金流出總額

Total cash outflow for leases

		2023	2022
租賃負債	Lease liabilities	16,095	15,109



## 10 無形資產

## INTANGIBLE ASSETS

		電腦軟件牌照及系統開發成本 Computer software licences and system development costs	
		2023	2022
<b>成本</b>	<b>Cost</b>		
在年初	At beginning of year	299,798	214,080
添置	Additions	92,863	86,718
出售	Disposals	–	(1,000)
在年終	At end of year	392,661	299,798
<b>累計攤銷</b>	<b>Accumulated amortisation</b>		
在年初	At beginning of year	145,128	103,364
年內費用	Charge for the year	46,059	42,223
出售 / 註銷回撥	Written back on disposals	–	(459)
在年終	At end of year	191,187	145,128
<b>帳面淨值</b>	<b>Net book value</b>		
在年終	At end of year	201,474	154,670

無形資產的估計可使用年期的修訂(見附註2.6)使本年度的攤銷減少890萬港元。

The revisions of estimates of the useful lives of intangible assets (see note 2.6) have decreased amortisation for the year by HK\$8.9 million.

## 11 外匯基金存款

## PLACEMENT WITH THE EXCHANGE FUND

外匯基金存款結餘包括本金50億港元(2022: 50億港元)及為報告日已入帳但尚未提取的利息18.065億港元(2022: 14.455億港元)。存款期為期6年(由存款日起計)，期內不能提取本金。

The balance of the placement with the Exchange Fund comprised principal sums of HK\$5,000 million (2022: HK\$5,000 million) and interest paid but not yet withdrawn at the reporting date of HK\$1,806.5 million (2022: HK\$1,445.5 million). The term of the placement is six years from the date of placement, during which the amount of principal sums cannot be withdrawn.

當一筆本金為22億港元的存款於2023年5月到期時，基金續存12.3億港元的本金，為期6年，並提取餘下9.7億港元的本金。

Upon maturity of the placement with a principal sum of HK\$2,200.0 million in May 2023, the Fund renewed the placement with a principal sum of HK\$1,230.0 million for another six years and withdrew the remaining principal sum of HK\$970.0 million.

外匯基金存款利息按每年1月釐定的固定息率計算。該息率是外匯基金投資組合過去6年的平均年度投資回報，或3年期政府債券在上一個年度的平均年度收益率，以0%為下限，兩者取其較高者。2023曆年的固定息率為每年3.7%，而2022曆年為每年5.6%。

Interest on the placement is payable at a fixed rate determined every January. The rate is the average annual investment return of the Exchange Fund's Investment Portfolio for the past six years or the average annual yield of three-year Government Bond for the previous year subject to a minimum of zero percent, whichever is the higher. The interest rate has been fixed at 3.7% per annum for the calendar year 2023 and at 5.6% per annum for the calendar year 2022.

## 12 應收帳款及其他應收款項

## TRADE AND OTHER RECEIVABLES

		2023	2022
應收帳款	Trade receivables	15	9
預付款項	Prepayments	13,956	4,862
銀行存款應計利息	Accrued interest from bank deposits	7,222	990
外匯基金存款應計利息	Accrued interest from placement with the Exchange Fund	62,098	89,001
<b>總額</b>	<b>Total</b>	<b>83,291</b>	94,862

## 13 與客戶的合約結餘

## CONTRACT BALANCES WITH CUSTOMERS

### (a) 應收款項和合約資產

### Receivables and contract assets

就提供予公眾的服務而言，在報告日的應收款項結餘即載於附註12的應收帳款。至於提供予關連人士的服務，於2023年3月31日的應收款項結餘為3.849億港元(2022: 3.768億港元)，該結餘已包括於財務狀況表中的應收關連人士帳款。而基金並沒有任何源於這些服務的合約資產。

For services provided to the general public, the balance of receivables at the reporting date is presented as trade receivables in note 12. For services provided to related parties, the balance of receivables as at 31 March 2023 of HK\$384.9 million (2022: HK\$376.8 million) is included in the amounts due from related parties in the statement of financial position. The Fund does not have any contract assets arising from these services.

### (b) 合約負債

### Contract liabilities

基金在收取客戶預繳的費用後向客戶提供服務的責任，會於財務狀況表中以遞延收入的形式列出，分析如下：

The Fund's obligations to provide services to customers for which the Fund has received advance payments from the customers are presented as deferred revenue in the statement of financial position, as analysed below:

遞延收入	Deferred revenue	2023	2022
機電及電子工程服務	Electrical, mechanical and electronic services	770,435	890,867
車輛工程服務	Vehicle services	115,144	137,291
工程及顧問服務	Project and consultancy services	137,049	109,896
<b>總額</b>	<b>Total</b>	<b>1,022,628</b>	1,138,054
代表：	Representing:		
向關連人士提供之服務	Services to related parties	1,014,155	1,126,573
向公眾提供之服務	Services to the general public	8,473	11,481
<b>總額</b>	<b>Total</b>	<b>1,022,628</b>	1,138,054



### 13 與客戶的合約結餘 (續)

#### (b) 合約負債 (續)

年內遞延收入結餘的重大變動開列如下：

	2023	2022
因年初遞延收入結餘中的款項於年內獲確認為收入而減少	(981,600)	(670,101)
因年內收取預繳費用而增加	866,174	963,959

於2023年3月31日，分攤至未有履行（或部分未有履行）的履約責任的交易價格總額估計為66.442億港元（2022：75.191億港元），基金預期該金額於未來5年內獲確認為收入。沒有任何客戶合約的代價未納入交易價格。

### CONTRACT BALANCES WITH CUSTOMERS (continued)

#### Contract liabilities (continued)

Significant changes in the balances of deferred revenue during the year are shown below:

The aggregate amount of the transaction price allocated to the performance obligations that are unsatisfied (or partially unsatisfied) as at 31 March 2023 is estimated at HK\$6,644.2 million (2022: HK\$7,519.1 million), which is expected to be recognised as revenue over the next five years. No consideration from contracts with customers is not included in the transaction price.

### 14 客戶按金

指向客戶提供工程服務前收取的按金。有關按金用以支付應由客戶付予承辦商的採購費用。

### CUSTOMERS' DEPOSITS

This represents deposits received from customers in the provision of project services. The deposits are used to settle procurement costs payable by the customers to contractors.

### 15 僱員福利撥備

此為在計至報告日就所提供的服務給予僱員年假及合約員工約滿酬金的估計負債（見附註2.11）。

### PROVISION FOR EMPLOYEE BENEFITS

This represents the estimated liability for employees' annual leave and obligations on contract-end gratuities payable to contract staff for services rendered up to the reporting date (see note 2.11).

### 16 營運基金資本

此為政府對基金的投資。

### TRADING FUND CAPITAL

This represents the Government's investment in the Fund.

### 17 保留盈利

### RETAINED EARNINGS

	2023	2022
在年初的結餘	6,260,989	5,776,679
年度總全面收益	631,211	567,158
政府法定回報	(889,600)	(82,848)
<b>在年終的結餘</b>	<b>6,002,600</b>	6,260,989

年內，政府根據《營運基金條例》指示將截至2022年3月31日止年度的目標回報（見附註7）及其他盈餘轉撥至政府一般收入，而該轉撥於2023年3月完成（2022：截至2021年3月31日止年度的目標回報的轉撥於2022年3月完成）。

During the year, the Government directed the transfer of the target return (see note 7) for the year ended 31 March 2022 and other surpluses into general revenue pursuant to the Trading Funds Ordinance, and the transfer was completed in March 2023 (2022: the transfer of the target return for the year ended 31 March 2021 was completed in March 2022).

### 18 現金及等同現金

### CASH AND CASH EQUIVALENTS

	2023	2022
現金及銀行結餘	13,579	11,346
銀行存款	2,745,000	3,470,000
小計	2,758,579	3,481,346
減：原有期限為3個月以上的銀行存款	(240,000)	(680,000)
<b>現金及等同現金</b>	<b>2,518,579</b>	2,801,346

### 19 資本承擔

於2023年3月31日，基金尚未在財務報表內撥備的資本承擔如下：

### CAPITAL COMMITMENTS

As at 31 March 2023, the Fund had capital commitments, so far as not provided for in the financial statements, as follows:

	2023	2022
已批准及簽約	21,885	23,335
已批准惟未簽約	78,375	94,433
<b>總額</b>	<b>100,260</b>	117,768



20 或有負債

於2023年3月31日，基金就一銀行向若干受益客戶發出的4,370萬港元（2022：3,870萬港元）履約保證書向該銀行提供相應的損害賠償保證，有關客戶為基金的關連人士。

21 關連人士的交易

除已在本財務報表內另作披露的交易外，年內與關連人士進行的其他重大交易摘述如下：

- (a) 基金向關連人士提供的服務包括機電及電子工程服務、車輛工程服務，以及工程及顧問服務。這些服務的收入總額為89.101億港元（2022：87.134億港元）；
- (b) 關連人士向基金提供的服務包括維修、辦公地方、中央行政，以及審計。這些服務的支出總額為1.220億港元（2022：1.081億港元）；以及
- (c) 向關連人士購入的固定資產包括裝置工程、電腦軟件及車輛。這些資產的成本總額為280萬港元（2022：620萬港元）。

向關連人士提供的服務，是以成本加成本定價。而由關連人士提供的服務，若有關服務亦有提供予公眾，則以公眾所須付的價格收費，否則按收回全部成本方式計算。

CONTINGENT LIABILITIES

As at 31 March 2023, the Fund had provided a bank with counter-indemnity in respect of performance bonds for HK\$43.7 million (2022: HK\$38.7 million) issued by the bank in favour of certain customers who are related parties of the Fund.

RELATED PARTY TRANSACTIONS

Apart from those separately disclosed in the financial statements, the other material related party transactions for the year are summarised as follows:

- (a) services provided to related parties included electrical, mechanical and electronic services, vehicle services, and project and consultancy services. The total revenue derived from these services amounted to HK\$8,910.1 million (2022: HK\$8,713.4 million);
- (b) services received from related parties included maintenance, accommodation, central administration and auditing. The total cost incurred on these services amounted to HK\$122.0 million (2022: HK\$108.1 million); and
- (c) acquisition of fixed assets from related parties included fitting out projects, computer software and motor vehicles. The total cost of these assets amounted to HK\$2.8 million (2022: HK\$6.2 million).

Services provided to related parties were priced on a cost-plus basis. Services received from related parties were charged at the rates payable by the general public for services which were also available to the public or on a full cost recovery basis for services which were available only to related parties.

22 金融風險管理

22.1 投資政策

基金將現金盈餘投放於金融工具，包括定期存款及外匯基金存款。根據基金的政策，所有投放於金融工具的投資均應保本。

22.2 信用風險

信用風險指金融工具的一方將不能履行責任而且會引致另一方蒙受財務損失的風險。

基金的信用風險，主要取決於外匯基金存款、應收帳款及其他應收款項、應收關連人士帳款、銀行存款及銀行結餘。基金訂有風險政策，並持續監察須承擔的信用風險。

為盡量減低信用風險，所有定期存款均存放於香港的持牌銀行。基金的信用風險被視為有限。虧損準備按相等於12個月預期信用虧損的數額計量，基金評定所涉及的虧損並不重大。

銀行存款及銀行結餘的信用質素，以穆迪或其等同指定的評級，分析如下：

		2023	2022
信用評級：	Credit rating:		
Aa1 至 Aa3	Aa1 to Aa3	673,579	1,091,295
A1 至 A3	A1 to A3	2,085,000	1,990,000
Baa1 至 Baa3	Baa1 to Baa3	—	400,000
總額	Total	2,758,579	3,481,295

雖然其他金融資產須符合減值規定，但基金估計其預期信用虧損輕微，因此無須作出虧損準備。

在報告日基金的金融資產所須承擔的最高信用風險數額相當於其帳面值。

FINANCIAL RISK MANAGEMENT

Investment policy

Surplus cash is invested in financial instruments including fixed deposits and placement with the Exchange Fund. It is the Fund's policy that all investments in financial instruments should be principal-protected.

Credit risk

Credit risk is the risk that one party to a financial instrument will fail to discharge an obligation and cause the other party to incur a financial loss.

The Fund's credit risk is primarily attributable to placement with the Exchange Fund, trade and other receivables, amounts due from related parties, bank deposits and bank balances. The Fund has a credit policy in place and the exposure to these credit risks is monitored on an ongoing basis.

To minimise credit risks, all fixed deposits are placed with licensed banks in Hong Kong. The Fund's exposure to credit risk is considered to be limited. The loss allowances are measured at amounts equal to 12-month expected credit losses, which are assessed to be immaterial by the Fund.

The credit quality of bank deposits and bank balances, analysed by the ratings designated by Moody's or their equivalents, is shown below:

While other financial assets are subject to the impairment requirements, the Fund has estimated that their expected credit losses are minimal and considers that no loss allowance is required.

The maximum exposure to credit risk of the financial assets of the Fund at the reporting date is equal to their carrying amounts.



## 財務報表附註

### Notes to the Financial Statements

#### 22 金融風險管理 (續)

##### 22.3 流動資金風險

流動資金風險指某一實體將難以履行與金融負債相關的責任的風險。

基金採用預期現金流量分析來管理流動資金風險，即透過預測所需的現金款額及監察基金的營運資金，確保可以償付所有到期負債及應付所有已知的資金需求。

##### 22.4 利率風險

利率風險指金融工具的公平值或未來現金流量會因市場利率變動而波動的風險。利率風險可進一步分為公平值利率風險及現金流量利率風險。

公平值利率風險指金融工具的公平值會因市場利率變動而波動的風險。由於基金的所有銀行存款均按固定利率計息，當市場利率上升，這些存款的公平值便會下跌。然而，由於這些存款均按攤銷成本值列帳，市場利率的變動不會影響其帳面值及基金的年度盈利。

現金流量利率風險指金融工具的未來現金流量會因市場利率變動而波動的風險。基金無須面對重大的現金流量利率風險，因為其持有的主要金融工具都不是浮息金融工具。

##### 22.5 貨幣風險

貨幣風險指金融工具的公平值或未來現金流量會因匯率變動而波動的風險。

基金沒有重大的貨幣風險，因為其金融工具絕大部分是以港元為本位。

#### FINANCIAL RISK MANAGEMENT (continued)

##### Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities.

The Fund employs projected cash flow analysis to manage liquidity risk by forecasting the amount of cash required and monitoring the working capital of the Fund to ensure that all liabilities due and known funding requirements could be met.

##### Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. This can be further classified into fair value interest rate risk and cash flow interest rate risk.

Fair value interest rate risk is the risk that the fair value of a financial instrument will fluctuate because of changes in market interest rates. Since all of the Fund's bank deposits bear interest at fixed rates, their fair values will fall when market interest rates increase. However, as they are all stated at amortised cost, changes in market interest rates will not affect their carrying amounts and the Fund's profit for the year.

Cash flow interest rate risk is the risk that future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Fund is not exposed to material cash flow interest rate risk because it has no major financial instruments bearing interest at a floating rate.

##### Currency risk

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates.

The Fund does not have significant exposure to currency risk as substantially all of its financial instruments are denominated in Hong Kong dollars.

## 財務報表附註

### Notes to the Financial Statements

#### 22 金融風險管理 (續)

##### 22.6 其他金融風險

基金因於每年1月釐定的外匯基金存款息率（附註11）的變動而須面對金融風險。於2023年3月31日，假設息率增加/減少50個基點而其他因素不變，估計年度盈利將增加/減少3,400萬港元（2022：3,220萬港元）。

##### 22.7 公平值

所有金融工具均以與其公平值相等或相差不大的金額在財務狀況表內列帳。

#### 23 已頒布但於截至2023年3月31日止年度尚未生效的修訂、新準則及詮釋的可能影響

直至本財務報表發出之日，香港會計師公會已頒布多項修訂、新準則及詮釋。該等修訂、新準則及詮釋在截至2023年3月31日止年度尚未生效，亦沒有在本財務報表中採納。

基金正就該等修訂、新準則及詮釋在首次採納期間預計會對其財務報表產生的影響進行評估。迄今的結論是採納該等修訂、新準則及詮釋不大可能會對財務報表有重大影響。

#### FINANCIAL RISK MANAGEMENT (continued)

##### Other financial risk

The Fund is exposed to financial risk arising from changes in the interest rate on the placement with the Exchange Fund which is determined every January (note 11). As at 31 March 2023, it is estimated that an increase/decrease of 50 basis points in the interest rate, with all other variables held constant, would have increased/decreased the profit for the year by HK\$34.0 million (2022: HK\$32.2 million).

##### Fair value

All financial instruments are stated in the statement of financial position at amounts equal to or not materially different from their fair values.

#### POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE YEAR ENDED 31 MARCH 2023

Up to the date of issue of these financial statements, the HKICPA has issued a number of amendments, new standards and interpretations which are not yet effective for the year ended 31 March 2023 and which have not been adopted in these financial statements.

The Fund is in the process of making an assessment of the expected impact of these amendments, new standards and interpretations on its financial statements in the period of initial application. So far it has concluded that the adoption of them is unlikely to have a significant impact on the financial statements.



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漁農自然護理署	Agriculture, Fisheries and Conservation Department
香港機場管理局	Airport Authority Hong Kong
建築署	Architectural Services Department
土木工程拓展署	Civil Engineering and Development Department
懲教署	Correctional Services Department
香港海關	Customs and Excise Department
教育局	Education Bureau
環境保護署	Environmental Protection Department
食物環境衛生署	Food and Environmental Hygiene Department
政府產業署	Government Property Agency
香港消防處	Hong Kong Fire Services Department
香港警務處	Hong Kong Police Force
香港旅遊發展局	Hong Kong Tourism Board
醫院管理局	Hospital Authority
康樂及文化事務署	Leisure and Cultural Services Department
海事處	Marine Department
伊利沙伯醫院	Queen Elizabeth Hospital
運輸署	Transport Department
屯門醫院	Tuen Mun Hospital





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