

ADVANCING THROUGH
INNOVATION
超越想像 突破創新



部門簡介及架構

ORGANISATIONAL PROFILE AND STRUCTURE

機電工程署 ELECTRICAL AND MECHANICAL SERVICES DEPARTMENT



機電工程署(機電署)是提供機電工程服務的政府部門，轄下設有兩個功能機構，即規管服務及營運服務，後者又稱為機電工程營運基金(營運基金)。機電署肩負雙重職責，一方面透過執法和公眾教育規管機電設施的安全運作，另一方面為政府部門及公營機構提供專業、全面和具成本效益的機電工程服務，以持續提升市民的生活質素。

規管服務團隊擔當規管機構和執法部門的角色，負責保障機電安全及促進能源效益。規管服務團隊由多個部別組成，專責不同的規管及公眾教育工作範疇，包括機電、氣體和鐵路安全，並根據《管制計劃協議》監察電力公司的技術表現及發展計劃。此外，團隊亦向政府提供專業意見，並在社區推廣能源效益。

營運基金則肩負為其他政府部門和公營機構提供優質機電工程服務的重任，以持續提升公眾的生活質素。營運基金為超過80個客戶部門的機電設施、屋宇裝備、電子系統和設備提供全面的工程服務，例如操作、維修保養、工程策劃及顧問服務。客戶的場地及設施包括但不限於醫院、學校、紀律部隊設施、運輸設施、公路、港口及海港、機場、政府合署及法院大樓，同時亦涵蓋公眾文娛康樂設施。

The Electrical and Mechanical Services Department (EMSD) is a government department that provides electrical and mechanical (E&M) services via two functional arms, namely, Regulatory Services (RS) and Trading Services, of which the latter is also known as the Electrical and Mechanical Services Trading Fund (EMSTF). The EMSD plays a dual role of regulating E&M safe operations by means of law enforcement and public education, while providing professional, comprehensive and cost-effective E&M engineering services for government departments and public bodies to continuously enhance our citizens' quality of life.

Acting as a regulatory body and law enforcement department, the RS team is responsible for safeguarding E&M safety and enhancing energy efficiency. The RS team comprises a number of divisions specialising in different regulatory and public education areas, including E&M safety, gas safety and railway safety. The team also monitors the technical performance and development plans of power companies based on the Scheme of Control Agreements. In addition, the team provides the Government with professional advice and promotes energy efficiency within the community.

The EMSTF plays an important role of providing quality E&M engineering services to other government departments and public bodies, in order to enhance the quality of life for the public. The EMSTF offers comprehensive engineering services, such as operation, maintenance, project management and consultancy services, on E&M, building services and electronic systems and equipment to more than 80 client departments. Client venues and facilities include but not limited to hospitals, schools, disciplined services facilities, transport facilities and highways, port and harbour, airport, government offices and law court buildings as well as public recreational and leisure facilities.

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署長的話 MESSAGE FROM THE DIRECTOR



彭耀雄太平紳士
Mr Pang Yiu-hung, JP

機電工程署署長
機電工程營運基金總經理

Director of Electrical and Mechanical Services
General Manager, Electrical and Mechanical Services Trading Fund

規管服務和營運服務在2019/20年度雖面對無法預見的挑戰，但表現依然良好。規管服務不但使機電事故數字維持下降趨勢，在推廣能源效益及可再生能源方面也取得長足進展。營運服務（即機電工程營運基金）也緊循我們的營運方針，取得6.2%收入回報率的成績。

規管服務和營運基金年內均獲得不少獎項，並得到機電業界和客戶部門的鼎力支持。然而，我們必須取得市民的了解和支持，讓機電工程署（機電署）成為值得其信賴的部門，才算是真正成功。我們去年的表現，顯示部門正朝這方向穩步邁進。

挑戰接踵而來

常言道，緊急情況是對機構實力和韌力的最佳考驗。2019/20年度發生的公眾活動和2019冠狀病毒病大流行，對香港影響至深。所幸我們的同事經驗豐富，悉力以赴，機電署得以一一克服挑戰。

無論是發生公眾活動或是爆發疫情，規管服務的首要任務都是確保電力公司、氣體供應商和鐵路營運商等受規管機構能維持安全可靠的公共服務，並協助機電業從業員，盡量減少對他們營運的影響。我們除了要求受規管機構制訂業務延續計劃和抗疫措施外，部門本身還運用投遞箱、網上平台及各種流動服務渠道，確保各種申請、公眾查詢，以及為機電工程人員註冊續牌和相關的持續專業發展和培訓等工作，都能如常進行。

與此同時，營運服務也竭盡全力，日以繼夜為客戶搶修大量在公眾活動期間遭受破壞的公共設施，最明顯的例子是我們在數百個路口搶修數以千計遭受破壞的交通燈，並復修海底隧道的受損設施，使其得以在清理現場後100小時內重開。我們也復修了無數受損的政府大樓、場所、設施及車輛，務求盡快讓市民的生活回復正常。

Both Regulatory Services and Trading Services performed well in 2019/20 despite unforeseen challenges. Regulatory Services not only kept E&M incident numbers on a declining trend, but also made substantial progress in promoting energy efficiency and renewable energy. Trading Services, otherwise known as the Electrical and Mechanical Services Trading Fund (EMSTF), achieved return on revenue at 6.2% while adhering to our operating principle.

Regulatory Services and the EMSTF both garnered numerous awards and strong support from the E&M trade and client departments. However, we can claim success only when the public understands and supports the Electrical and Mechanical Services Department (EMSD) as a department they can trust. Our performance last year suggests we are well on the way to achieving this target.

ONE CHALLENGE AFTER ANOTHER

It is often said that emergencies are the best test of an organisation's strength and resilience. The year 2019/20 presented us all with some very strenuous time. The public order events and the Coronavirus Disease 2019 (COVID-19) pandemic both shook Hong Kong to the core, but thanks to our colleagues' experience and dedication, the EMSD rose to the challenge.

In both instances, the priority of Regulatory Services was to ensure the continuity of safe and reliable services to the public by our regulatees, such as the power utilities, gas companies and railway operators, and to help minimise disruption to the operations of E&M trade practitioners. Apart from requesting regulatees to put in place business continuity plans and virus-control measures, we also made use of tools like drop boxes, online platforms and mobile channels to ensure that various applications, public enquiries and registration renewals, along with related continuing professional development and training for E&M workers, could operate as normal.

Meanwhile, Trading Services did its utmost round-the-clock to help clients repair countless public facilities damaged during the public order events. Most notable were the repairing of thousands of damaged traffic lights at hundreds of road junctions and the restoration of the damaged Cross-Harbour Tunnel for re-opening within 100 hours of site clearance. Numerous damaged government buildings, venues, facilities and vehicles were repaired with the aim of restoring normal lives for members of the public as soon as possible.

署長的話

Message from the Director

2020年1月，香港爆發2019冠狀病毒病疫情，營運基金團隊再次迅速行動，為客戶推出多項抗疫項目，範圍涵蓋醫院及診所、邊境口岸、檢疫中心、救護車服務和政府大樓等。

我們的抗疫工作既多且廣，包括重新啟動負壓病房、為醫院設計和安裝「流動組合式—高效能空氣微粒子過濾器」、將不同處所改建為檢疫中心、就可能改建為臨時檢測中心的處所提供技術意見、在邊境口岸及政府辦公室安裝發燒偵測系統、在懲教所安裝和調校額外添置的口罩生產機、為空調系統進行消毒，以及支援出現確診個案的郵輪及住宅單位的調查工作等。我們動員了大量營運基金同事，部分規管服務同事也參與這牽涉整個部門的工作，一起以積極和無懼的精神完成各項任務。

我們也關注到疫情對業界帶來的經濟影響，並協助業界向決策局反映有關情況。後來，所有向機電署註冊的機電工程人員、註冊電業／氣體／升降機／自動梯承辦商及車輛維修工場，均納入政府的「防疫抗疫基金」的資助範圍，可獲發一次性資助，渡過難關。

我們的同事勇於承擔，竭誠為客戶和公眾服務，是應對這兩項挑戰的主要成功因素。營運基金上下，由業務管理層至前線員工，均展現了出色的領導才能，與其他政府部門也保持良好的團隊合作。即使日後出現類似的緊急情況，我們對部門的應變能力和公眾對機電署的信任都持樂觀態度，定能穩步向前。

When the COVID-19 epidemic broke out in Hong Kong in January 2020, the EMSTF team had to again swing into action promptly by implementing various anti-epidemic projects for clients at hospitals and clinics, boundary control points, quarantine centres, ambulance services and government buildings, to name just a few.

Our range of work during the epidemic was diverse: from reactivating negative pressure wards to designing and installing Mobile Modular High Efficiency Particulate Arrestance Filter Units in hospitals; from converting premises into quarantine centres to providing technical advice in identifying venues to be used as temporary testing centres; from installing fever screening systems at boundary control points and government offices to installing and calibrating additional mask-making machines at correctional institutions; and from disinfecting air-conditioning units to supporting the investigation of cruise ships and residential units with confirmed cases. Numerous EMSTF colleagues were mobilised to complete these tasks with a fearless can-do spirit. Some Regulatory Services colleagues also stepped forward to join them in this department-wide effort.

We were also mindful of the economic impact of the epidemic on the trade, an issue we helped raise with the policy bureaux. The Government's Anti-epidemic Fund was subsequently extended to provide one-off subsidies to E&M workers registered with the EMSD, registered electrical/gas/lift/escalator installation contractors and all vehicle maintenance workshops to help them cope with these difficult times.

Our colleagues' commitment to serving our clients and the public was the overriding success factor in handling the two challenges. Excellent leadership skills were exercised at all levels, from line management to frontline staff, along with good teamwork with other government departments. Going forward, we are optimistic about our resilience and the public's trust in our department in case of similar emergencies.

創新科技 全速推動

年內，機電署在創新和科技（創科）方面取得良好進展。部門有大量前線員工，因此，採納創科的關鍵不單是科技培訓，更重要的是培養創科文化。我們早於多年前已經起步，受較早接納創科同事的影響，大部分同事都樂於採用創科技術，而部門近年推出的許多創科措施也初見成效。

舉例來說，我們在2019/20年度舉辦的第二屆「Inno@E&M創新科技挑戰賽」內部比賽，參賽作品比去年增加了近25%，反應更為熱烈。我們首個區域數碼監控中心已落成啟用，不但可透過實時監察及收集數據，為政府大樓內的機電系統進行更有效的預測性維修保養，更可透過數據分析優化設施運作，節約能源。這個監控中心可供同事參考，以構建針對不同客戶所需的區域數碼監控中心。這些措施有助締造一套以創新為本的部門文化，讓各級員工都有機會在日常工作中接觸到創科、新意念和協作文化。

我們的創科工作備受認同，曾獲邀分別向立法會環境事務委員會和發展事務委員會介紹我們的綠色創科工作及「機電創科網上平台」。在政府內部一次部門首長會議上，我們也就部門的創科工作作出簡報。

規管服務推行的創科項目分三方面進行。首先，規管服務開始應用人工智能和大數據分析等技術，協助進行風險為本的巡查工作，並應用聊天機械人等技術處理日常公眾查詢，提升服務效率。同時，規管服務推出新方案，包括為註冊電業／氣體／升降機／自動梯工程人員和承辦商提供電子提交、電子追蹤、電子處理、電子繳費及電子牌照申請服務等，並建立電子平台，以接收各種文件。這些項目配合「智慧政府」的目標，旨在簡化工作流程和提高生產力。

PRESSING AHEAD IN INNOVATION AND TECHNOLOGY

The EMSD made good progress in innovation and technology (I&T) during the year. With our large pool of frontline staff, the key to adopting I&T is cultural change rather than technology training alone. Thanks to our early start some years ago, most colleagues are now happy to take up I&T solutions, following the lead of early-adopter colleagues. Many initiatives kicked off in recent years have begun to deliver results.

For example, the Inno@E&M Challenge internal competition attracted an even more enthusiastic response, with nearly 25% more submissions in its second year in 2019/20. Our first Regional Digital Control Centre (RDCC) was commissioned too, enabling not only real-time monitoring and data collection for more effective predictive maintenance and repair of E&M systems in government buildings, but also optimisation of plant operation through data analytics to save energy. It serves as a template for colleagues to build other RDCCs tailored to different client needs. These initiatives helped create an innovation-oriented culture where all levels of staff are exposed to I&T, new ideas and collaboration in their daily experience.

In recognition of our I&T efforts, we were invited to present our green I&T work and the E&M InnoPortal at the Legislative Council Panels on Environmental Affairs and Development respectively. A presentation on our I&T work was also made at a heads-of-departments meeting within the Government.

Regulatory Services commenced projects on adopting I&T on three fronts. Firstly, it started using technologies like artificial intelligence (AI) and big data analytics to enable risk-based inspections, as well as other technologies, such as chatbots, to handle day-to-day public enquiries with greater efficiency. At the same time, new solutions, such as e-submission, e-tracking, e-processing, e-payment and e-licence, for registered electrical/gas/lift/escalator workers and contractors were being implemented. An e-platform was also established to receive various documentary submissions, so as to be in line with the "Smart Government" initiative to streamline work processes and raise productivity.

署長的話

Message from the Director

第三方面是主動鼓勵受規管機構採用創科方案改善其公共服務，我們的工作包括與業界合作試驗新項目(例如用以提升港鐵自動梯安全水平的細小物件偵測系統)，也同時自行進行新項目測試。對於後者，我們充分利用政府的科技統籌(整體撥款)資助開展我們的項目，例如應用光纖監察和人工智能技術加強升降機及自動梯安全。待項目概念驗證成功後，規管服務會與業界分享這些創科方案。

營運基金的首要任務，是協助客戶將其機電系統數碼化，以提高營運效率及節能。在這方面，我們的「機電創科網上平台」(「網上平台」)尤關重要。「網上平台」有助我們的客戶和其他機構，包括受我們規管的機構，與提供合適創科方案的本港初創企業、大學和科研機構進行配對。此外，我們在2019年與廣東省科學技術協會、廣東省科學院及廣東省生產力促進中心等簽署合作備忘錄後，「網上平台」更與大灣區的廣東城市連接，共同推廣創科協作。他們現在可透過「網上平台」得知客戶及其他公營機構提出的創科願望，並據此提交解決方案，從而加快客戶的數碼化轉型。

2019冠狀病毒病爆發後，我們隨即看到上述協作帶來的正面成果。營運基金在「機電創科網上平台」設立抗疫主題專頁，當中由客戶上傳的八個「創科願望」，最後共收到逾240個抗疫方案，包括其他大灣區城市的機構所提供的方案。抗疫主題專頁有助客戶加快接觸、試用和採購創科方案，例如創新機械人及用於消毒和其他防控感染用途的塗層物料，在分秒必爭的抗疫時期十分重要。

營運基金的創科工作於2019/20年度獲獎連連，例如我們與懲教署共同開發的一系列「智慧監獄」數碼機電方案，在2019年公務員優質服務獎勵計劃中榮獲優異獎。方案有助客戶提升營運效率，減輕懲教人員的壓力，並改善在囚人士的福祉。這類成功個案，正是驅使我們繼續為客戶開展創科工作的動力。我們在「建築信息模擬—資產管理」技術方面的成就也贏得數個獎項。其他有關創科的獎項，包括香港工業專業評審局頒發的「智慧學習型機構榮譽獎」，以表揚我們在培訓中致力運用創科。

The third front was to take the initiative to encourage our regulatees to adopt I&T solutions, so as to improve their public services via trials of new projects in collaboration with the trade, such as the small-object detection system for MTR escalators to enhance safety, while also taking up new trial projects ourselves. For the latter, we made good use of the Government's TechConnect (Block Vote) funding to initiate our own projects, such as applying optical fibre monitoring and AI technologies to enhance lift and escalator safety. Regulatory Services plans to share these I&T solutions with the trade upon successful proof of concept.

A key task of the EMSTF was to help clients digitise their E&M systems to enhance operational efficiency and energy saving. Our E&M InnoPortal plays an important role in this regard, not only because it helps match our clients and other organisations including Regulatory Services regulatees with local start-ups, universities and research institutions that can offer the appropriate I&T solutions, but also because it has been connected to Guangdong cities in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) after we signed memoranda of co-operation (MoC) in 2019 to promote I&T co-operation. The MoC partners include the Guangdong Provincial Association for Science and Technology, the Guangdong Academy of Sciences and the Guangdong Productivity Centre. They can now access the "I&T wishes" listed by our clients and other public organisations in Hong Kong on our E&M InnoPortal, and put forward solutions accordingly, expediting our clients' digital transformation.

The positive outcome of such collaboration was seen shortly after the COVID-19 outbreak when the EMSTF set up an anti-epidemic page on the E&M InnoPortal that attracted over 240 anti-epidemic solutions, including those provided by entities in other GBA cities, in response to the eight "I&T wishes" from our clients. This enabled clients to access, try out and procure solutions, such as innovative robots and coating materials for disinfection and other infection-control purposes, much faster than before, which is vital in a pandemic when time is of the essence.

Among the many awards the EMSTF received in 2019/20 for its I&T work was a Meritorious Award in the Civil Service Outstanding Service Award Scheme 2019. We jointly won this award with the Correctional Services Department for the series of digital E&M solutions on Smart Prison, which help the client enhance operational efficiency, reduce pressure on correctional officers and improve the well-being of those in custody. Successful stories like this motivate us to strive further in our I&T work for clients. Other I&T related accolades included several awards for our achievements in Building Information Modelling — Asset Management (BIM-AM) technology, and a Learning Organisation Honorary Award from the Professional Validation Council of Hong Kong Industries for our use of I&T in training.

無邊界協作

我們近年在國家、區域及國際層面努力打造的合作關係已有成果。我們的合作協議及伙伴關係覆蓋不同範疇和目標，包括推廣創科、機電安全、能源效益、重新校驗及共同培育機電人才，並都漸見成效。其中一例，是規管服務與中國內地海關總署於2019年10月簽署新的合作備忘錄，成立「跨境電商工作小組」。小組旨在從源頭着手，識別和阻止違規電氣產品及氣體用具經網上電商平台流入香港，有助解決隨着電子商貿興起而產生的問題。

除了創科之外，機電署在培訓方面同樣受惠於跨境合作。我們與廣州市人力資源和社會保障局及廣州市工貿技師學院簽訂合作備忘錄後，計劃在廣州及香港合作建立共六個培訓基地，就主要機電系統及車輛維修方面進行聯合技術培訓。作為合作項目的一部分，我們已在機電署總部大樓設立兩個培訓基地。兩名參與聯合培訓的營運基金技術員，在2019年8月於俄羅斯喀山舉行的第45屆世界技能大賽中贏得優異獎。

我們的培訓原則是優勢互補，即安排員工前往有獨特實力和技術專長的城市進行培訓，而聯合培訓的主要考慮因素，則是培訓的深度、水平和種類。我們相信，在瞬息萬變的世界中，隨時準備從其他城市的獨特優勢中學習，對不斷提升我們的技能水平至為重要。

明年展望

來年，我們將繼續致力為客戶進行資產數碼化和促進創科應用的工作，政府的《香港智慧城市藍圖》提供了發展框架，讓我們主動提出新的構思建議，譬如協助政府設施管理充分利用政府的物聯網網絡(政府物聯網)，並為公眾推出更智能化且具備智能流動應用程式的停車收費錶。這些將為營運基金帶來新的機遇，並加快發展智慧城市的步伐。

我們也樂見政府即將推出「城市創科大挑戰」，邀請各界就改善本港市民日常生活或惠及特定社區提交創科方案，這與部門當前許多計劃的目標和精神一致，希望我們日後可以啟發更多新穎構思。

COLLABORATION WITHOUT BORDERS

Our focused efforts in forging national, regional and international co-operation in recent years are yielding fruitful results. Our co-operation agreements and partnerships, formed for diverse purposes such as the promotion of I&T, E&M safety, energy efficiency and retro-commissioning as well as joint E&M talent development, have begun to bring positive impacts to our work. A good example in Regulatory Services was the new MoC signed with the General Administration of Customs of the People's Republic of China in October 2019 to set up a Cross-border E-commerce Working Group that will identify and stop at source non-compliant electrical or gas appliances from being supplied to Hong Kong via e-commerce platforms, tackling a problem that has become prevalent with the rise of e-commerce.

Apart from I&T, training is another area where the EMSTF has benefited from cross-border co-operation. Under our MoC with the Guangzhou Municipal Human Resources and Social Security Bureau, and the Guangzhou Industry and Trade Technician College, we set up two new training bases at our headquarters building as part of a joint initiative to establish a total of six training bases in Guangzhou and Hong Kong for collaborative technical training on major E&M systems and vehicle maintenance. As a result, two EMSTF technicians who benefited from the joint training won Medallions for Excellence in the 45th WorldSkills Competition in Kazan, Russia, in August 2019.

Our approach to training is based on a complementary principle, which is to arrange for our colleagues to be trained in cities with unique strengths and technical expertise. The depth, level and variety of training are our key considerations for joint training. We believe a readiness to learn from the unique strengths of other cities is vital to the continued enhancement of our technical skills in a fast-changing world.

OUTLOOK FOR NEXT YEAR

The coming year will see us continue to pursue client asset digitisation and I&T facilitation work. The Government's Smart City Blueprint for Hong Kong has also given us the framework to proactively propose new ideas, such as leveraging the Government-Wide Internet of Things Network (GWIN) for government facility management and to implement a more intelligent parking meter system with smart mobile application for the public. These efforts will generate new opportunities for the EMSTF and expedite smart city development.

We are delighted to see that the Government will soon roll out a City I&T Grand Challenge, which invites the public to suggest I&T solutions that improve daily life in Hong Kong or benefit specific communities. This shares the same spirit that underlies many of our current initiatives, and we hope to help inspire more novel ideas in future.

署長的話

Message from the Director

香港的機電設施和勞動力老化情況日趨嚴重。為確保公眾安全，規管服務必須繼續加強風險為本的巡查和特別審核，並收緊對受規管機構維修保養制度的監管。我們會繼續支援「優化升降機資助計劃」的執行工作，並鼓勵和協助機電設施擁有人／受規管方更換老化的機電系統。至於營運基金在這方面的職責，則包括為客戶加快更換老化資產，並為其機電系統引入人工智能及數據分析技術，從而進行更有效的預測性維修保養工作和節省人手，並繼續發揮牽頭作用，引領業界吸引新血投身機電業。

作為規管者、機電服務提供者和政府的「創新促成者」，我們在日常工作的每一環都致力落實可持續發展。我們最新的亮點包括「採電學社」計劃、「綠色校園2.0」和一年一度的「全民節能」運動。我們希望藉着這些活動啟發持份者及公眾，一同創建低碳社會。同時，營運基金團隊將繼續為數百幢政府大樓進行「健康檢查」，借助重新校驗技術，尋找節約能源和優化機電系統表現的空間。經與中國內地合作伙伴協商後，我們已編訂了一套適用於大灣區的重新校驗指南。

我們在啟德發展區的區域供冷系統屢獲殊榮，當中第三個廠房即將落成啟用，目標是於2022年開始向用戶提供冷凍水。其他規劃中的區域供冷系統項目包括古洞北、東涌新市鎮擴展和洪水橋／廈村新發展區的系統，規劃進展良好。

The issue of aged E&M facilities and an ageing workforce in Hong Kong is increasingly pressing. To ensure public safety, Regulatory Services must continue to step up risk-based inspections and special audits and tighten the monitoring of regulatees' maintenance regimes. We will continue to support the implementation of the Lift Modernisation Subsidy Scheme, and encourage and facilitate replacement of aged E&M systems by owners/regulatees. The EMSTF's duties in this respect include expediting the replacement of clients' aged assets and applying AI and data analytics to their E&M systems, so as to enable more effective predictive maintenance and save manpower, as well as continuing to take the lead to attract new blood to the E&M trade.

We take sustainability seriously as it permeates everything we do as a regulator, an E&M service provider and the Government's Innovation Facilitator. Among our latest highlights are the implementation of the Solar Harvest and Green Schools 2.0 programmes and the annual Energy Saving for All campaign, by which we hope will inspire stakeholders and the public to contribute to building a low-carbon society. Meanwhile, our EMSTF team will continue to perform "health checks" at hundreds of government buildings by retro-commissioning to identify opportunities for energy saving and optimisation of the performance of E&M systems. We have already prepared a set of retro-commissioning guidelines for use in the GBA, in consultation with our partners in the Mainland of China.

Our award-winning District Cooling System (DCS) at Kai Tak Development will see a third plant completed soon, with the aim to start supplying chilled water to users by 2022. Other DCSs in the pipeline, including those for the Kwu Tung North, Tung Chung New Town Extension and Hung Shui Kiu/Ha Tsuen New Development Area, are making good progress at the planning stage.

展望未來，我們預期規管服務將會深化現有角色，例如進一步研究為車輛維修技工及車輛維修工場引入強制性註冊計劃。營運基金料將保持穩定的業務增長，並繼續作為業界典範領導機電行業。事實上，我們正在編撰兩套刊物：《機電資產最佳操作和維修作業守則》和《規管體系手冊》，計劃於2020年年底出版，旨在記錄和分享我們在機電設施維修保養及規管工作方面的知識和經驗。同時，創科、可持續發展和智慧城市發展，將會是我們的優先工作重點。

摯誠謝意

過去一年，全體員工都辛勤耕耘，既要處理公眾活動的善後工作和應對疫情持續的影響，又須履行日常職責。我們的客戶也同樣經歷艱難時刻，並盡可能維持正常的公共服務，而營運基金則在跌宕起伏的過程中常伴客戶左右，全力協助。我們必須感謝所有同事的努力、勇氣和出色表現，並感謝客戶的信任和合作。

我們衷心感謝各決策局和政府部門的支持，並感謝支持我們工作的專業團體、學者、培訓和研究機構、公營機構、非政府組織、機電業界，以及來自本港和其他城市的持份者。

社會的反饋和監察對我們的工作非常重要。為此，我們感謝市民、媒體、立法會議員和其他意見領袖的寶貴意見和建議，讓我們不斷進步。

來年也許同樣充滿挑戰，但在員工、客戶和持份者的支持下，我們將堅持不懈，繼續服務香港。

Looking ahead, we anticipate that Regulatory Services will deepen its existing role, such as further examining the introduction of a mandatory registration scheme for vehicle mechanics and vehicle maintenance workshops. The EMSTF will continue to see steady business growth while leading the E&M sector as a trade model. In fact, we have been compiling two sets of comprehensive publications, namely the Best Practices for Operation and Maintenance of E&M Assets and The Regulatory Regime Handbook, scheduled to be released by end of 2020. The publications aim to capture and share our knowledge and experience in E&M installation maintenance and regulatory practices. At the same time, I&T, sustainability and smart city development will be the priorities for our areas of work.

SINCERE GRATITUDE

The past year was exceptionally demanding for our staff at all levels as they had to deal with the aftermath of the public order events and an ongoing epidemic while attending to their normal duties. Our clients went through challenging times, too, as they strived to maintain normal public services to the extent possible, with the EMSTF at their side through all the ups and downs. We must thank all our colleagues for their commitment, courage and excellent work, and our clients for their trust and partnership.

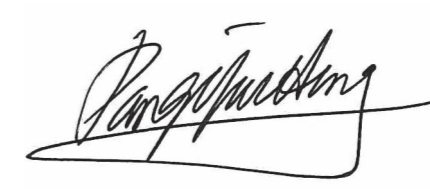
Our sincere gratitude goes to various policy bureaux and government departments for their support, and to the professional bodies, academics, training and research institutions, public organisations, non-governmental organisations, the E&M trade and other stakeholders in Hong Kong and other cities who have supported our work.

Feedback and vigilance are important for us to stay on course. For this, we thank members of the public, the media, Legislative Councillors and other opinion leaders for their valuable input and suggestions.

The coming year may again be challenging, but with the support from our staff, clients and stakeholders, we will spare no effort in serving Hong Kong.



彭耀雄
機電工程署署長
機電工程營運基金總經理



Pang Yiu-hung
Director of Electrical and Mechanical Services
General Manager, Electrical and Mechanical Services Trading Fund

規管服務業務概覽

REGULATORY SERVICES
ACHIEVEMENTS

OVERVIEW

抱負 VISION

我們的抱負，是要成為促使香港在機電安全及善用能源方面，都達到世界首要都會水平的政府機構。

Our vision is to be the government agency that makes Hong Kong a top-ranking city in E&M safety and in the utilisation of energy.

使命 MISSION

我們的使命，是確保機電及能源科技均以安全、可靠、經濟及環保的方式得以善用，並藉此促進社會的安全及提升生活質素。

Our mission is to enhance the safety and the quality of life of our community by ensuring that E&M and energy technologies are harnessed in a safe, reliable, economical and environment-friendly manner.

信念 VALUES

專業才能 EXPERTISE
誠信 INTEGRITY
可靠 RELIABILITY
承擔 COMMITMENT

高層管理人員 SENIOR MANAGEMENT

羅皓宜女士
Ms Law Ho-ye, Sharon

部門會計師
Departmental
Accountant

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

署理副署長 / 規管服務
(助理署長 / 氣體及一般法例)
Deputy Director/
Regulatory Services (Acting)
(Assistant Director/
Gas and General Legislation)

彭耀雄太平紳士
Mr Pang Yiu-hung, JP

機電工程署署長
Director of Electrical and
Mechanical Services

陳秋發太平紳士
Mr Chan Chau-fat, JP

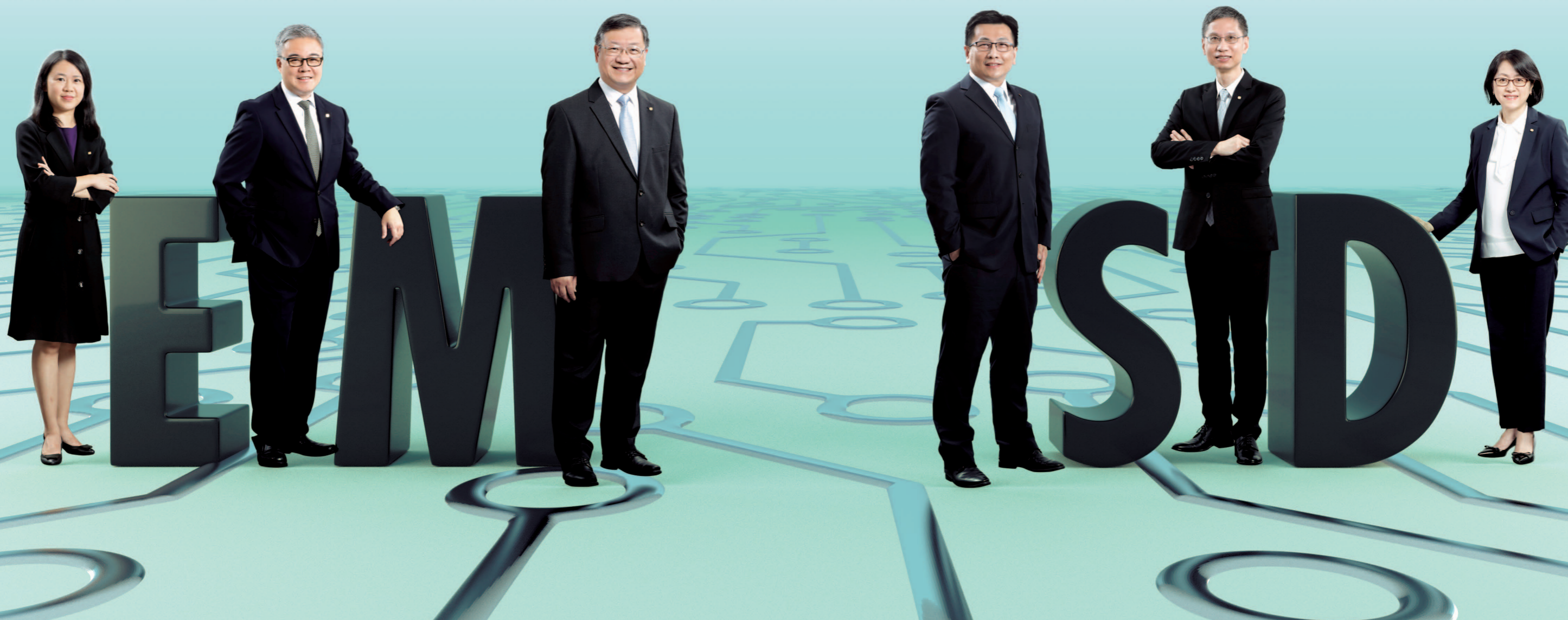
署理副署長 / 規管服務
(助理署長 / 鐵路)
Deputy Director/
Regulatory Services (Acting)
(Assistant Director/Railways)

朱祺明先生
Mr Chu Kei-ming, Barry

助理署長 / 電力及能源效益
Assistant Director/
Electricity and Energy Efficiency

袁秀明女士
Ms Yuen Sau-ming, Anna

主任秘書
Departmental
Secretary



- * 薛永恒太平紳士出任機電工程署署長至2020年4月21日
Mr Sit Wing-hang, Alfred, JP was Director of Electrical and Mechanical Services up to 21 April 2020
- * 賴漢忠太平紳士出任副署長 / 規管服務至2019年9月13日
Mr Lai Hon-chung, Harry, JP was Deputy Director/Regulatory Services up to 13 September 2020
- * 黃奕進先生出任助理署長 / 電力及能源效益至2020年6月22日
Mr Vy Ek-chin was Assistant Director/Electricity and Energy Efficiency up to 22 June 2020

服務回顧

OPERATIONS REVIEW

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

署理副署長 / 規管服務
Deputy Director/
Regulatory Services (Acting)

陳秋發太平紳士
Mr Chan Chau-fat, JP

署理副署長 / 規管服務
Deputy Director/
Regulatory Services (Acting)

工作亮點

規管服務在2019/20年度克服了许多挑戰，並在不同工作範疇有進展。作為機電安全的規管者和推廣者，我們樂見年內電力和氣體事故持續減少，而涉及機械故障的升降機及自動梯事故也較去年減少了25%。事故數字呈下降趨勢，彰顯我們的公眾教育宣傳、加強巡查工作、更嚴謹的維修保養要求，以及其他嚴格緩減風險措施均卓有成效。

屯馬綫一期工程經全面測試和檢查後，已於2020年2月14日順利開通，標誌着香港鐵路發展邁進新的里程。我們於2019年引入「全面和直接審核」，是加強監管香港鐵路有限公司(港鐵公司)安全績效的另一重要措施。通過這個審核機制，我們採用全面、主動和以系統為本的方法檢視所有營運中路綫的主要鐵路工程系統，就其安全管理系統和資產管理系統的質素進行評估，務求找出這些路綫在維修保養方面的不足和潛在安全風險，並向港鐵公司建議改善措施，以防事故發生。

能源效益方面，「強制性能源效益標籤計劃」(強制性標籤計劃)第三階段已於2019年12月開始全面實施，而《建築物能源效益守則》2018年版則已於2019年生效，兩者同樣意義重大。強制性標籤計劃第三階段全面實施後，預計整個計劃每年可節省約6.25億度電，而《建築物能源效益守則》的最新版本與2012年版相比，在能源消耗量方面也可減省18%。

規管者及其他角色

實際上，我們不僅擔當規管者的角色，還肩負重任，推廣和促成各項改善市民生活的新措施。年內，2019冠狀病毒病肆虐，延誤了香港海上液化天然氣接收站項目的進度。為此，我們致力協助相關機構解決問題。全賴我們早於項目籌備初期已展開與兩家電力公司的協作，提前開始全面審視項目的初步設計，有關氣體裝置的建造申請才得以加快處理，以配合緊迫的時間表，從而促進兩電增加使用天然氣(更潔淨的燃料)發電。

我們也與市區重建局合作，推行總值45億元的「優化升降機資助計劃」，向有需要的業主提供財政資助及相關專業支援，為全港舊式升降機進行優化工程，以提升安全。此外，環境局和機電署於2019年3月推出「採電學社」計劃，積極推動可再生能源發展。我們的團隊現正為合資格的學校及非政府福利機構提供一站式服務，安裝太陽能發電系統，生產可再生能源，項目的所有開支全數由「採電學社」支付。

HIGHLIGHTS

Regulatory Services overcame many challenges in 2019/20 and continued to make progress in diverse areas. As the regulator and promoter of E&M safety, we are delighted to witness a continued decline in electrical and gas incidents, while fault-related lift and escalator incidents have dropped by as much as 25% compared to last year. The declining trend underscores the effectiveness of our public education and promotion, stepped-up inspections, more stringent maintenance requirements and other rigorous risk-mitigation measures.

The smooth commissioning of the Tuen Ma Line Phase 1 on 14 February 2020, after thorough testing and examination of its railway systems, marked a new milestone in Hong Kong's railway development. The introduction of "comprehensive and direct audits" in 2019 was another significant move to tighten our regulatory oversight of the safety performance of the MTR Corporation Limited (MTRCL). This means we adopt a comprehensive, proactive and system-based approach to assess the quality of the Safety Management System and Asset Management System of the major railway engineering systems across all operating lines, thereby identifying shortfalls in maintenance services and potential safety risks in these lines and making recommendations to the MTRCL on improvement actions to avoid incidents.

Speaking of energy efficiency, the third phase of the Mandatory Energy Efficiency Labelling Scheme (MEELS), which began full implementation in December 2019, and the Building Energy Code (BEC) 2018, which took effect in 2019, were both worthy of mention. With Phase 3 fully implemented, the MEELS is expected to save about 625 million kWh a year. The new edition of BEC will also bring an 18% energy-saving improvement compared with the 2012 edition.

MORE THAN A REGULATOR

Indeed, our role goes beyond being a regulator. We are also a promoter and facilitator of new initiatives that improve people's living. During the year, we endeavoured to overcome the delay to the Hong Kong Offshore LNG Terminal Project brought by the COVID-19 pandemic. Thanks to our early collaboration with the two power companies and the comprehensive review on the preliminary designs, the processing of construction approvals of the concerned gas installations could be expedited and fitted into the tightened schedule. This would facilitate the two power companies in using more natural gas (i.e. a cleaner fuel) in electricity generation.

We also partnered with the Urban Renewal Authority to implement the \$4.5 billion Lift Modernisation Subsidy Scheme to provide financial subsidy as well as appropriate professional support to needy owners for modernisation of aged lifts throughout the territory for enhancing safety. Another initiative promoting the development of renewable energy (RE) was the Solar Harvest programme launched by the Environment Bureau and the EMSD in March 2019. Our team has been working to help eligible schools and welfare NGOs with one-stop service to install solar photovoltaic systems to generate RE. All expenses in relation to the programme will be fully covered by Solar Harvest.

服務回顧

Operations Review

為進一步支持本港機電業界採用創新科技，我們的團隊就採用組裝合成建築法的新建築物/發展項目，擬備和更新了有關固定電力裝置、氣體裝置和供應電氣產品及氣體用具的指南，並舉行簡報會以推動業界採用組裝合成建築法。這些工作有助業界人士更清楚了解在採用組裝合成建築法時須遵從的相關法例要求。

我們亦預計公眾對機械化泊車系統的需求會不斷增加。由於有關泊車系統受《升降機及自動梯條例》規管，我們出版了《有關裝設機械化泊車系統的指引》，使不同的項目倡議者推行其機械化泊車系統項目時留意《升降機及自動梯條例》所訂明的機械安全規定。這些舉措旨在促進業界在不影響安全的前提下發展其項目，與時並進。

區域合作新發展

機電署一向重視區域及國際合作。為此，規管服務的同事與中國內地(內地)及海外機構進一步深化已建立的合作關係。去年踏出的重要一步，是於2019年10月與我們在內地的長期合作伙伴海關總署，於杭州簽署新的合作備忘錄，成立「跨境電商工作小組」。小組旨在從源頭着手，識別和阻止違規電氣產品及氣體用具經網上電商平台流入香港。

年內，機電署屢獲殊榮，在芸芸獎項中，最特別的是2019年10月獲C40城市氣候領導聯盟彭博慈善基金會頒獎表揚。我們提交的「香港區域供冷系統」項目，入選「綠色科技」組別最後三強。是次頒獎典禮的主題「我們想要的未來」，正好與我們矢志為未來建設高度節能城市的承諾互相呼應。

公眾活動及2019冠狀病毒病疫情

鑑於香港在2019年下半年發生公眾活動，以及在2020年1月爆發2019冠狀病毒病疫情，我們尤其關注到各個受規管機構在這些情況下可否持續提供正常的公共服務。就此，我們迅速採取行動，要求主要的公用事業機構，包括兩家電力公司及各註冊氣體供應公司，制訂業務延續計劃，以確保本港的能源供應安全可靠。我們同樣要求港鐵公司制訂業務延續計劃，確保鐵路安全，並特別留意備用零件的管理，以及各港鐵站的緊急應變程序及其他加強安全措施。

To further support the local E&M trade in adopting new and innovative technologies, our team has prepared and updated the relevant guidance notes on fixed electrical installations, gas installations and supply of electrical and gas appliances in new buildings/developments with Modular Integration Construction (MiC) system and held trade briefings to facilitate the adoption of MiC. These helped trade practitioners to gain a better understanding of compliance with the relevant statutory requirements when adopting MiC.

Likewise, anticipating increasing public demand for mechanised vehicle parking systems (MVPS), which are regulated by the Lifts and Escalators Ordinance (LEO), we published the “Guidelines for Implementing Mechanised Vehicle Parking System” to enable a wider range of project proponents to take forward their MVPS projects with a focus on mechanical safety under the LEO. These steps have been taken to help the trade grow and move with the time without compromising safety.

NEW MOVES IN REGIONAL CO-OPERATION

In pace with the EMSD's emphasis on regional and international collaboration, Regulatory Services colleagues have built further on the established co-operation arrangements with the Mainland of China (Mainland) and overseas entities. A notable step forward was our signing of a new memorandum of co-operation (MoC) in October 2019 in Hangzhou with the General Administration of Customs of the People's Republic of China, our long-term co-operation partner, to set up a new Cross-border E-commerce Working Group with the aim of identifying and stopping at source non-compliant electrical or gas appliances from supplying to Hong Kong via e-commerce platforms.

Among the various awards the EMSD received in the year, a unique honour was our recognition in the C40 Cities Bloomberg Philanthropies Awards in October 2019, which selected our submission on the “District Cooling System in Hong Kong” as one of the three finalists in its Green Technologies Category. With the theme “The Future We Want”, the 2019 Awards echo our commitment to building a highly energy-efficient city of the future.

PUBLIC ORDER EVENTS AND COVID-19

Our key concern about the public order events that occurred in the second half of 2019 and the COVID-19 epidemic that began in January 2020 was their potential disruption to the normal supply of public services by our regulatees. In this connection, we took prompt steps to require that major public utilities, such as the two power companies and registered gas supply companies, should have business continuity plans in place to ensure the safe and reliable supply of energy to the city. Similarly, the MTRCL was required to come up with business continuity plans to ensure railway safety, with special focus on spare parts management, emergency handling procedures and other safety enhancement measures in MTR stations.

我們促使機電業界及車輛維修工場成為「防疫抗疫基金」的受惠對象，紓緩疫情為業界帶來的經濟壓力。我們與註冊升降機及自動梯承辦商也保持緊密聯繫，確保備用零件庫存充足，並有足夠人手為社會維持安全可靠的升降機及自動梯服務。

機電署與受規管機構之間建立了緊急聯絡協定，確保即使發生不可預見的情況也能無間斷通訊，保持聯繫。我們亦將部分原先面對面的服務移師網上進行，包括註冊電業工程人員申請續期前須完成的持續進修培訓及相關評估。有關安排不但減低感染2019冠狀病毒病的風險，而且不會延誤註冊續期進度，免使業界的日常運作受到影響。為保持社交距離，規管服務運用了視像會議軟件進行簡報會和研討會，甚至透過視像會議，為我們的見習工程師訓練計劃申請人進行首輪招聘面試，開創政府部門在本港舉行網上面試的先河。

上述許多措施並非市民可以察看，但卻可讓受規管的行業和機構，在艱難時刻仍維持無間斷服務和供應，利民解困。

智慧政府

機電署積極參與政府效率促進辦公室推行的「精明規管」計劃。計劃旨在改善香港整體的營商發牌環境和提升長遠競爭力。具體來說，我們已採取措施提高機電署牌照服務的效率和透明度，讓使用者更感便利，有助精簡政府的服務流程。

我們年內更踏出重要一步，於2019年12月推出部門的流動應用程式E&M Connect，照顧業界、公眾和機電署員工的不同需要。這應用程式不但可讓用戶迅速查閱機電署提供的有用資訊，更配備方便易用的「慳電計」功能，幫助市民選購能源效益較高的電氣產品。機電業從業員亦可查閱林林總總的安全貼士及資訊，並可記錄其持續專業進修時數，儲存和查閱其牌照註冊資料，以及接收牌照續期的提示通知。E&M Connect的下載量高於預期，我們現正檢視用戶及業界的意見回饋，以進一步完善應用程式。來年我們將努力開發更多實用功能。

We successfully facilitated the inclusion of the E&M trades and vehicle maintenance workshops as beneficiaries of the Government's Anti-epidemic Fund to alleviate their financial pressure under the epidemic. We also maintained close liaison with registered lift and escalator contractors to ensure adequate stockpile of spare parts and availability of manpower to maintain the continuity of safe and reliable lift and escalator services for our community.

Emergency communication protocols between the EMSD and regulatees have been put in place to ensure uninterrupted communication in unforeseen situations. We have also moved some face-to-face services online, including the continued professional development (CPD) training and related assessment exercises required for registered electrical workers to renew their licences. This has helped reduce the risk of COVID-19 infection without delaying the renewal of licences essential to the trade's ongoing operation. To support social distancing, Regulatory Services also deployed video conferencing software for briefings and seminars, and even conducted the initial round of recruitment interviews for applicants for our Engineering Graduate Training Scheme via video conference, an unprecedented initiative by the Government in Hong Kong.

Many of these measures were not visible to the public, but achieved the purpose of maintaining continued supply and service from a wide range of regulated companies and trades to the community in these challenging times.

SMART GOVERNMENT

The EMSD is an active participant in the “Be the Smart Regulator” programme run by the Government's Efficiency Office to enhance Hong Kong's overall business licensing environment and long-term competitiveness. Specifically, we have taken measures to improve the efficiency, transparency and user-friendliness of our licensing services and streamline government services in general.

A great leap forward was the “E&M Connect” mobile app we launched in December 2019 to cater to the needs of the trade, the public and EMSD staff. The app not only allows users to have quick access to useful information from the Department, but also provides a handy Energy Saver calculator to help the public choose more energy-efficient electrical appliance models. The trade practitioners can also access a wide spectrum of safety tips and information, log their CPD hours, save and check their licence registration data and receive registration renewal reminders. The download rate is above expectations and we are reviewing feedback from the users and the trade for further refinement. We will endeavour to develop more practical functions in the coming year.

服務回顧 Operations Review

事實上，機電署作為政府的「創新促成者」，肩負起推動政府部門及公營機構使用創新和科技（創科）的責任。我們正進行籌備工作，計劃為受規管行業推出一系列新措施，例如電子申請、電子註冊及電子繳費流程等。為配合政府「智慧城市」藍圖中發展「智慧政府」的目標，我們計劃採用「智方便」，即政府將為所有市民提供一站式政府服務的電子身分，為業界創建電子平台，以便管理各種註冊申請和繳費事項，更可用來提交法定文件以作審批或參與其他計劃之用。與此同時，我們的同事運用了創科改善工作流程，例如採用無線射頻辨識技術，管理已查封的證物，以及以聊天機械人技術回覆公眾查詢等。

我們還投放大量資源和心力，鼓勵受規管機構使用創科方案來提升公眾安全。舉例來說，我們促請港鐵公司開發一個細小物件檢測系統，並在不同車站的12道自動梯成功安裝，以提升自動梯安全。該系統透過視頻分析技術，檢測自動梯梯級上的外來細小物件。如有發現，系統會提醒車站職員把物件移除，免其卡在梯級與梳齒板之間的空隙而導致自動梯損壞。我們亦要求港鐵公司在東鐵綫安裝實時軌距監控系統，以確保軌道之間保持安全操作距離，其他鐵路綫隨後也會陸續安裝這系統。港鐵公司也就雜散電流、架空電纜和集電弓加裝了監控系統，以提升各種機電系統維修保養工作的效率和成效。事實上，我們一直鼓勵港鐵公司建立「建築信息模擬 — 資產管理和鐵路安全」系統，透過監測傳感器收集和分析主要鐵路工程系統的實時操作數據，使主要鐵路系統能進行預測性維修保養工作，提升鐵路安全。

規管服務也成功申請政府的科技統籌（整體撥款）資助，以發展機電署主導的創科項目。獲批撥款的項目包括應用光纖光柵傳感技術監察升降機及自動梯運作，以提高安全及故障預測，年內亦已在一個港鐵站順利完成概念驗證。另一個獲得政府的科技統籌撥款資助的項目，也是為港鐵站內的自動梯而設。該項目運用激光雷達技術識別行動不穩或攜帶大型物件的人士，當他們打算使用自動梯的時候，系統會發出合適的公共廣播，提醒他們須安全使用自動梯。系統也會通知車站職員協助他們乘搭自動梯，以策安全。作為這些項目的發起人，我們很樂意在項目試驗獲得成果時分享這些加強安全的方案，讓業界可廣泛應用。

Indeed, as the Government's Innovation Facilitator tasked with promoting the use of innovation and technology (I&T) in the Government and public sector, we have been preparing to launch new measures such as e-application, e-registration and e-payment processes for the regulated trades. In tandem with the Government's "Smart City" blueprint, under which "Smart Government" is a goal, we plan to use "iAMSmart", an electronic identity that the Government will eventually make available to all citizens for one-stop-shop government services, to create an e-platform for the trade to manage registration and payments and to submit documents for statutory approval or other schemes. Meanwhile, some of our colleagues have already applied I&T to improve workflow, such as adopting radio frequency identification technology for management of seized exhibits and deploying a chatbot to answer public enquiries.

We have also devoted considerable resources and efforts to encouraging regulatees to use I&T solutions to improve safety. For example, we urged the MTRCL to develop a small-object detection system, which has been successfully installed in 12 escalators at different stations, to enhance escalator safety through the use of video analytics technology to detect the presence of small objects on escalator steps, which may wedge into the gap between the step and comb plate and cause damage to escalators, and alert station staff to remove these small objects. We also requested the MTRCL to install a real-time track gauge monitoring system, initially on the East Rail Line and eventually on all other operating lines to ensure that the spacing between rails is within safe operational limit. Monitoring systems for stray current, overhead lines and pantographs have also been installed by the MTRCL to enhance the efficiency and effectiveness of its maintenance works for various E&M systems. In fact, we have encouraged the MTRCL to establish Building Information Modelling for Asset Management and Railway Safety (BIM-AM-RS) which collects and analyses real-time operating data of major railway engineering systems through monitoring sensors to enable predictive maintenance for major railway systems to enhance railway safety.

Regulatory Services also successfully obtained funding from the Government's TechConnect (Block Vote) to try out EMSD-initiated I&T projects. A good case in point was applying Optical Fibre Bragg Grating Sensing technology to monitor lift and escalator operations and thus enhance safety and fault prediction, with proof of concept successfully completed at an MTR station during the year. Another TechConnect funded project is also for escalators at railway stations, which uses light detection and ranging technology to identify people with unsteady gait or carrying large objects who intend to use an escalator, and broadcast appropriate public announcements to remind them of the safe use of escalators. The system will also alert station staff to provide them with assistance to use the escalators safely. As owner of these projects, we will be happy to share these safety-enhancing solutions with the trade for wide adoption when there are positive results from our trials.

來年重點

展望未來，我們會高度重視外展工作，冀與公眾接觸以爭取他們的理解、支持和信任。為此，我們須重新整合現時規管服務的外展工作，盡量擴大其影響力和成效。可行方案之一是在經改裝的車輛上設置用以推廣機電安全和能源效益的展品，然後派出這些車輛作流動宣傳車，走訪不同社區，直接與社會各階層人士溝通互動。此外，我們會繼續與業界緊密合作，確保為公眾提供安全可靠的優質機電服務。至於在能源效益和可再生能源方面的工作，亦會按計劃進行。我們會繼續舉辦各類活動，吸引年青新血加入機電業。至於現職的業界從業員，我們會致力改善其事業前景，例如為經驗豐富的升降機工程人員推出「電梯大師」培訓計劃。

近年，我們一直強調為機電署培養一支具國際視野和創科熱情的團隊，至關重要。在這方面，我們準備對積極參與創科項目的員工給予更多支持，以鼓勵他們培養精通科技和勇於創新的工作文化。我們與大灣區及其他內地城市的機構既有的合作備忘錄及伙伴關係，以及與國際持份者已建立的良好網絡，將為我們深化區域和國際合作關係和擴闊視野提供堅實基礎。

鳴謝

2019/20年度對大家來說都是充滿挑戰的一年。假如沒有員工出色的表現和受規管機構的支持與合作，我們是無法完成任務的。在此，我們衷心感謝所有持份者，包括各決策局、政府部門、業界友好、學者、專業團體、非政府機構、培訓機構和市民大眾。對於內地、亞太區及世界各地的合作伙伴慷慨分享經驗，為我們的工作帶來嶄新視野，我們也深表謝意。

來年料將同樣充滿挑戰。深信在你們的支持下，規管服務定會緊守崗位，邁步向前。

PRIORITIES FOR NEXT YEAR

Going forward, we will attach great importance to reaching out to the public and engaging with them to gain their understanding, support and trust. It is important that we consolidate our existing outreach programmes to maximise impact and effectiveness. One possibility is to deploy modified vehicles with exhibits for promoting E&M safety and energy efficiency as mobile publicity units to go into different communities and interact directly with people from all walks of life. Furthermore, we will continue to work with the trade seamlessly to ensure the safe and reliable delivery of quality E&M services to the public, while our work in energy efficiency and RE will proceed as planned. Various initiatives to attract young talent to the E&M trade will continue, as will our efforts to improve the career path for existing trade practitioners, such as launching a new "Lift Master" training programme for experienced lift workers.

In recent years, we have emphasised the importance of cultivating an EMSD workforce with international horizons and great zeal for I&T. In this regard, we are prepared to give more recognition to staff active in I&T projects to encourage a tech-savvy and innovative culture. Our existing MoC and partnerships with entities in the Greater Bay Area and other Mainland cities, as well as established networks with international stakeholders, will provide a solid foundation for us to deepen our regional and international co-operation ties and foster broad perspectives.

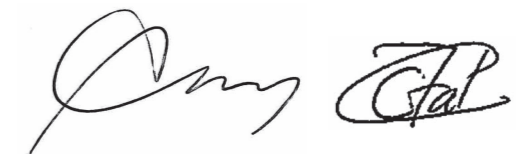
APPRECIATION

2019/20 was a challenging year for everyone and we would not have discharged our duties without the good work of our staff and the support and co-operation of our regulatees. We must express our thanks and appreciation to all our stakeholders, including policy bureaux and other government departments, trade partners, academia, professional bodies, NGOs, training institutions and the public. To our co-operation partners in the Mainland, Asia Pacific and other parts of the world, we extend our sincere thanks to you for sharing your experiences and for your fresh insights into our work.

The coming year is likely to be again challenging. With your support, Regulatory Services aims to stay committed and to make headway in our work.

潘國英 陳秋發

潘國英、陳秋發
署理機電工程署副署長/規管服務



Raymond Poon Kwok-ying, Chan Chau-fat
Deputy Directors/Regulatory Services (Acting), EMSD

年度亮點 HIGHLIGHTS OF THE YEAR

第三方損壞供電電纜事故數字創新低 NUMBER OF INCIDENTS OF THIRD-PARTY DAMAGE TO ELECTRICITY SUPPLY LINES AT RECORD LOW

年內，與第三方損壞供電電纜有關的電力事故數字持續下降，由2017年的34宗，跌至2018年的25宗，2019年再減少至22宗，是《供電電纜(保護)規例》自2001年實施以來的記錄新低。此外，最新版本的《電氣產品(安全)規例指南》已於2019年12月出版，以更清晰易明的格式和輔助資料，幫助電氣產品零售商符合法例要求。

Electrical incidents related to electricity supply lines damaged by third parties had been on a downward trend over the past years, falling from 34 cases in 2017 to 25 in 2018 and further to 22 in 2019, a record low since the Electricity Supply Lines (Protection) Regulation came into effect in 2001. Also, the latest version of the Guidance Notes for the Electrical Products (Safety) Regulation was published in December 2019 with a more user-friendly format and supplementary information to help electrical product retailers comply with statutory requirements.

加快海堤修復工程確保氣體安全 EXPEDITING SEAWALL REPAIR WORKS FOR GAS SAFETY

鴨洲一所石油氣儲存設施及附近的海堤，於2018年9月遭超強颱風山竹吹襲，損毀嚴重。為免對石油氣儲存設施構成危險，以及為確保附近屋苑8 000多戶居民的安全和石油氣正常供應，我們必須盡快搶修。機電署積極聯絡各相關政府部門，擔當統籌跨部門維修工作小組的角色，使海堤的結構維修及石油氣儲存設施的修整工作得以盡快進行。全部修復工程終於在2019年7月風季來臨前及時完成。

An LPG storage facility at Ap Lei Chau and the nearby seawall sustained serious damage by super typhoon Mangkhut in September 2018. Prompt rectification was required in order to prevent safety hazards to the LPG storage facility and secure the safety of and LPG supply to about 8 000 households nearby. To this end, the EMSD took the initiative to form an inter-departmental working group with various government departments to expedite the structural repair to the seawall and the repair works of the LPG storage facility. With the concerted efforts of all parties, all repair works were timely completed before the typhoon season in July 2019.



大圍站至鑽石山站車程需時 Duration of the journey between Tai Wai Station and Diamond Hill Station

屯馬綫一期開通前 BEFORE
Commissioning of Tuen Ma Line Phase 1

17 分鐘
minutes



9 分鐘
minutes

開通後 AFTER

「採電學社」及重新校驗進展良好 GOOD PROGRESS MADE IN SOLAR HARVEST AND RETRO-COMMISSIONING

去年，我們在推行「採電學社」計劃方面取得良好進展。該計劃為合資格的學校及非政府福利機構提供資助和一站式服務，包括安裝小型太陽能發電系統和協助參加「上網電價」計劃，以鼓勵公眾更廣泛使用可再生能源。年內，我們已為約50家合資格的學校和非政府福利機構完成太陽能發電系統安裝工作。由2019年開始，我們也率先為政府建築物進行重新校驗，至今已為44幢政府建築物進行重新校驗，進一步提升能源效益。

We made good progress in implementing the Solar Harvest programme last year. The programme provides subsidy and one-stop service to help eligible schools and welfare non-governmental organisations (welfare NGOs) install small-scale solar photovoltaic (PV) systems and join the Feed-in Tariff Scheme, with the aim of encouraging wider adoption of renewable energy in the community. About 50 eligible schools and welfare NGOs installed solar PV systems during the year. We have also begun conducting retro-commissioning (RCx) in government buildings since 2019. As of today, we have conducted RCx in 44 government buildings, further raising energy efficiency.

重新校驗已於
Conducted RCx in

44 幢政府大樓進行
government buildings

50 家學校及非政府福利機構
於2020年安裝了太陽能發電系統
schools and welfare NGOs
installed solar PV systems in 2020

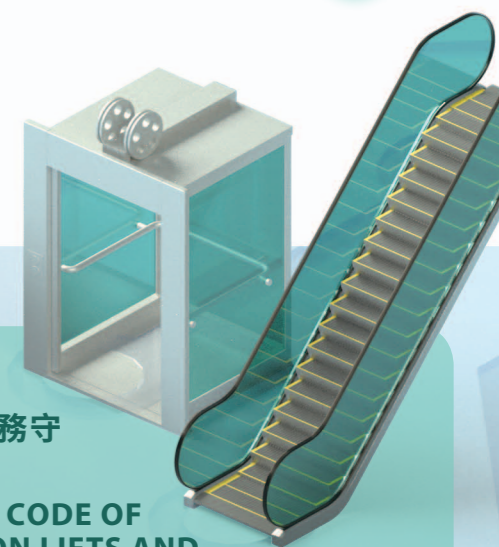


新版升降機及自動梯實務守則提升安全

REVAMPED CODE OF PRACTICE ON LIFTS AND ESCALATORS ENHANCES SAFETY

2019年最新版本的《升降機及自動梯設計及構造實務守則》已於2019年8月刊憲，2020年6月1日生效。新版守則以國際安全標準的標準條款和格式為藍本，並加入本地要求，除了鼓勵國際製造商向香港供應更多元化的升降機及自動梯外，也方便本地業界與外國製造商進行溝通和了解國際設計要求。與此同時，機電署成立了專責隊伍，為實施「優化升降機資助計劃」提供全面的專業支援服務。

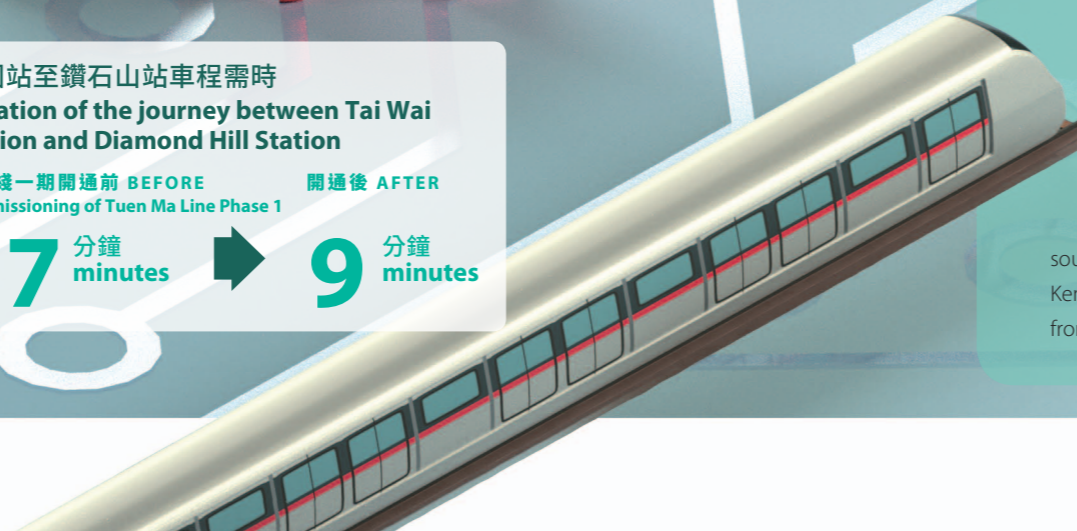
The 2019 edition of the Code of Practice on the Design and Construction of Lifts and Escalators (CoP) was gazetted in August 2019 and came into effect on 1 June 2020. The new CoP uses standard provisions and format of international safety standards as a blueprint, with addition of specific local requirements, encouraging international manufacturers to supply a wider range of lifts and escalators to Hong Kong and facilitating the local trade in communicating with overseas manufacturers and understanding international design requirements. The EMSD also set up a dedicated team to provide professional support for the implementation of the Lift Modernisation Subsidy Scheme.



屯馬綫一期順利開通 SMOOTH COMMISSIONING OF TUEN MA LINE PHASE 1

獲機電署及各相關政府部門確認各項設施均達致「安全良好」狀態後，屯馬綫一期已於2020年2月14日正式開通。屯馬綫一期連接啟德站、鑽石山站、顯徑站及大圍站。通車後由大圍站到鑽石山站的車程由17分鐘縮短至9分鐘，為市民提供安全高效的鐵路服務。

Tuen Ma Line Phase 1 was officially commissioned on 14 February 2020, after receiving confirmation on the "safe and sound" condition from the EMSD and other government departments. Connecting Kai Tak Station, Diamond Hill Station, Hin Keng Station and Tai Wai Station, the new line has shortened the journey between Tai Wai Station and Diamond Hill Station from 17 minutes to 9 minutes, providing safe and efficient service to the public.



重要數字 KEY FIGURES

電業工程人員 ELECTRICAL WORKERS

註冊電業工程人員 REGISTERED ELECTRICAL WORKERS

2018 **79 716** 名 NOS. 2019 **80 445** 名 NOS.

電業承辦商 ELECTRICAL CONTRACTORS

註冊電業承辦商 REGISTERED ELECTRICAL CONTRACTORS

2018 **13 097** 間 NOS. 2019 **13 445** 間 NOS.

升降機及自動梯 LIFTS AND ESCALATORS

升降機 LIFTS

2018 **68 177** 部 NOS. 2019 **69 543** 部 NOS.

自動梯 ESCALATORS

2018 **9 709** 部 NOS. 2019 **9 934** 部 NOS.

燃氣供應 GAS SUPPLY

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

2018 **3 660** 公里 KM 2019 **3 676** 公里 KM

車輛維修技工 VEHICLE MECHANICS

註冊車輛維修技工 REGISTERED VEHICLE MECHANICS

2018 **9 333** 名 NOS. 2019 **8 801** 名 NOS.

車輛維修工場 VEHICLE MAINTENANCE WORKSHOPS

註冊車輛維修工場 REGISTERED VEHICLE MAINTENANCE WORKSHOPS

2018 **2 071** 間 NOS. 2019 **2 051** 間 NOS.

鐵路 RAILWAY

鐵路年度載客量 RAILWAY ANNUAL PATRONAGE

2018 **1 993** 百萬 MILLION 2019 **1 862** 百萬 MILLION

保障公眾安全

PROTECTING PUBLIC SAFETY

電力安全

電力事故持續下降

2019年的電力事故總數持續下降，由2017年的130宗減至2018年的115宗，在2019年更進一步下降至107宗。電力事故通常與固定電力裝置、家用電氣產品及第三方損壞供電電纜有關。這三類事故中，第三方損壞供電電纜事故數字屢創新低，由2017年的34宗，跌至2018年的25宗，再於2019年下降至22宗，這是《供電電纜(保護)規例》自2001年實施以來的記錄新低。

電力事故數字持續減少，反映我們近年來為業界推行的措施，包括加強巡查、舉辦電力安全講座，以及推行目標為本之各種宣傳和溝通聯繫工作，漸見奏效。

ELECTRICAL SAFETY

Electrical Incidents Still on Decline

The total number of electrical incidents declined further to 107 cases in 2019, compared to 130 cases in 2017 and 115 cases in 2018. Electrical incidents are often related to fixed electrical installations, household electrical products and electricity supply lines damaged by third parties. Incidents related to the latter have been on a downward trend over the past three years, dropping from 34 cases in 2017 to 25 cases in 2018, and further falling to 22 cases in 2019, a record low since the Electricity Supply Lines (Protection) Regulation came into effect in 2001.

The sustained reduction of electrical incident numbers reflected the improving efficacy of our trade initiatives in recent years, including strengthened inspections, electrical safety talks and target-based publicity and communication programmes.

第三方損壞供電電纜事故數目

Number of Incidents of Third-party Damage to Electricity Supply Lines



2017	34
2018	25
2019	22

目標為本 加強電力安全宣傳

近年來，我們本着目標為本的方針，主動向特定羣體直接宣揚電力安全訊息。村屋及屋苑居民、售賣電氣產品的小型零售商店、曾發生電力事故的承辦商等，都是外展宣傳計劃的重點對象。

過去幾年，我們經常探訪村屋，藉以提高業主及住戶的電力安全意識，以及預防村屋固定電力裝置因日久失修而發生漏電等事故。這方面的工作去年取得初步成果。我們積極與鄉議局協作，在2020年1月與鄉議局委員會會面，宣傳電力安全訊息，並透過鄉議局的鄉郊聯繫提升村屋巡查工作的效率。我們在2019年到訪村屋巡查超過1 800次，與村屋住戶直接溝通，提升其電力安全意識。

Stepping Up Target-oriented Electrical Safety Promotion

We have adopted a proactive and targeted approach in recent years to disseminate electrical safety messages to specific groups. Residents of village houses and residential estates, small retailers selling electrical products and contractors with past incident records have been the main targets of our outreach promotional programmes.

Over the past few years, we have paid frequent visits to village houses to enhance the awareness of electrical safety among the owners and residents, and to prevent incidents such as electricity leakage caused by inadequate maintenance and repair of fixed electrical installations. We achieved initial results in this respect in the past year. Working together with Heung Yee Kuk, we met with its committee members in January 2020 to promote electrical safety messages, and leveraged its rural connections to increase the efficiency of village house inspections. Our team made more than 1 800 visits to village houses in 2019 to directly communicate with residents and raise their awareness of electrical safety.



2019年村屋巡查次數 Visits to village houses in 2019

超過
more than 1 800

年內，我們在香港物業管理公司協會的協助下與其會員機構聯絡，成功走訪全港約550個屋苑合共4 000多幢建築物(包括大型屋苑及多座單幢住宅樓宇)，向住戶傳遞電力安全訊息。我們期待繼續與物業管理公司協作，助其發揮守護樓宇電力安全的角色。

近年，坊間兼售拖板、萬能插蘇及其他小型家用電氣產品的小型零售店鋪愈來愈多。為協助這些商戶了解相關法例的要求，以確保電氣產品安全，我們繼續主動走訪這類店鋪進行宣傳，使其清楚明白所售賣的電氣產品必須符合《電氣產品(安全)規例》的要求。由2019年至2020年2月期間，我們走訪了約8 000家這類散布全港各處的小型商店，向其宣傳和講解相關的法例要求。

During the year, we also gained much help from The Hong Kong Association of Property Management Companies to liaise with its member organisations. Subsequently, we visited more than 4 000 buildings in about 550 estates (including large residential estates and a number of standalone buildings) to share electrical safety messages with residents. In time to come, we hope to collaborate with property management companies and help them serve as the guardians of electrical safety in their buildings.

In recent years, there has been a surge in the number of small-scale retail stores selling extension units, adapters and small household electrical products as well as their normal offering. To help these retailers understand relevant regulatory requirements for ensuring electrical safety, we continue to take the initiative of visiting these stores to deliver a clear message that compliance with the Electrical Products (Safety) Regulation is mandatory for selling electrical products. Throughout 2019 and up to February 2020, we visited about 8 000 such stores located in scattered areas to advocate compliance.

我們積極與鄉議局協作，透過其鄉郊聯繫提升村屋巡查工作的效率，以及提高村屋住戶的電力安全意識。

Working together with Heung Yee Kuk, we leveraged its rural connections to increase the efficiency of village house inspections and raise residents' awareness of electricity safety.



保障公眾安全 Protecting Public Safety

為減低第三方在電力公司的供電電纜附近進行工程時損毀電纜的風險，從而確保電力供應安全可靠，我們採取了風險為本的方法，鎖定相關的工程承辦商為目標羣體，尤其是該等曾涉及供電電纜損毀事故的承辦商。年內，我們與電力公司協作，共進行了360多次工地探訪，藉以監察承辦商的安全表現，並加強與前線工人的溝通，宣傳相關的安全作業模式。

這類直接接觸宣傳對象和主動推行外展宣傳教育的工作，需要相當人手和不斷努力。電力事故近年持續下降，證明目標為本的策略行之有效，再加上與多個具代表性的組織緊密協作，也就事半功倍了。

實務守則有序更新

機電署就《電力條例》及其附屬規例制訂的多份工作守則及指南，一直是業界的「指路明燈」，使其工作遵從相關法例，符合電力安全規定。我們一如以往，繼續定期進行有序的檢討和修訂各個工作守則及指南，以切合不斷轉變的客觀環境和實務需要。

以《電氣產品(安全)規例指南》為例，這份指南為家用電氣產品供應商就相關法例要求提供重要參考資料。最新版本已於2019年12月發布，乃經廣泛諮詢公眾及業界，並由業界商會、專業團體、大專院校、公用事業公司、政府部門和公共機構的代表組成的檢討工作小組詳細討論和審定相關修訂項目。修訂的內容包括更新相關家用電氣產品的最新安全標準、加入新電氣產品的最新安全規格，以應對科技和產品的發展。為方便業界閱覽資料，新版指南加入了簡單易明的「核對表」及補充資料，以更清晰的方式說明相關規例，讓小型零售商更容易查核其供應的電氣產品是否符合規例的要求。

In order to mitigate the risk of damages to power cables by third parties when carrying out construction works in the vicinity of power companies' electricity supply lines, thereby ensuring a safe and reliable power supply, we have adopted a risk-based approach and identified relevant contractors as key contact targets, especially the contractors that had been involved in the incidents of damaging power cables. In collaboration with the power companies, we conducted more than 360 visits to construction sites during the year to oversee the safety performance of contractors and strengthen communication with frontline workers to promote best practices.

The proactive approach of directly engaging our targets for outreach promotion and education demanded considerable manpower and persistent efforts. The continuous decline in the number of electrical incidents has reflected the effectiveness of the target-oriented approach. Creating greater synergy with representative organisations has also helped to make our efforts even more rewarding.

Codes of Practice Systematically Updated

The codes of practice (CoP) and guidance notes developed by the EMSD in relation to the Electricity Ordinance are "guiding lights" for the industry to ensure that their works are in compliance with relevant legislation and electrical safety requirements. We continue to regularly review and revise the CoPs and guidance notes progressively in tune with the evolving objective circumstances and practical needs.

Take the Guidance Notes for the Electrical Products (Safety) Regulation as an example, it is a vital reference regarding relevant statutory requirements for household electrical product suppliers. The latest version, published in December 2019, has undergone extensive public and trade consultation as well as thorough deliberation and evaluation by a review working group comprising representatives from trade associations, professional bodies, tertiary institutions, public utility companies, government departments and public organisations. In tandem with technological and product development trends, the revised version includes updated safety standards for household electrical products and the latest safety requirements for new types of electrical products. The new version also contains a concise and intuitive checklist and supplementary information, with which small retailers can check at a glance whether the supplied electrical products in their inventories are compliant.



於2019年年中成立的工作小組由各界代表組成，為《電氣產品(安全)規例指南》進行檢討及修訂工作。

A working group comprising various representatives from the trade was set up in mid-2019 to review and update the Guidance Notes for the Electrical Products (Safety) Regulation.

同時，我們自2018年年底開始籌劃《電力(線路)規例工作守則》的檢討及修訂工作，檢討方向於2019年4月獲電氣安全諮詢委員會確認。我們已於2019年年中成立一個包含各界代表的工作小組，商討建議修訂的內容。工作小組會根據最新的國際標準及市場發展更新守則內容，務使新版本能緊貼技術及安全規定的最新發展和業界作業模式，以便業界參考。新版本可望於2020年年底發布。

配合可再生能源發展 加快發電設施註冊審批

為鼓勵市民安裝可再生能源的發電設施，本港兩家電力公司早前推出上網電價計劃。根據《電力條例》，生產電力的發電設施擁有人須註冊其發電設施，除非該發電設施屬於條例某些指明的類別(例如屬於該條例規定須提交定期測試證明書的電力裝置的一部分或只供應電力予擁有人所擁有的電力裝置等)。因此，一般參與上網電價計劃的村屋或大廈單位，如安裝了可再生能源發電設施並接駁至電網，其擁有人必須依法向機電署註冊有關可再生能源發電設施。

上網電價計劃自推出以來廣受歡迎，申請數目與日俱增。我們已積極展開宣傳工作，提醒設施擁有人必須註冊和進行定期維修保養等，以確保電力安全。年內，我們陸續收到有關上網電價計劃可再生能源發電設施的註冊申請，並已完善電腦系統以加快註冊審批的流程，盡快為有關發電設施完成註冊。

Preparations for the review and revision of the Code of Practice for the Electricity (Wiring) Regulations commenced in late 2018. The revision direction was endorsed by the Electrical Safety Advisory Committee in April 2019. A working group, well represented by members from diverse fields, was set up in mid-2019 to deliberate on proposed revision details. The working group will update the content of the CoP based on the latest international standards and market development. It will provide a reference for the trade on the up-to-date technical and safety requirements and trade practices. The new version is expected to be released by end 2020.

Expediting Registration to Facilitate Renewable Energy Development

The Feed-in Tariff (FiT) Scheme has been introduced by the two power companies to encourage installation of renewable power generating facilities by the public. According to the Electricity Ordinance, the owner of a generating facility that is used to produce electricity shall register the facility, with certain exceptions (for example, if the facility forms part of an electrical installation that requires a periodic test certificate under the Ordinance, or it only supplies electricity to an electrical installation that is owned by the owner of the generating facility). Therefore, the owners of renewable power generating facilities installed in village houses or building units participating in the FiT Scheme and connected to the grid are required by law to register their facilities with the EMSD.

Since its launch, the FiT Scheme has met with enthusiastic response, with an increasing number of applications. We have begun extensive promotions to remind facility owners about mandatory registration and regular maintenance of the facilities to ensure electrical safety. During the year, we received numerous registration applications and have upgraded the computer system to streamline the registration process and shorten the vetting period.

保障公眾安全 Protecting Public Safety



在2019年，我們與業界合辦首屆「表現優異註冊電業承辦商比賽」。機電署的高層管理人員親身出席，為參加者打氣。

In 2019, we jointly organised with the trade the first "Outstanding Registered Electrical Contractors Competition". EMSD senior management was at the ceremony to boost participants' morale.



透過比賽交流 樹立業界典範

多年來，我們一直與業界團體合辦「傑出註冊電業工程人員選舉」等活動，旨在提升電業界工程人員的安全意識和技術水平，並培養同業的工作安全文化。年內，我們再創新猷，聯同港九電器工程電業器材職工會、香港電器工程商會及電業承辦商協會首辦「表現優異註冊電業承辦商比賽」，以期為業界樹立典範，鼓勵註冊電業承辦商提升施工質素和優化工作流程。我們更製作了宣傳短片，讓得獎者分享心得和示範，供同業觀摩學習。

年內，我們為業界舉辦了多個研討會，除了每年一度的電力安全技術研討會外，我們還於2019年12月與業界組織、物業管理公司、兩家本地大學和初創企業，首辦了電業界創新科技研討會，鼓勵業界積極採用創科技術和利用機電署的「機電創科網上平台」物色創科方案及合作伙伴。

我們也於2020年年初推出了全新系列的電視和電台宣傳廣告，向市民大眾推廣電力安全訊息，例如在選購家用電氣產品時要留意的相關安全規格，以及必須僱用註冊電業承辦商進行電力工程等。

Establishing Role Models for Trade Members through Competitions

The "Outstanding Registered Electrical Worker Awards Scheme" has been jointly organised with the industry over the years. It serves to enhance safety awareness and technical standards as well as promote a safe working culture among electrical workers. In 2019, we introduced a new initiative, the "Outstanding Registered Electrical Contractors Competition", in conjunction with the Hong Kong and Kowloon Electrical Engineering and Appliances Trade Workers Union, the Hong Kong Electrical Contractors' Association and the Association of Electrical Contractors. The competition was designed to establish role models for the trade and encourage registered electrical contractors to improve the quality of electrical engineering and work processes. Award winners were featured in promotional videos to share their best practices with their counterparts.

We held a series of seminars for the trade during the year. In addition to the annual Technical Seminar on Electrical Safety, we launched the "Innovative Technology Forum for Electrical Trade" in December 2019 in conjunction with industry organisations, property management companies, two local universities and start-ups. Through the event, trade members were encouraged to adopt innovative technology and make use of our E&M InnoPortal to identify innovative solutions and working partners.

A new series of television and radio announcements of public interest was introduced in early 2020 to promote among the public the electrical safety messages, such as observing safety requirements when choosing household electrical products and employing registered electrical contractors for electrical works.

協助業界應對疫情

因應2019冠狀病毒病於2020年年初肆虐本港，我們推出了多項應變措施，讓業界能在盡量減低感染風險的情況下繼續運作。舉例來說，在疫情高峰期間，我們曾短暫關閉位於機電署大樓的註冊及許可證辦事處，以防病毒擴散。除放置投件箱以收集業界的申請外，我們亦鼓勵業界以郵遞方式進行申請。此外，疫情也影響到我們為註冊電業工程人員提供的持續進修計劃訓練課程。由於完成有關課程是註冊電業工程人員的註冊續期條件之一，為使他們在疫情中也能順利續期，我們把相關教材和練習上載互聯網，以供學習和完成課程。新安排大受業界歡迎，截至2020年5月底，已有9 300多名註冊電業工程人員透過網上平台完成持續進修計劃訓練課程，順利續期。

疫情期間，我們亦與兩家電力公司保持緊密聯繫，確保適切的應變措施和人手安排得以實行，從而維持本港的電力供應安全可靠。

Supporting the Trade to Fight COVID-19

In view of the COVID-19 outbreak in early 2020, we introduced a range of contingency measures to ensure that the trade could continue to operate at minimised infection risks. For example, during the peak of the outbreak, the EMSD Registration and Permit Office was temporarily closed to combat the spread of the disease. In its place, we set up a drop box to collect applications submitted by the trade and we also encourage submissions by mail. The outbreak also affected the training courses under the Continued Professional Development (CPD) Scheme for registered electrical workers (REWs). As completing CPD is a prerequisite for registration renewal, we posted relevant training materials and exercises online for their completion to enable them to renew their registration during the outbreak. The new arrangement has been well-liked by the trade. As of end May 2020, more than 9 300 REWs had completed CPD training courses online and renewed their registration.

During the COVID-19 outbreak, we also kept close liaison with the two power companies to ensure that they had appropriate contingency plans and manpower rosters in place to maintain a safe and reliable power supply for Hong Kong.

機電署的註冊及許可證辦事處採取了多項預防感染措施，務求在減低病毒傳播風險的同時，能盡量維持正常服務。辦事處內的座位數量亦有減少，以符合社交距離的要求。

Anti-virus measures were taken at the EMSD Registration and Permit Office to combat the spread of the disease while maintaining normal services as far as possible. Seating capacity in the office was also reduced to comply with social distancing requirements.



保障公眾安全 Protecting Public Safety



深化與中國內地合作 加強跨境及國際聯繫

國家質量監督檢驗檢疫總局由2018年3月起併入海關總署，因此機電署於2018年9月在重慶與海關總署簽訂了新的合作安排，雙方繼續在家用電氣產品、氣體爐具、升降機與自動梯安全、能源效益這四個範疇分別設立小組，專責每個範疇的協作。

2019年10月，雙方在杭州舉行年度會議，並簽訂了新合作備忘錄，成立新的「跨境電商工作小組」，共同加強在跨境電商平台供應的機電產品的質量安全監管工作。雙方會通報和跟進在跨境電商平台上發現的懷疑違規機電產品，以加強機電產品安全的監測。此外，小組成員亦會適時安排技術交流及培訓，以加強成員對兩地機電產品安全及相關法例法規的認識。

我們於2019年9月到訪中國家用電器研究院，探討如何透過與研究院的協作，聯繫國際電工技術委員會旗下負責家用電氣產品安全的技術小組TC61。機電署期望日後能加強與中國家用電器研究院的溝通，使我們可以參與TC61小組制訂家用電氣產品安全標準的工作，為推動電氣產品安全的工作盡一分力。

Deepening the Mainland of China and International Collaborations

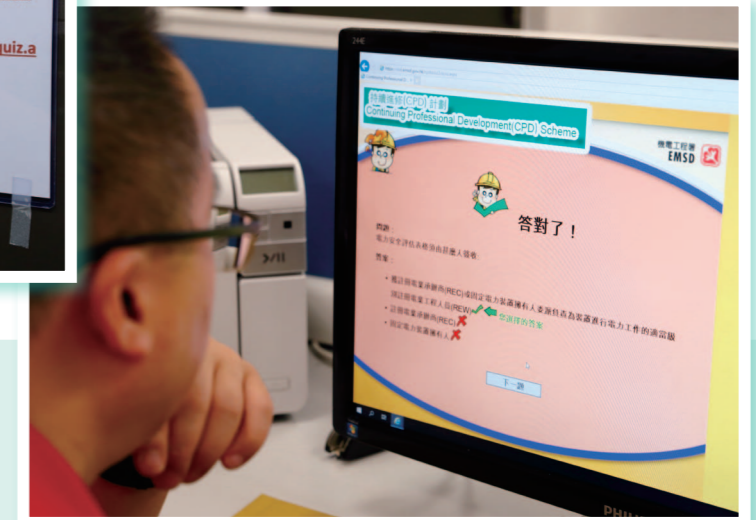
After the integration of the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) into the General Administration of Customs of the People's Republic of China (GACC) in March 2018, the EMSD signed a new co-operation agreement with the GACC in Chongqing in September 2018 to continue collaboration in four areas, namely safety in household electrical products, gas appliances, lift and escalator safety, and energy efficiency, with a dedicated working group for each area.

A new memorandum of co-operation (MoC) was signed at the annual meeting with the GACC in October 2019, and a new Cross-border E-commerce Working Group was set up to strengthen collaboration in quality and safety monitoring of electrical and mechanical (E&M) products supplied via cross-border e-commerce platforms. The two parties agreed to notify each other of suspected non-compliant E&M products found in cross-border e-commerce platforms to reinforce monitoring of electrical product safety. Members of the working group will also arrange technical exchanges and training in due course to augment understanding of each other's safety regulations on E&M products.

We visited the China Household Electric Appliance Research Institute (CHEARI) in September 2019 with the aim to explore the collaboration with CHEARI to connect us with the International Electrotechnical Commission's technical group TC61 which is in charge of household electrical product safety in the international arena. The EMSD hopes to enhance communication with CHEARI in due course, so that we can be given a chance to participate in the work of TC61 in setting safety standards for household electrical products, thus contributing to promoting electrical product safety.



疫情爆發後，我們建立了網上持續進修訓練平台，讓註冊電業工程人員得以完成持續進修訓練，避免因疫情而影響業界註冊續期。After the COVID-19 outbreak, a web-based CPD training platform has been established for registered electrical workers to complete CPD training, so that their renewal of registration will not be affected by the pandemic.



來年工作重點

來年，我們會繼續進行《電力（線路）規例工作守則》的檢討及修訂工作，新版本預計於2020年年底發布。

運用創新科技有助推廣電力安全的工作。來年，我們會加強科技應用，配合規管服務的策略方向，務求建立創新、高效兼具國際視野的專業團隊。就此，我們會考慮在機電署的機電行業通 (E&M Trade App) 流動應用程式加入新功能，讓註冊電業工程人員能透過應用程式完成持續進修計劃的訓練課程，以符合註冊續期要求，並會研究擴大機電署E&M Connect 流動應用程式有關電力安全及公眾教育的功能。我們也會參考在2019冠狀病毒病疫情期間汲取的經驗，檢視註冊電業工程人員現時的持續進修計劃的模式及相關要求，從而進一步提升從業員的水平。

我們也會利用科技執行電力安全規管工作。舉例來說，在上網電價計劃的可再生能源發電設施註冊工作中，為掌握有關發電設施的位置，我們會引入人工智能偵測系統，找出安裝了太陽能發電系統的樓宇位置，從而加強相關的執法工作。

此外，我們正計劃借助人工智能，在電商平台搜尋違規家用電氣產品，以及優化相關監察和執法工作。我們亦計劃應用無線射頻識別技術，追蹤和管理檢獲的證物，以期進一步提高執法工作效率。

Priorities for the Year Ahead

In the coming year, we will continue to review and revise the Code of Practice for the Electricity (Wiring) Regulations, targeting to release the new version by end 2020.

Innovative technology can be used to facilitate promotion of electrical safety. In the year ahead, we will leverage technology, in line with Regulatory Services' strategic directions, to build an innovative, efficient and professional team with global vision. In this regard, we will consider adding a new function to the EMSD's "E&M Trade App" to allow REWs to complete CPD training for registration renewal. We will also study expanding the functions regarding electrical safety and public education in the EMSD's "E&M Connect" app. With the experience gained during the COVID-19 outbreak, we will review the existing modes of and requirements for REWs' CPD training to further uplift their performance.

We will also leverage technology to facilitate regulatory work of electrical safety. For instance, to facilitate registration of renewable energy generating facilities under the FIT Scheme, we will introduce an artificial intelligence (AI) detection system to identify the locations of those buildings installed with solar photovoltaic systems, thereby stepping up relevant law enforcement actions.

Additionally, we plan to use AI to help identify suspected non-compliant household electrical products on e-commerce platforms and optimise related monitoring and enforcement. We will also adopt radio frequency identification technology to track and manage the seized exhibits with a view to enhancing our enforcement efficiency.

保障公眾安全 Protecting Public Safety



服務機電署40載 致力促進電氣安全 Promoting Electrical Safety with the EMSD for Four Decades

彭乃欂先生在電力法例部工作超過22年，先後服務該部別內所有分部。彭先生服務機電工程署幾達40載，大部分時間都致力促進電力安全，且聽他分享豐富經驗。

Mr Pang Nai-tai has served more than 22 years at the Electricity Legislation Division and worked in all of its sub-divisions. He shares his experiences from his almost 40-year long career at the EMSD, most of which was devoted to promoting electrical safety.

彭乃欂先生最初加入機電署擔任學徒，至2020年7月退休時已獲擢升至高級電氣督察職位。他在機電署服務近40載，其間在電力法例部工作逾22年，歷任該部別內四個分部的不同崗位，曾肩負巡查、監察、調查、搜證、宣傳、檢控等工作，為促進本港電力安全貢獻良多。

1997至2006年間，彭先生在電氣產品分部工作，負責參與店舖巡查，以及監察和宣傳電氣產品安全，以確保有關產品符合《電氣產品(安全)規例》的要求。他也曾參與電力意外事故的調查及搜證工作，其中一次的事務涉及一名冷氣技工在清拆冷氣時觸電身亡。在調查過程中，彭先生發現冷氣機的電線在安裝時受到擠壓，以致在清拆時出現破損，而事故發生時冷氣機電源並沒有關掉，金屬框架因而帶電，導致工人觸電死亡。此外，彭先生發現大廈負責人沒有在電掣上加上適合的標示。有見及此，彭先生立刻提醒有關承辦商必須嚴謹地依法進行定期檢查及相關工作，避免再次出現同類事故。

其後，彭先生於2006至2010年間調任宣傳及檢控分部，以支援其他分部在完成調查及搜證後進行的檢控工作，以及負責各種宣傳工作，務求能在執法以外，提升市民的電力安全意識。

Mr Pang Nai-tai began his career with the EMSD as an apprentice and rose through the ranks to become a Senior Electrical Inspector before his retirement in July 2020. Throughout his service of nearly 40 years with the EMSD, he served more than 22 years at the Electricity Legislation Division (ELD) and worked in each of its four sub-divisions, undertaking nearly all of its functions, including inspection, monitoring, investigation, evidence gathering, publicity, prosecution, etc., thereby contributing to the electrical safety of Hong Kong.

From 1997 to 2006, Mr Pang was posted to the Electrical Products Sub-division, where he participated in shop inspections, with the aim of monitoring and promoting electrical product safety, so as to ensure compliance with the Electrical Products (Safety) Regulation. He also took part in investigation and evidence gathering for electrical incidents. Among the handled cases, one was a fatal electrocution incident involving an air-conditioning technician who was dismantling an air-conditioner. During investigation, he discovered that the cable of the appliance was compressed during installation and subsequently damaged during removal. As the cable was still energised during the process, the metal frame of the air-conditioner was live, resulting in the fatal accident. Mr Pang also found that the building's responsible persons failed to correctly label the switches. He promptly reminded the responsible contractor to carry out regular inspections in strict accordance with the relevant ordinance to prevent similar incidents in future.

His next stint was with the Publicity and Prosecution Sub-division from 2006 to 2010. Apart from handling prosecution cases based on the evidence collected by other sub-divisions, he was also involved in a range of promotional activities, with a view to enhancing public awareness of electrical safety by means of non-law enforcement work.



彭先生於2010至2012年間曾調離電力法例部，至2012年獲晉升和調任至核電及電力供應安全分部，主要職責包括巡查建築工地，避免工人在施工期間損壞地下電纜，以及透過講座和其他渠道提醒業界及工人做好安全措施，以保障電纜及自身安全。此外，該分部的另外兩個職能為檢查電力公司電塔的電磁場是否符合世界衛生組織的規定，以及負責大亞灣核電站跨部門事故應變小組的工作。應變小組成員須參與定期會議和演習，以保持默契及應變力。所幸的是，彭先生在該分部工作期間，有關小組不需動員。

2019年年中，彭先生調任用戶裝置分部，主要負責監管固定電力裝置年檢及發電設施的註冊工作。當時正推行上網電價計劃，越來越多市民安裝可再生能源發電設施。彭先生負責協助發電設施擁有人及業界了解和遵守相關的電力安全要求，同時為可持續發展出一分力。

在多年的工作生涯中，彭先生一直為促進電力安全默默耕耘。在退休前，更見證本港電力事故數字持續下跌，彭先生為此深感欣慰。

After posting outside of the ELD between 2010 and 2012, Mr Pang, having been promoted, returned to the Nuclear and Utility Safety Sub-division of the ELD in 2012. One of the key responsibilities of Mr Pang was to inspect construction sites to prevent workers from damaging underground cables during their works. He was also responsible for reminding the trade and workers through various channels such as seminars to adopt safety measures to protect both the cables and the workers. Besides, this Sub-division was also responsible for ensuring that the electromagnetic field of the power companies' pylons were in compliance with the World Health Organization's regulations. As a member of the inter-departmental emergency response team for the Daya Bay Nuclear Power Station, this Sub-division participated in the regular meetings and drills to maintain effective teamwork and agility to deal with incidents. Mr Pang was thankful that the emergency response team did not need to be activated during this time.

In mid-2019, Mr Pang was transferred to the Consumer Installations Sub-division, where he took up the duties of monitoring annual inspections of fixed electrical installations and the registration of generating facilities to tie in with the implementation of the Feed-in Tariff Scheme, which motivated members of the public to install renewable energy generating facilities. Mr Pang was also involved in facilitating the understanding of and compliance with the relevant electrical safety requirements by generating facility owners and the trade while contributing to sustainability.

Devoted most of his career to promoting electrical safety, Mr Pang was delighted to observe a continuing reduction in electrical incidents in the territory before his retirement.

保障公眾安全 Protecting Public Safety

氣體安全

氣體事故持續減少

近年氣體事故持續減少，由2017年的236宗下降至2018年的195宗，再於2019年進一步減至187宗，足見風險為本的規管方式行之有效，也有賴業界一直與我們合作無間，協力推展全方位的宣傳教育工作，加深公眾對氣體安全的認識。



氣體事故數字 Number of gas incidents

2017	236
2018	195
2019	187

提高定期氣體安全檢查的覆蓋率

我們自2015年開始聯同香港房屋委員會（房委會）、香港房屋協會（房協）、香港中華煤氣有限公司（煤氣公司）和多家供應管道式石油氣的註冊氣體供應公司，在多個公共屋邨推廣定期安全檢查計劃，主動接觸「長期沒接受安全檢查服務」的煤氣及管道式石油氣屋邨用戶（即那些五年內註冊氣體裝置技工未能入屋為其煤氣或管道式石油氣裝置進行安全檢查的用戶），以期提高定期安全檢查的覆蓋率。

2019年，我們聯同煤氣公司選定了房委會轄下58個公共屋邨共約3 200個煤氣用戶和房協轄下13個屋邨共304個煤氣用戶作為目標，主動與目標戶主聯絡，鼓勵他們接受定期氣體安全檢查。至於管道式石油氣用戶，我們也積極接觸房委會15個屋邨的406個用戶及房協六個屋邨的116個用戶，勸諭戶主適時進行定期氣體安全檢查。



我們在社區進行宣傳活動，鼓勵「長期沒接受安全檢查服務」的屋邨住戶，進行定期氣體安全檢查。

Our community promotions of Regular Safety Inspection for "long-time-no-service" households in housing estates.

GAS SAFETY

Gas Incidents on Decline

The number of gas incidents has been decreasing in recent years from 236 cases in 2017 to 195 cases in 2018 and further to 187 cases in 2019. The declining trend reflects the proven success of our risk-based regulatory approach as well as the continued joint efforts with the trade to foster our broad-based promotion and education to heighten public awareness of gas safety.

Greater Coverage of Regular Safety Inspections

Since 2015, we have been collaborating with the Hong Kong Housing Authority (HKHA), the Hong Kong Housing Society (HKHS), the Hong Kong and China Gas Company Limited (HKCG) and various registered gas supply companies (RGSCs) providing piped LPG to promote Regular Safety Inspection (RSI) Programme among the "long-time-no-service" (LTNS) households (i.e. those households with town gas or piped LPG installations that have not been inspected by registered gas installers for five years due to access difficulties) in public housing estates, with a view to improving the RSI coverage rate.

In 2019, in conjunction with the HKCG, we identified our targets comprising about 3 200 LTNS households in 58 HKHA public housing estates and 304 households in 13 HKHS housing estates, actively liaising with the residents and encouraging them to carry out RSI. As regards those households that used piped LPG, we approached 406 LTNS households in 15 HKHA estates and 116 such households in six HKHS estates to advise the residents to conduct RSI in a timely manner.

截至2020年年初，「長期沒接受安全檢查服務」的公共屋邨目標用戶數目已顯著減少，整體入屋檢查率逾99.3%，成績令人鼓舞。這計劃由2015年開始實行至2019/20年度期間，已完成第一個五年周期。我們會繼續與註冊氣體供應公司、房委會和房協合作，務使「長期沒接受安全檢查服務」的用戶數目持續減少，避免發生家居氣體事故。

食肆氣體安全問卷調查及氣體裝置快速檢查計劃

近年，我們非常關注食肆內的氣體裝置因老化而引致的安全問題。為此，除了加強巡查食肆的氣體安全和加強宣傳工作外，又於2019年為使用瓶裝石油氣的食肆推出嶄新的氣體裝置快速檢查計劃，配合外展宣傳和問卷調查，掌握具體數據，以風險為本的方式推廣食肆氣體安全檢查，務求對症下藥。年內，機電署的氣體安全督察走訪多區使用燃氣煮食的食肆，講解為店內氣體裝置適時進行定期安全檢查的重要性，鼓勵食肆盡早安排檢查。

我們於2019年推出嶄新的氣體裝置快速檢查計劃，以提升使用瓶裝石油氣的食肆的氣體安全水平。

To enhance gas safety of food premises using LPG cylinders, we introduced a new "Quick Check" scheme in 2019.

The result of our endeavour was encouraging. As of early 2020, the number of LTNS households in public housing estates dropped notably, and the overall RSI success rate topped 99.3%. The programme, since its introduction in 2015, has undergone the first five-year cycle until the end of the year 2019/20. We will continue the collaboration with the HKHA, HKHS and RGSCs in a bid to further reduce the number of LTNS households, thus preventing domestic gas incidents.

Restaurant Gas Safety Survey and Gas Installations "Quick Check"

The potential safety issues of aged gas installations at food premises have been an area of our concern in recent years. In addition to stepping up gas safety inspections of restaurants and safety promotion work, we introduced a new gas installation "Quick Check" scheme in 2019 for the food premises that used LPG cylinders. We also collected a body of data through outreach visits and a questionnaire survey, and applied a risk-based approach to promote RSI at these premises in a more focused manner. During the year, our gas safety inspectors visited food premises that used gas for cooking in various districts to explain the importance of conducting timely RSI of gas installations in their premises and encourage them to make such arrangements as early as possible.



同時，為找出那些在氣體安全方面須倍加留意的食肆，我們於2019年11月委託了專業調查公司走訪全港食肆，進行問卷調查，檢視食肆的氣體使用情況，再根據調查所得的資料，評估食肆的氣體安全狀況，從而篩選出需要優先處理的對象。

直至2020年3月底，調查公司已派員走訪多區的食肆，完成問卷調查工作，並選出部分食肆作為優先處理的對象。相關的註冊氣體供應公司已立即跟進，為該等食肆進行快速安全檢查，並按需要改善或更換老化的氣體裝置。

Meanwhile, in order to identify those food premises that require closer attention to their gas safety, we commissioned a professional survey contractor in November 2019 to survey all food premises in Hong Kong. The survey aimed to gauge gas utilisation at food premises and assess their gas safety situation based on the research findings, thereby identifying the targets that require priority attention.

Up till end March 2020, the survey contractor had paid visits to food premises in various districts, completed the survey, and identified some of the food premises as priority targets. The respective RGSCs of those establishments had subsequently followed up on those cases to offer a quick check, and to upgrade or replace the aged gas installations accordingly.

保障公眾安全 Protecting Public Safety

今次就問卷調查建立的數據庫，讓我們更全面地了解全港持牌食肆和會所使用氣體的情況。收集所得的資料，包括所用氣體類別、氣體裝置使用年期及定期安全檢查的狀況，對促進食肆氣體安全的工作極有幫助。

此外，由2019年9月起，機電署與食物環境衛生署合作，當食環署向持牌食肆發出牌照續期通知書時，也一併寄出由機電署製備的氣體安全宣傳單張及有關問卷調查，以期更有效地向食肆推廣氣體安全的重要。

善用科技 與時並進

隨着新科技發展一日千里，我們的氣體安全規管工作也與時並進。近年，政府積極推動使用組裝合成建築法，而機電署也致力就該建築法如何符合《氣體安全條例》的規定向業界提供意見，並更新了《氣體供應裝置指南》，方便業界了解相關的安裝及安全要求，以支持本港業界更廣泛採用組裝合成建築法。

機電署的流動應用程式E&M Connect於2019年12月推出後，公眾可以透過流動應用程式的定位功能，尋找所在位置附近的石油氣分銷商及其基本聯絡資料，更可查閱各石油氣分銷商在我們的「瓶裝石油氣分銷商安全表現評級計劃」的評級，以資選擇。我們現正為流動應用程式研發其他新功能，例如讓公眾用手機即可輕易搜尋註冊氣體裝置技工的資料及其他利便氣體業界與機電署溝通的功能，並期望盡快推出。

機電署新推出的流動應用程式E&M Connect，能為使用者尋找其所在位置附近的石油氣分銷商和查閱分銷商的安全表現評級。

The EMSD's new mobile application "E&M Connect" allows the users to locate LPG cylinder distributors in the vicinity and check their safety performance ratings.



在調查懷疑氣體洩漏事故方面，科技應用也大派用場。氣體喉管多位於天井或外牆等難以接觸的位置，需要吊船或搭棚才能檢視，相當費時失事。我們正積極探討引進激光甲烷探測器及長距離鏡頭等工具，使我們更快捷有效地調查這類氣體事故。

The database set up through the survey exercise has given us a comprehensive picture of gas utilisation situation at all licensed food premises and licensed clubhouses across the territory. The information collected, including the type of gas used, the serviceable life span of gas installations and the RSI status, has facilitated our ongoing work in promoting gas safety among food premises.

Besides, since September 2019, in collaboration with the Food and Environmental Hygiene Department (FEHD), a promotional leaflet and a questionnaire on gas safety prepared by the EMSD have been enclosed with the renewal notices issued to licensed food premises with a view to promoting the importance of gas safety among food premises in a more effective manner.

Leveraging Technology, Moving with the Times

Gas safety regulatory services are evolving in step with technological advancement. In recent years, as the Government has been vigorously promoting the use of Modular Integrated Construction (MiC) system, the EMSD has endeavoured to advise the trade on how MiC system should comply with the Gas Safety Ordinance. We have also updated the Guidance Notes on Gas Supply Installations to help the trade understand the relevant installation and safety requirements in support of the wider adoption of MiC system by the local industry.

Following the launch of the EMSD's mobile application "E&M Connect" in December 2019, members of the public can not only use the GPS function of the app to locate LPG cylinder distributors in the vicinity and browse their basic contact information, but also check the rating of the distributors under our LPG Cylinder Distributor Safety Performance Recognition Scheme as reference for making choices. We are developing more functions for the app, such as easy search for information of registered gas installers and convenient communication between the gas trade and the EMSD, which we expect to be introduced as soon as possible.

Technology can also play an effective role in the investigation of suspected gas pipe leakages. As gas pipes are often located in hard-to-access places such as lightwells or external walls, gondolas or scaffoldings have to be set up for carrying out inspection, which is rather time-consuming. We are exploring to adopt a laser methane detector and a long-range camera to facilitate the efficient and expeditious investigation of gas leak incidents.



為提高本港不同族裔人士的氣體安全意識，我們除了在電台廣播印尼語、泰語和尼泊爾語的氣體安全訊息之外，更新增了印地語(左)和烏爾都語(右)的氣體安全訊息，使宣傳工作更到位。

To raise gas safety awareness among different race groups in Hong Kong, we have introduced radio broadcast messages in Hindi (left) and Urdu (right), in addition to existing gas safety radio messages in Bahasa Indonesia, Thai and Nepali, to facilitate more effective publicity.

深入社區推廣氣體安全

提高本港不同族裔人士對氣體安全的知識，是我們近年相當重視的工作，其中包括印製和派發多種語言的宣傳單張、在假日動員氣體安全大使主動往外僑聚集的地點進行外展宣傳和與慈善團體協作，以及透過大氣電波於不同族裔的電台頻道分享氣體安全資訊等。除了原有的印尼語、泰語和尼泊爾語氣體安全訊息外，年內我們更新增了印地語和烏爾都語的氣體安全訊息，使宣傳工作更到位。

至於機電署與註冊氣體供應公司合作的「瓶裝石油氣分銷商安全表現評級計劃」，2019年度的評級成績已於2020年3月公布。在167家參與的分銷商中，54家獲評為「金級」，較上年度的48家增加一成多，而獲評為「銀級」及「銅級」的分銷商則分別有19家及94家，顯示業界的安全水平日益提高。

抗疫及其他應變措施

鑑於年內本港爆發2019冠狀病毒病，我們聯絡了註冊氣體供應公司，包括煤氣公司和多家石油氣供應商，檢視其相關業務延續計劃及疫情應變措施，包括為員工提供防護裝備、檢視各種物資和零部件供應與儲備情況，以確保氣體生產和供應不會受疫情影響。我們亦與註冊氣體供應公司保持溝通，即使在緊急情況下也能有效聯繫。此外，疫情期間我們與各方業界人士雖未能會面，但在有需要的情況下亦有利用網上會議或溝通工具保持聯絡。

Promoting Gas Safety in the Community

A major focus of our work in recent years is raising gas safety awareness among different race groups in Hong Kong. We have produced and distributed promotional leaflets in multiple languages, mobilised our gas safety ambassadors to visit the gathering places of domestic helpers during public holidays for outreach promotion and collaboration with several charities. We have also arranged broadcasting of gas safety messages on radio channels dedicated to different race groups. In addition to broadcasting such messages in Bahasa Indonesia, Thai and Nepali, we have also added Hindi and Urdu messages during the year to facilitate more effective publicity.

The results of the LPG Cylinder Distributor Safety Performance Recognition Scheme for 2019, jointly run by the EMSD and RGSCs, were released in March 2020. The results showed that the safety performance of the trade continued to improve. Among the 167 participating distributors, 54 were awarded the gold rating, an increase of over 10% from 48 in the previous year, and 19 and 94 distributors were rated silver and bronze respectively.

Anti-epidemic and Other Contingency Measures

In view of the COVID-19 outbreak during the year, we contacted all RGSCs, including the HKCG and various LPG supply companies, to examine their business continuity and contingency plans, such as providing protective gear for staff members and reviewing spare parts supply and inventories, to ensure gas production and supply remain unaffected by the epidemic. We also kept liaison channels with RGSCs open for effective communication during emergencies. During the epidemic, we used online meeting or communication tools to stay connected with the trade members when required, in lieu of face-to-face contact.

保障公眾安全 Protecting Public Safety

機電署規管車輛維修工場的氣體安全，並確保石油氣車輛燃料系統的維修及保養工作妥善進行，即使在疫情下亦沒有鬆懈，氣體安全督察仍親身前往全港各車輛維修工場進行突擊巡查，尤其那些位於住宅樓宇的車輛維修工場。我們考慮到在這非常時期，有人或會鋌而走險，為石油氣車輛燃料系統進行非法維修，故此我們更加不可放鬆巡查的工作，以確保公眾安全。

疫情也影響了氣體業界及車輛維修工場從業員的生計。我們促使氣體業界（包括註冊氣體工程承辦商、註冊氣體裝置技工及車輛維修工場）成為「防疫抗疫基金」受惠對象，希望紓緩業界面對的壓力。

鑑於年內的公眾活動，我們也確保各個註冊氣體供應公司及石油氣加氣站營運商都因應評估而制訂了完善的應變計劃，提高警覺，並加強與其溝通的渠道，以保障公眾氣體設施的安全。公眾活動發生期間，我們每日更新事故報告，密切監察事態對氣體安全可能造成的影響。

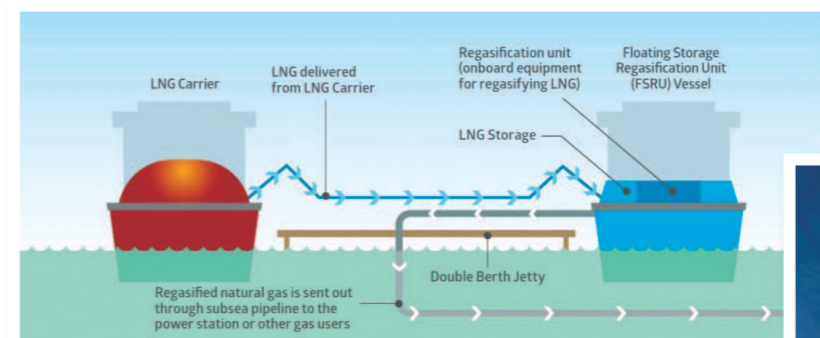
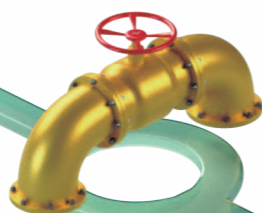
The EMSD monitors the gas safety of vehicle maintenance workshops and ensures that proper repair and maintenance of fuel system of LPG vehicles are carried out. In spite of the epidemic, gas safety inspectors continued ceaselessly with the surprise inspections to vehicle maintenance workshops across the territory, especially those located in residential buildings. Given that there might be opportunistic unlawful repair of fuel system of LPG vehicles during this critical period, we persevered with the inspections to ensure public safety.

As the livelihood of practitioners in gas industry and vehicle maintenance trade was affected by the epidemic, we facilitated the inclusion of gas industry stakeholders, including registered gas contractors, registered gas installers and vehicle maintenance workshops, as beneficiaries of the Anti-epidemic Fund to ease the pressure on them.

In view of the public order events during the year, we ensured that all RGSCs and operators of LPG filling stations stay alert and put in place effective contingency plans based on their assessments. We also enhanced communication with them to ensure the safety of public gas facilities. Daily incident reports were updated for close monitoring of the impact on gas safety throughout the public order events.



機電署人員正審核註冊氣體承辦商的工作。這是我們的職責之一，以確保業界的作業方法完全符合法例及專業要求。
EMSD staff are auditing the work of a registered gas contractor, which is part of our duties to ensure that the trade's practices comply with all statutory and professional requirements.

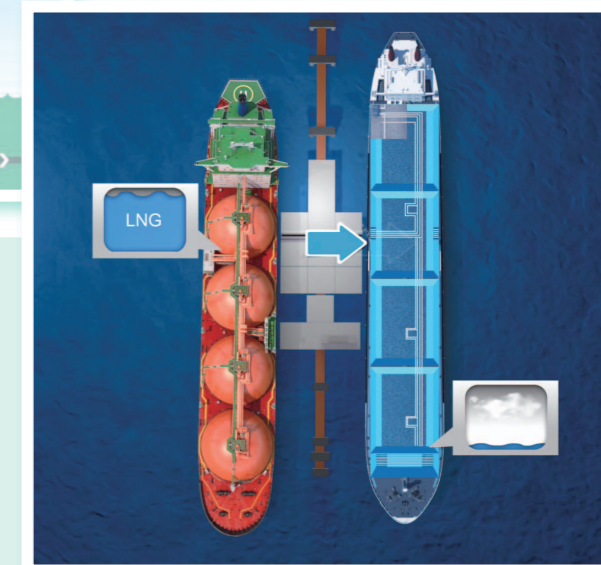


兩家電力公司正興建中的海上液化天然氣接收站工程項目，左圖為橫切面，右為鳥瞰圖。接收站的碼頭可停泊一艘液化天然氣運輸船和一艘具備浮式儲存再氣化裝置的儲氣船。液化天然氣經再氣化後，會輸往兩家電力公司的兩個發電廠供發電之用。機電署監督這項目的氣體安全，並提供安全建議。

Drawings of the cross section (left) and aerial view (right) of the offshore LNG terminal under construction by the two power companies. The terminal can berth an LNG carrier and a Floating Storage and Regasification Unit vessel, which will regasify LNG from the carrier and supply to two power stations of the power companies for electricity generation. The EMSD monitors and advises on the gas safety aspects of the project.

(相片由中華電力有限公司提供)

(Photos from the CLP Power Hong Kong Limited)



為各環保項目的氣體安全把關

年內，機電署就兩家電力公司在索罟群島以東水域興建的海上液化天然氣接收站工程項目，繼續進行氣體風險評估及監督工作，並提出相關的安全建議。接收站落成後，其碼頭可停泊一艘具備浮式儲存再氣化裝置、儲存量達263 000立方米的儲氣船，以及一艘液化天然氣運輸船。屆時，儲氣船內的液化天然氣經再氣化後，會經兩條分別長約45公里及18公里的海底天然氣輸氣管道，輸送至中華電力有限公司的龍鼓灘發電廠和香港電燈有限公司的南丫發電廠供發電之用。這是香港首個離岸液化天然氣接收站，啟用後將可大大提升本港天然氣供應的穩定性。同時，增加使用潔淨能源，有助我們達到把香港的碳強度由2005年水平降低50%至60%的目標，相等於將絕對碳排放量減少約20%，改善本港空氣質素。

項目於2020年進入建造階段，首先展開碼頭的打樁工程。為減低對海域生態的影響，打樁工程只能在每年第三及第四季的指定期間進行。為此，我們須配合緊迫的工程時間表進行氣體設備的審批工作。縱然疫情對設計、採購及工程進度有所影響，我們的工作從未間斷，其間仍定期以視像會議與兩電制訂審批時間表及要求，並就基本設計和施工方面提出了建議。預計工程可於2021/22年度竣工。

Gatekeeping for Eco-friendly Gas Projects

During the year, the EMSD continued to conduct gas risk assessments, monitor the progress and provide safety advice for the project of offshore liquefied natural gas (LNG) terminal, which is under construction by the two power companies in the waters to the east of the Soko Islands. Upon commissioning, the terminal can berth an LNG carrier and a Floating Storage and Regasification Unit (FSRU) vessel with a capacity of up to 263 000 m³. By then, the LNG received in the FSRU vessel will be regasified and supplied to the Black Point Power Station of CLP Power Hong Kong Limited and the Lamma Power Station of The Hongkong Electric Company Limited for power generation, via two separate subsea gas pipelines of 45 km and 18 km in length respectively. Being the first offshore LNG terminal in Hong Kong, it will significantly enhance the reliability of natural gas supply in Hong Kong upon commissioning. Besides, the increased usage of clean energy will give us momentum for achieving the target of reducing Hong Kong's carbon intensity by 50% to 60% (based on the 2005 level), which is equivalent to the lowering of absolute carbon emissions by about 20% and thus improving the air quality across the territory.

Construction of the terminal began in 2020 with piling works of jetty. To minimise the impact on marine life, piling was restricted to the third and fourth quarters of the year. In this connection, our vetting of the gas installations had to be synchronised with the tight project timeline. While the design, procurement and construction progress had been slowed down by the epidemic, we worked ceaselessly with the two power companies via video conferences to establish the approval schedules and requirements, and to offer advice on the basic designs and construction works. The project is expected to be completed in 2021/22.

保障公眾安全 Protecting Public Safety



位於大嶼山小蠔灣的有機資源回收中心第一期，是全港首個這類設施，能把廚餘轉廢為能，生產生物氣。圖為機電署督察檢查回收中心的生物氣設備操作情況，以確保安全。

O-PARK1 in Siu Ho Wan, Lantau Island, is Hong Kong's first organic resources recovery centre which turns food waste into biogas. Pictures show EMSD inspectors checking the operational condition of its biogas installations to ensure safety.

除天然氣項目外，我們亦規管不同生物氣設備及項目的安全運作。大嶼山小蠔灣有機資源回收中心第一期於2018年開始營運，從全港市面收集的廚餘，透過厭氧消化過程和生物降解處理技術，轉廢為能，所產生的生物氣(甲烷)用作發電和產生熱能，成為可再生能源。第一期設施每天可處理最多200公噸廚餘。我們負責監督其氣體裝置的安全，包括審視由承辦商提交的風險評估報告及緊急應變方案，監督氣體設施的日常運作和維修，以及每五年就其生物氣儲存設備進行內部檢驗，確認其使用狀況和盛載氣體的安全性。

至於位於沙嶺的有機資源回收中心第二期項目，則正在施工。一如既往，機電署正參與風險評估和審批相關氣體裝置的建造，並就其氣體裝置的設計及營運提供安全方面的意見。項目預計在2022年落成，啟用後每日可處理最多300公噸廚餘，每年可避免排放約67 000公噸的溫室氣體，以及減少約110 000公噸的廚餘。

We are also responsible for regulating the operational safety of biogas installations and projects. The first organic resources recovery centre O-PARK1, located at Siu Ho Wan on Lantau Island, began operation in 2018. The facility processes food waste collected territory-wide for conversion into biogas through anaerobic digestion and composting technologies. The biogas is a form of renewable energy that can generate electricity and thermal heat. O-PARK1 has a design capacity of 200 tonnes per day. We are responsible for monitoring the safety of the gas installations, including reviewing the risk assessment reports and contingency plans submitted by the contractor, monitoring the daily operation and maintenance of the gas installations, and conducting an examination of the interior of the biogas storage facility every five years to monitor its condition and ensure gas safety.

O-PARK2 is being built at Sha Ling. The EMSD is, as always, engaging in the risk assessments and construction approval of concerned gas installations. We also advised on the design and operational safety. With the operation anticipated to commence in 2022, O-PARK2 can process up to 300 tonnes of food waste per day, which would prevent the emission of some 67 000 tonnes of greenhouse gases and reduce about 110 000 tonnes of food waste annually.

2022 年目標 Target in 2022



避免排放溫室氣體量
Greenhouse gases prevented

67 000 公噸 tonnes



避免產生的廚餘量
Food waste prevented

110 000 公噸 tonnes

統籌跨部門工作小組加快搶修工作

2018年9月，鴨洲石油氣儲存庫附近的海堤及設備遭受超強颱風「山竹」吹襲，損毀非常嚴重，極需搶修，以防對石油氣儲存庫構成風險，並保障附近屋苑8 000多戶居民的安全和石油氣的正常供應。因此，機電署積極聯絡各相關部門，負起統籌跨部門維修工作小組的角色，促使海堤的結構維修及石油氣儲存庫修整工作能在各方順利協調下加快進行，終於在2019年7月，趕及在風季開始前完成。

提醒公眾使用易燃雪種須知

本港市面現有五個品牌共72個型號的家用式冷氣機，已使用較環保的R32輕度易燃雪種。我們近年就如何安全使用易燃雪種，進行了廣泛宣傳工作。舉例來說，我們於2019年5月推出關於使用輕度易燃雪種的家用式冷氣機的電視宣傳片，並於2019年9月向業界推出《新型雪種快訊》季度電子通訊，為業界提供最新的技術和安全知識。年內，我們也定期致函業界，提醒在大型空調系統切勿採用易燃雪種，以降低潛在風險。

我們又舉辦推廣活動，提高冷氣技工在安裝使用輕度易燃雪種家用式冷氣機時的安全意識。至今已有1 600多名業界人士接受了有關使用R32輕度易燃雪種家用式冷氣機的安裝和維修保養培訓。至於機電署，隨着部門於2018年與廣州市工貿技師學院簽訂合作備忘錄，部分員工也於2019年9月到該院受訓，以增進有關易燃雪種冷氣機安裝及維修保養的知識和技術。

機電署同事於2019年9月往廣州市工貿技師學院參加培訓課程，以增進有關易燃雪種冷氣機安裝及維修保養的知識和技術。

EMSD staff attended a training course at the Guangzhou Industry and Trade Technician College in September 2019, to expand their knowledge and skills in installing and maintaining air-conditioners using flammable refrigerants.



Co-ordinating Inter-departmental Working Group for Prompt Emergency Repair

The seawall and structures near an LPG compound at Ap Lei Chau were severely damaged during super typhoon Mangkhut in September 2018. Emergency repair was required to mitigate the risk posed to the LPG storage facility and to ensure public safety and gas supply for more than 8 000 households nearby. The EMSD took the initiative to co-ordinate an inter-departmental working group to expedite the repairs of the seawall and enhance the protection of the LPG storage facility. With concerted efforts of all parties concerned, the works were completed in July 2019, ahead of the ensuing typhoon season.

Safety Reminders on Using Flammable Refrigerants

Relatively eco-friendly but mildly flammable R32 refrigerants are used in 72 models of household air-conditioners from five brands. In recent years, we have been conducting extensive publicity programmes on safe use of such refrigerants. For example, a TV announcement on safe use of mildly flammable refrigerant household air-conditioners was launched in May 2019, and a quarterly electronic newsletter on "New Eco-friendly Refrigerants" was published in September 2019 to inform the trade of the latest technical and safety information. During the year, we also regularly sent reminders to the trade advising them against using flammable refrigerants in large-scale air-conditioning systems to lower potential risks.

Promotional activities have been organised for practitioners to raise their safety awareness of installing household air-conditioners that contain mildly flammable refrigerants. More than 1 600 practitioners have undergone training on the installation, maintenance and repair of household air-conditioners containing R32. Following the signing of a memorandum of co-operation between the EMSD and the Guangzhou Industry and Trade Technician College in 2018, a number of EMSD staff attended a training course at the college in September 2019 to expand their knowledge and skills in installing and maintaining air-conditioners that contain flammable refrigerants.



保障公眾安全 Protecting Public Safety

同時，我們一直到本港各處進行巡查，包括興建中的住宅樓宇工地，以監察不當使用易燃雪種的情況。國際方面，我們密切留意易燃雪種的最新技術發展和國際標準，並因應香港的情況適時作出應變。

提高車輛維修服務水平

我們的車輛維修註冊組負責「車輛維修技工自願註冊計劃」及「車輛維修工場自願註冊計劃」的推廣、日常管理和運作，並且積極舉辦各種外展和宣傳活動，以鼓勵合資格的技工和工場進行註冊，藉此提高行業的服務水平及專業形象。迄今，全港已有超過九成車輛維修技工及逾七成車輛維修工場參加了相關的自願註冊計劃。

我們希望透過與業界的協作和各種改善措施，維持高註冊率，例如為註冊車輛維修技工推出網上持續專業進修平台，讓技工在方便時透過簡單問答考核，獲取持續專業進修時數，從而符合每隔三年為註冊續期的規定。預計網上平台會於2021年推出。我們也計劃運用政府的地理資訊系統地圖，展示全港已註冊車輛維修工場的位置及其簡單資料，包括服務時間和維修車輛服務類別等，方便公眾物色車輛維修服務。

石油氣車輛燃料缸的安全維修，是我們的重要關注事項。2017年開始實施的《石油氣車輛燃料缸保安封條系統工作守則》一直行之有效，巡查工作亦沒有因疫情而鬆懈。此外，我們又計劃推出新的防干擾保安封條，運用無線射頻辨識技術，提高準確度和效率。新封條現正進行測試。

為提升車輛維修行業的專業水平，我們定期舉辦各種活動及持續專業進修培訓，例如下圖的車輛維修技術講座。參加持續專業進修課程，是「車輛維修技工自願註冊計劃」更新註冊的要求之一。

To enhance the professional standards of the vehicle maintenance trade, we organise regular activities and CPD training such as the technical seminar on vehicle maintenance in the picture below. CPD training is a requirement of registration renewal under the Voluntary Registration Scheme for Vehicle Mechanics.



Meanwhile, ongoing inspections have been carried out at various locations across the territory, including construction sites of residential buildings, so as to safeguard against improper use of flammable refrigerants. Internationally, we closely monitor the latest technical developments and international standards related to flammable refrigerants and respond in a timely manner in line with the conditions of Hong Kong.

Raising Vehicle Maintenance Service Standards

Our Vehicle Maintenance Registration Unit is responsible for the promotional activities, day-to-day management and operation of the Voluntary Registration Scheme for Vehicle Mechanics (VRSVM) and the Voluntary Registration Scheme for Vehicle Maintenance Workshops (VRSVMW). The Unit also actively conducts outreach and promotional activities to encourage qualified mechanics and workshops to register under the schemes, as a means to enhance the service standards and professional image of the industry. So far, more than 90% of vehicle mechanics and over 70% of vehicle workshops across Hong Kong have registered under the respective voluntary schemes.

We hope to maintain high registration rates through collaboration with the industry and various enhancement measures, such as introducing an online continuing professional development (CPD) platform for registered vehicle mechanics, enabling them to acquire the CPD hours needed for their registration renewal every three years by completing simple quizzes at their convenience. The online platform will be introduced in 2021. We also plan to display the locations of existing registered vehicle maintenance workshops using the Government's Geographic Information System maps, as well as supplementary information including service hours and types of vehicles serviced, making the search for vehicle maintenance services by the public more convenient.

Another key area of our work is the safe repair of LPG vehicle fuel tanks. The Code of Practice on Security Label System for LPG Vehicle Fuel Tanks introduced in 2017 has been implemented effectively. Our inspection work on security labels has continued during the epidemic. We are also planning to introduce RFID-embedded, tamper-proof security labels to improve the accuracy and efficiency of the labelling system. The new security labels are currently at the trial stage.



我們將於2020/21年度推出公眾教育活動，鼓勵市民把那些在「GU」標誌立法前已安裝的舊款家用氣體爐具，更換為附有「GU」標誌的氣體爐具，以策安全。

A public education campaign will be launched in 2020/21 to encourage the public to replace aged domestic gas appliances, installed before the relevant legislation on GU mark came into effect with ones bearing a GU mark for the sake of safety.

來年展望

我們會繼續與煤氣公司、石油氣註冊氣體供應公司、房委會和房協合作，向「長期沒接受安全檢查服務」的公共屋邨氣體用戶宣傳，以期進一步提高定期安全檢查的覆蓋率和保障家居氣體安全。

食肆方面，我們會與註冊氣體供應公司保持聯繫，鼓勵食肆進行安全檢查，並計劃在2020年年底完成涵蓋全港持牌食肆及會所的問卷調查。此外，亦會到食肆進行個別探訪以宣傳氣體安全，並檢視其氣體使用、裝置及安全檢查的狀況。這資料庫有助更有效地推行風險為本的氣體安全宣傳工作。

來年的另一項重點行動計劃是透過公眾教育，鼓勵市民更換日漸老化及沒有「GU」標誌的舊款家用氣體爐具。有關「GU」標誌的法例早於2003年推出，規定所有供應和售賣供香港使用的住宅式氣體用具，必須先獲得機電署的書面批准，而獲批准的氣體爐具必須附有「GU」標誌，以便消費者識別。在有關「GU」標誌立法前安裝的氣體爐具，已超越其平均使用年限。如市民仍在家中使用該等爐具，應考慮適時更換為附有「GU」標誌的氣體爐具。我們會推出全方位宣傳活動，透過新的宣傳單張、電視及電台、巴士廣告等不同渠道向公眾推廣這氣體安全訊息，並會透過各大屋邨/屋苑管理處及註冊氣體供應公司進行定期安全檢查時，建議市民適時更換已老化及沒有「GU」標誌的氣體爐具。各項宣傳工作將於2020/21年度全面展開。

在車輛維修安全方面，我們會努力維持「車輛維修技工自願註冊計劃」和「車輛維修工場自願註冊計劃」的高註冊率。此外，亦會密切監察本地及國際間關於易燃雪種的新發展，並會不斷提點業界切勿於大型空調系統使用易燃雪種，以策安全。

Prospects for the Year Ahead

We will continue the collaboration with the HKCG, LPG RGSCs, HKHA and HKHS to reach out to LTNS households in public housing estates for promotion, with a view to further enhancing RSI coverage rate and domestic gas safety.

We will closely liaise with RGSCs to encourage all restaurants to undergo gas safety checks, and plan to complete the survey of all licensed food premises and licensed clubhouses across Hong Kong by end 2020. Individual visits will also be paid to restaurants to disseminate gas safety messages and examine their gas utilisation, conditions of gas installations and status of safety checks. The database will enable us to carry out risk-based gas safety promotion more effectively.

Another major focus for the year ahead is launching a public education campaign to encourage the public to replace aged domestic gas appliances that do not have a GU mark. The legislation stipulated that from 2003 onwards, all models of domestic gas appliances to be supplied and sold for use in Hong Kong shall have the written approval of the EMSD, and the approved gas appliances shall bear a GU mark for easy identification. Gas appliances installed before the legislation relating to the GU mark have already exceeded their average life expectancy by now. Those still using aged gas appliances without the GU mark should consider replacing them with the ones bearing a GU mark. We will launch an extensive publicity campaign to disseminate this message through multiple channels such as new promotional leaflets, TV and radio announcements as well as advertisements on buses. We will also work with property management offices of major housing estates and RGSCs to urge residents during RSI to replace aged gas appliances without the GU mark with new ones in a timely manner. The publicity campaign will be rolled out in 2020/21.

On vehicle maintenance safety, we will strive to maintain high registration rates for the VRSVM and VRSVMW. We will also continue to monitor the latest developments of flammable refrigerants, both locally and internationally, and keep reminding the trade not to use flammable refrigerants in large-scale air-conditioning systems for the sake of safety.

保障公眾安全 Protecting Public Safety

汲取經驗 未雨綢繆 提升近岸氣體儲存設施的整體安全 Learn from the Experience and be Well-prepared to Enhance the Safety of Near-shore Gas Storage Facilities



超強颱風山竹嚴重破壞了鴨洲沿海一帶的海堤和近岸的石油氣儲存庫，氣體標準事務處的一支團隊，負起統籌一個跨部門工作小組的角色，加快了相關的復修工作，工程也為社區打造更安全的環境。倪雅雯和梁鈞傑分享箇中經驗。

This team from our Gas Standards Office co-ordinated an inter-departmental group to expedite the recovery of a seawall near an LPG storage facility in Ap Lei Chau, severely damaged by super typhoon Mangkhut. The works also improved safety for the community. Ms Laura Ngai and Mr Anthony Leung share the story.

2018年9月16日超強颱風山竹襲港期間，巨浪和強風嚴重衝擊鴨洲利南道附近的海堤，一個位於該處近岸的石油氣儲存設施遭受前所未見的破壞。該設施內有部分地面下陷，一座非主要建築物結構損毀嚴重，須要拆除。評估結果顯示該設施的損毀程度不會影響氣體安全及石油氣供應，但為確保該設施的擁有人能在下一個風季來臨前修復和加固設施，機電署轄下的氣體標準事務處在2019年年初主動聯絡屋宇署、土木工程拓展署、渠務署及地政總署，組成跨部門工作小組。工作小組每兩星期舉行會議，藉以協調各部門的工作，務求加快維修進度和審批程序。倪雅雯和梁鈞傑便是氣體標準事務處負責這項任務的工程師。

雅雯說：「作為香港的氣體安全監督，機電署十分重視維持氣體安全。因此，我們主動承擔跨部門小組的統籌角色，與各部門緊密溝通和積極協調。有賴各部門提供專業支援、資深同事及上司提供協助、督察們進行現場督導，以及該設施擁有人協調合作，繁複的審批程序及修復工程才得以在短短六個月內極速完成。」

工程期間，雅雯、鈞傑和氣體標準事務處的團隊一直與該設施的擁有人保持緊密溝通，以商討最切實可行的加固方案，例如引入沉降測量儀器以監察下陷地面附近氣體喉管和石油氣缸等的沉降風險；把近岸位置一條直徑長200毫米的供氣主喉管內移並增設防護裝置；以及為向海的水爐房安裝更堅固的鐵絲網及鋁板以阻擋強風及砂石等。團隊也提醒設施擁有人儲備足夠的後備配件，以供日後隨時更換。

During the passage of super typhoon Mangkhut on 16 September 2018, the seawall at Lee Nam Road, Ap Lei Chau, was battered by huge waves and high winds, resulting in unprecedented damage to an LPG storage facility nearby. Settlement occurred at part of the facility and a peripheral structure had to be demolished due to serious structural damage. While assessment results suggested that the damage did not pose gas safety hazards nor affect gas supply, the facility owner should repair and reinforce the facility before the next typhoon season arrives. In view of this, the Gas Standards Office (GasSO) of the EMSD took the lead to form an inter-departmental working group with the Buildings Department, the Civil Engineering and Development Department, the Drainage Services Department and the Lands Department to render assistance to the facility owner. Members of the working group met on a bi-weekly basis to co-ordinate relevant tasks and expedite the monitoring and approval of repair works. GasSO engineers Ms Ngai Nga-man, Laura, and Mr Leung Kwan-kit, Anthony, spearheaded the tasks.

"As Hong Kong's Gas Authority, the EMSD attaches great importance to maintaining gas safety. Thus, we took the initiative to co-ordinate the inter-departmental working group and communicate closely with other departments. Thanks to their unfailing support, the assistance of our experienced colleagues and supervisors, the on-site supervision of our inspectors as well as the efforts of the facility owner, the complicated approval processes and repair works were completed swiftly within just six months," Laura said.

During the works period, Laura, Anthony and the GasSO team closely liaised with the facility owner to explore the most practicable reinforcement solutions, such as introducing settlement measuring devices to monitor the settlement risk of the LPG pipes and storage tanks near the collapsed grounds, reinforcing and moving inland a gas supply main of 200 mm diameter, installing wire meshes with high durability and aluminium panels to a sea-facing water boiler room to shield it from strong winds and debris, etc. The team also reminded the facility owner to maintain sufficient spare parts for timely replacement in the future.



鈞傑說：「在團隊努力之下，氣體供應在工程期間沒有受到任何影響，該處約8 000個用戶可繼續使用石油氣。完成工程後，該設施更為穩固，相信足以抵禦日後的風暴。與此同時，我們汲取了這次的寶貴經驗，即時對全港的石油氣儲存設施進行全面的風險評估，並敦促近岸氣體儲存設施的擁有人參考此設施的加固工程經驗，包括為向海的設施提供相應的保護措施，以及在風季前修剪樹枝以避免塌樹而造成破壞等。」

氣體標準事務處團隊成員與該設施擁有人通力合作，確保了該石油氣儲存設施的安全，並及時在2019年7月風季來臨前完成所有修復及加固工程。此外，其他近岸設施也已參考有關經驗，採取了相應的防風措施，務求防患於未然，共同抵禦日後的急風暴雨。

"Thanks to the collaborative efforts of our team, the LPG supply to about 8 000 households in the neighbourhood was unaffected throughout the works period. The facility is now sturdier to withstand future typhoons. Learning from this experience, we immediately conducted a comprehensive risk assessment of all LPG storage facilities in Hong Kong and urged owners of near-shore gas storage facilities to make reference to the reinforcement works of the facility at Ap Lei Chau, including the provision of similar protective measures to their sea-facing installations, trimming of tree branches before the typhoon season to prevent damage of facilities due to fallen trees, etc.," Anthony said.

Collaboration between the GasSO team and the Ap Lei Chau facility owner kept the LPG storage facility safe and ensured that all repair and reinforcement works were completed before the typhoon season in July 2019. At the same time, owners of other near-shore facilities drew reference from the works of the Ap Lei Chau facility and adopted precautions against heavy wind. Together, we will ride out the storms ahead.



修復後的石油氣儲存設施，可更有效抵禦未來的颱風。

After the reinforcement works, the LPG storage installation is now sturdier to withstand future typhoons.

為減低石油氣儲存設施再受極端天氣的影響，我們與設施擁有人合作進行了一系列改善工程。其中一項就是為熱水鍋爐房加裝更堅固的鐵絲網及鋁板。

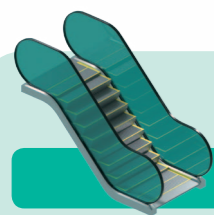
To minimise damage due to adverse weather, we collaborated with the facility owner to explore conducting a series of improvement works. One of them was to install durable wire meshes and aluminium panels at the hot water boiler room.

保障公眾安全 Protecting Public Safety

機械安全

升降機及自動梯事故減少

2019年我們致力加強升降機及自動梯巡查工作，巡查次數由2018年的15 400次大幅增加至2019年的29 000次，再配合其他措施，例如於2019年2月生效的新修訂版《升降機工程及自動梯工程實務守則》，規定尚未配備現行安全標準的舊式升降機必須每年進行不少於兩次的「特別保養」，成效良好，在2019年由機械故障引起的升降機及自動梯事故數字，比2018年大幅下降了25%之多。



2019年因機械故障引起的升降機及自動梯事故減幅
Reduction of lift and escalator incidents due to mechanical failure in 2019

25%

修訂設計實務守則 以國際標準為藍本

香港的《升降機及自動梯設計及構造實務守則》是參考國際標準而訂定，要求與國際標準大致相同，但海外升降機及自動梯製造商仍需仔細研究香港守則的條文，才能確定本地法規與國際法規的差異之處。為方便國際供應商了解香港守則，從而鼓勵他們向香港提供更多元化的升降機及自動梯，我們在年內修訂了《升降機及自動梯設計及構造實務守則》，以國際標準為藍本，清楚標註香港不適用的條文及特有的法規。新版本除幫助國際業界了解香港的相關法規外，也方便本地業界與外國供應商按相同的技術準則及要求進行溝通。

在諮詢業界和國際安全標準機構後，經修訂的新版守則已於2019年8月刊憲，並於2020年6月1日生效。

MECHANICAL SAFETY

Fewer Lift and Escalator Incidents

Inspection of lifts and escalators was stepped up in 2019 with the number of inspections increased significantly from 15 400 in 2018 to 29 000 in 2019. In tandem with other initiatives such as the requirement of conduction of “special maintenance” at least twice per year for aged lifts that have not yet been installed with safety devices meeting the latest design standards introduced by the revised edition of the Code of Practice for Lift Works and Escalator Works that took effect in February 2019, our efforts achieved satisfying results. The number of lift and escalator incidents due to mechanical failure in 2019 fell substantially by 25% as compared to 2018.

Design Code Revised as per International Standards

The Code of Practice on the Design and Construction of Lifts and Escalators (Design Code) was drawn up with reference to international standards, with a high degree of similarity. However, international lift/escalator manufacturers still had to study the Hong Kong Design Code closely to ascertain how the Hong Kong requirements differ from the international ones. In order to help international lift/escalator manufacturers better grasp our requirements, which will help bring in a wider selection of lifts/escalators to Hong Kong, we revamped the Design Code during the year. The new edition uses international standards as a blueprint, with clear markings and annotations of provisions not applicable to Hong Kong and those that are unique to Hong Kong. Apart from helping international lift/escalator manufacturers understand Hong Kong's relevant regulations, the new edition also makes it easier for the local lift and escalator trade to communicate with their overseas counterparts, using the same set of technical standards and requirements.

Following consultation with the trade and international safety standard agencies, the revised edition of the Design Code was gazetted in August 2019 and came into effect on 1 June 2020.

機電署與一家由本地大學開設的初創公司合作，共同研發利用光纖光柵傳感技術，實時監測升降機及自動梯運作的安全及穩定性。圖為一部已安裝該技術系統的自動梯，於運作期間進行測試。

The EMSD collaborated with a start-up formed by a local university to jointly develop the use of the Optical Fibre Bragg Sensing Technology for real-time monitoring of the safety and stability of lifts and escalators. Picture shows the trial being conducted on an operating escalator.



優化升降機資助計劃

政府於2018年《施政報告》中宣布撥款25億元推行優化升降機資助計劃，目標是資助合資格的私人住宅或綜合用途樓宇業主優化約5 000部舊式升降機。資助計劃的規劃與落實，有賴發展局、機電署、市區重建局（市建局）及升降機業界共同協作。為配合此計劃，機電署於2018年8月成立了專責組別，向市建局提供全面的專業支援，包括訂定計劃的細節、擬備有關標準合約及標書、招聘常駐工程顧問、宣傳推廣資助計劃、提供技術意見，以及協助審批個別申請。

在專責組別的支援下，資助計劃的首輪申請於2019年3月至8月順利進行，共接獲約1 200宗申請，涉及約5 000部升降機。有見於首輪申請的反應十分熱烈，政府於2019年《施政報告》中宣布擴大資助計劃，注資20億元以額外資助約3 000部舊式升降機進行優化工程。資助計劃的第二輪申請已於2020年1月展開。

在推展資助計劃的過程中，專責組別除了要解決計劃所面對的工程技術問題外，更要考慮和兼顧優化工程所帶來的其他挑戰。舉例來說，在升降機優化工程進行期間，難免會影響樓宇住戶進出大廈，特別是樓宇只有一部升降機或各樓層只有一部升降機能直達的情況。有見及此，專責組別聯同市建局的團隊與社區服務團體聯繫，研究為有需要的住戶提供外展社區服務，包括送遞膳食、代購日常生活用品，以至提供流動樓梯機服務，以減低優化工程造成的不便。

另外，為應付優化工程所需的勞動力，我們積極與建造業議會協作，把升降機行業納入「中級技工合作培訓計劃」，為新加入升降機行業的工友及其僱主提供培訓津貼，讓工友接受所需培訓。我們期望此培訓計劃能吸引新血加入升降機行業。

Lift Modernisation Subsidy Scheme

In the 2018 Policy Address, the Government announced to launch the \$2.5 billion Lift Modernisation Subsidy Scheme (LIMSS) with the aim of providing financial subsidy to eligible owners of private residential or composite buildings for modernisation of about 5 000 aged lifts. With the concerted efforts of the Development Bureau (DEVB), the EMSD, the Urban Renewal Authority (URA) and the lift trade, the work to plan and implement the LIMSS was carried out smoothly. To implement the scheme, the EMSD set up a dedicated section in August 2018 to provide comprehensive professional support to the URA, including drawing up details of the scheme, preparing standard contracts and tender documents, recruiting standing term consultants, promoting the LIMSS, providing technical advice and assisting in the assessment of individual applications.

With the support of the dedicated section, the first round of LIMSS application was processed smoothly during the period from March to August 2019. About 1 200 applications involving about 5 000 lifts were received. In view of the enthusiastic response to the first round of application, the Government announced in the 2019 Policy Address the injection of an additional HK\$2 billion to expand the LIMSS, which will subsidise modernisation works for about 3 000 additional aged lifts. The second round of LIMSS application began in January 2020.

In the course of implementing the LIMSS, apart from resolving technical issues, our dedicated section also needs to tackle other challenges brought by the modernisation works. For example, when lifts are out of service during modernisation works, residents will inevitably face inconvenience, especially in buildings with only one lift or those with lifts serving alternate floors. The section and the URA team have therefore taken the initiative to work with community service groups to explore ways to provide outreach community services such as delivering meals and purchasing daily necessities on behalf of needy residents, as well as providing mobile staircase climbing services, to minimise the inconvenience caused to those affected.

In addition, to cope with the workforce demand arising from the modernisation works, we collaborate with the Construction Industry Council (CIC) to incorporate the lift trade into its Intermediate Tradesman Collaborative Training Scheme. Training subsidies will be offered to new workers joining the lift trade and their employers. We expect the training programme will attract fresh blood to the lift trade.

保障公眾安全 Protecting Public Safety

培育人才 促進業界健康發展

機電署一直致力與職業訓練局(職訓局)及業界合作，積極培育升降機及自動梯人才。年內，職訓局的職專課程(升降機及自動梯)連續第四年取錄逾250人。我們也非常重視培育技術人才，希望為加入升降機行業的年輕人締造良好的事業前景。為解決註冊升降機工程人員晉升機會有限的問題，我們與職訓局及業界於2019年11月成立工作小組，籌辦一個名為「電梯大師」的嶄新培訓課程。這個以技能為本的職業專業文憑課程將透過課堂授課及在職培訓，培育資深和專業的升降機技術人員成為「電梯大師」。該資歷將達到資歷架構第五級，即相等於學士資格，充分彰顯完成課程技術人員的專業水平。課程可望於2021年年底推出，藉此提供晉升階梯，為行業培育更多資深人才。

我們亦非常注重提高同事的專業水平和擴闊他們的國際視野。年內，機電署同事除遠赴世界各地了解升降機及自動梯行業的最新發展外，更到訪深圳特種設備檢測研究院，接受有關升降機、自動梯及機械化泊車系統的培訓，深入了解相關技術和檢測工作。我們期望未來會作出更多類似的培訓安排。



我們致力拓闊員工的視野，例如安排部分同事前往深圳特種設備檢測研究院，接受有關升降機、自動梯及機械化泊車系統的培訓，深入了解相關技術和檢測工作。

As part of the efforts to broaden the horizons of our staff, we arranged for some colleagues to attend training at the Shenzhen Institute of Special Equipment and Test to gain insights into the technology and inspection work of lifts, escalators and mechanised vehicle parking systems.

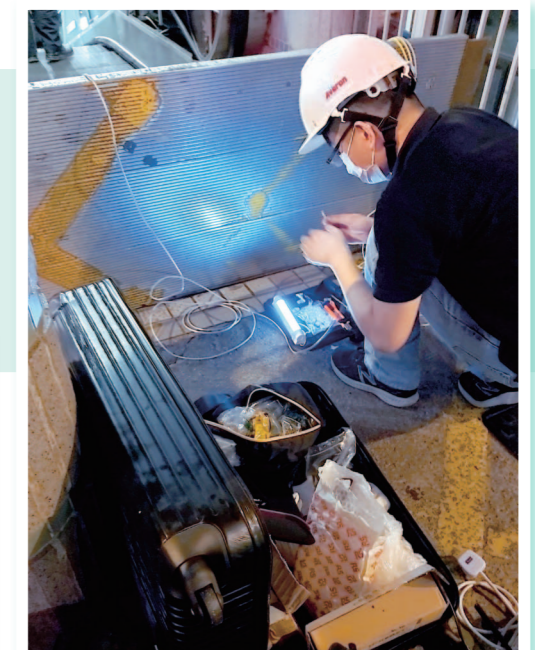
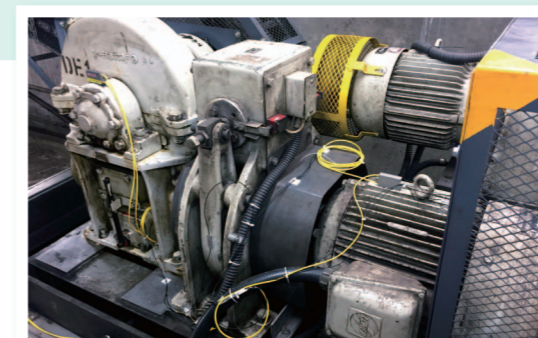
Grooming Talent to Facilitate Healthy Development of Trade

The EMSD has been making ongoing efforts with the Vocational Training Council (VTC) and the trade to groom and develop lift and escalator skilled workers. During the year, the annual intake of the vocational and professional education and training (VPET) programme (lift/escalator) of the VTC exceeded 250 for the fourth year in a row. We also take priority in grooming skilled works while developing good career paths for young people joining the lift trade. To address the problem of limited prospects of career advancement faced by registered lift workers, we formed a working group with the VTC and the trade in November 2019 to organise a new training course called "Lift Master". This skill-based VPET diploma programme will integrate classroom learning and on-the-job training to develop experienced professional lift technicians to become "Lift Masters". The programme, which is expected to be launched in late 2021, will be graded at Level 5 of the Qualifications Framework, equivalent to a bachelor's degree, reflecting the professional standards of participants who have completed the programme. The initiative is expected to put in place a promotion ladder to help nurture seasoned practitioners for the trade.

It is also essential to elevate the professional standards and expand the horizons of our staff. During the year, EMSD staff were sent on overseas study visits to find out more about the latest development of the lift and escalator industry. We also arranged for our colleagues to attend training at the Shenzhen Institute of Special Equipment Inspection and Test to gain insights into the technology and inspection work of lifts, escalators and mechanised car parking systems. We expect to arrange more of such training in the future.

工作人員正檢查光纖光柵傳感技術感應器用於自動梯的測試情況，以進行自動梯實時監測及預防性維修。當系統發現異常情況，即會發出預警，提醒負責人安排進行預防性維修，避免故障和事故發生。

Workers checking the Optical Fibre Bragg Grating Sensing Technology sensors being trialled on an escalator for real-time monitoring and preventive maintenance. When the system detects irregularities, it will issue alerts to the responsible person to arrange for preventive maintenance so as to avoid malfunction and incidents.



運用創科 提高升降機及自動梯檢測效率

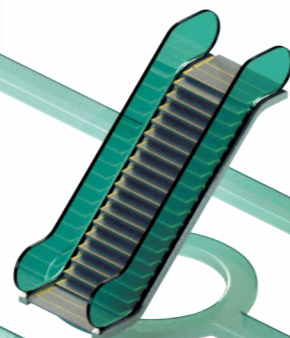
機電署與一家由本地大學開設的初創公司合作，共同研發利用光纖光柵傳感技術，實時監測升降機及自動梯運作的安全及穩定性，雙方已於2019年年底就方案申請本地短期專利。概念認證顯示，有關技術應用在提升自動梯安全水平方面的成效較為顯著。研發項目在年內繼續獲得政府「科技統籌(整體撥款)」資助，除在四個不同場地的八部自動梯進行系統應用測試外，更進一步開發手機應用程式，透過雲端技術收集大數據來進行機器學習與分析，利用人工智能就運作中自動梯的異常情況自動發出預警，提醒負責人安排註冊承辦商進行預防性維修，避免故障和意外發生。

近年，我們也與職訓局和電梯業協會攜手推出升降機虛擬實境安全培訓工具，運用虛擬實境技術讓學員仿如親歷其境，體驗升降機維修保養工作的安全程序和工作竅門。虛擬實境安全培訓工具首兩期開發工作已告完成，年內我們已把合共五個培訓場景模組，免費提供予升降機承辦商進行內部培訓，而第三期開發工作亦正全速進行。

Leveraging Technology to Enhance Lift and Escalator Monitoring

The Optical Fibre Bragg Grating Sensing Technology jointly developed by the EMSD and a start-up formed by a local university has proved effective for real-time monitoring of the safety and stability of lifts and escalators in operation. In late 2019, we applied for a short-term patent in collaboration with the start-up. The proof of concept of the technology has demonstrated its noticeable effectiveness in enhancing escalator safety. The project received funding again under the TechConnect (Block Vote) in 2019/20. With the funding, eight escalators at four venues were installed with the optical fibre sensors for testing, and a mobile application was developed to integrate cloud technology, big data analytics, machine learning and artificial intelligence to develop a predictive fault alarm system. When the system detects irregularity in an operating escalator, it will issue reminders to the responsible person to arrange preventive maintenance by registered contractors in order to avoid malfunctioning and accidents.

In recent years, we have also been collaborating with the VTC and the Lift and Escalator Contractors Association to develop Virtual Reality (VR) training tools for trainees to learn about and experience lift maintenance activities and safety procedures in a highly realistic virtual environment, and understand the key to such work. Development of the first two phases of the VR training tools has been completed. During the year, we provided five training modules for free for lift contractors to conduct internal training. The third phase of the VR development work is now going full steam ahead.



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機動遊戲機審批工作

2019年12月中至2020年2月中，「歐陸嘉年華」第六度在中環海濱舉行，機電署一如以往在有高度時間和場地限制的情況下，為活動中的33個機動遊戲機和兩個兒童遊樂設施進行審批工作。主辦單位擁有多年籌辦經驗，已提早半年開始整理和遞交文件，我們亦充分配合審閱設計、場地規劃等工作，並及早就設計提出建議及審批要求，雙方合作關係良好。由於前期工作準備充足，在現場進行的測試、檢測和向遊戲機及合資格人員簽發許可證等工作，得以在兩周內迅速完成。雖然嘉年華在活動後期受到疫情影響，但整體運作非常暢順，並按原定計劃進行。

另外，海洋公園在年內推出全新的機動遊戲機「狂野龍捲風」，取代運作多年的「翻天飛鷹」，遊戲機的設計審批、安裝、測試、檢測和許可證簽發等工作已相繼完成，新設施亦已於2019年12月投入服務。在香港迪士尼樂園方面，年內我們與園方及其他政府部門進行緊密聯繫並舉行工作會議，以配合樂園由2018至2023年的重大發展項目。當中「魔雪奇緣」園區內兩台嶄新機動遊戲機的審批工作，也進行得如火如荼。

我們的團隊為海洋公園的全新機動遊戲機「狂野龍捲風」進行檢測。該機動遊戲機於滿足所有安全要求，並取得使用及操作許可證之後，已於2019年12月向公眾開放。

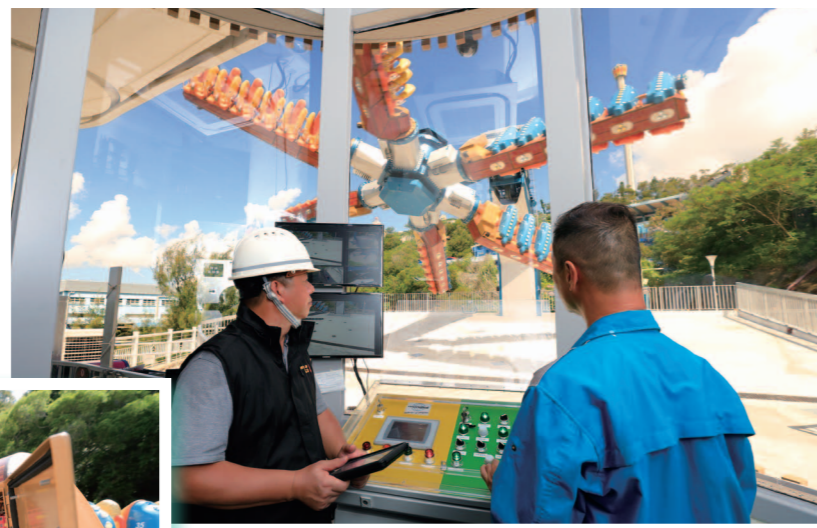
Our team inspecting the new amusement ride "Wild Twister" at Ocean Park, which was opened to the public in December 2019 after satisfying all safety requirements and obtaining the permit to use and operate.



Vetting and Approval of Amusement Rides

The Great European Carnival was held for the sixth consecutive year between mid-December 2019 and mid-February 2020 at the Central Harbourfront. The EMSD vetted and approved 33 amusement rides and two kiddie rides under the highly limited time and venue constraints as in the past event. With years of experience in organising the event, the operator kick-started its preparatory work and collated documents six months in advance. We worked simultaneously with the operator and reviewed the design and site planning, raised recommendations and approval requirements at the earliest possible time. With the good working relationship and preparatory work, all the work including on-site testing, inspection as well as issuance of permits to use and operate for amusement rides and certificates for the competent persons was efficiently completed within two weeks. Though affected by the COVID-19 outbreak at the later stage, the carnival was staged and operated smoothly as scheduled.

Ocean Park launched a new amusement ride "Wild Twister" to replace the long-established "Eagle" after fulfilling the requirements on its design, installation, testing, inspection and obtaining the permit to use and operate. The new ride was opened for public use in December 2019. For Hong Kong Disneyland, we maintained close liaison with the theme park and other government departments during the year and conducted working meetings with them on the major expansion project spanning from 2018 to 2023. The vetting of two new amusement rides in the new attraction area themed "Frozen" are underway.



維修保養人員正根據2019年2月生效的新修訂版《升降機工程及自動梯工程實務守則》引進的新要求，進行「特別保養」。這項新要求有助大幅減少升降機事故。

Maintenance personnel conducting "special maintenance", a new requirement introduced by the revised edition of the Code of Practice for Lift Works and Escalator Works that took effect in February 2019. The new requirement has helped reduce lift incidents substantially.

疫情下昂坪360順利年檢

架空纜車須每12個月由檢測員進行最少一次檢查，而昂坪360的年檢必須在2020年5月21日或以前完成。受到全球爆發2019冠狀病毒病影響，所有海外檢測員均受出入境限制而不能來港為昂坪360進行年檢，加上本港並沒有已註冊的檢測員，令該設施一度面臨暫停運作。為解決這問題，我們與纜車公司緊密溝通，迅速開始物色具備相關知識的人士，經短數周時間，我們在2020年4月得到海外纜車專家推薦一名身處香港的意大利籍合資格人士，並為該名合資格人士申請成為檢測員一事進行面試和筆試。該名人士順利通過考核成為檢測員，並在我們的專業規管團隊全程監督下，於5月20日（即年檢限期前一天）完成年檢和確認設施狀況令人滿意，使昂坪360得以在5月27日順利重開予公眾使用。

自2019冠狀病毒病於2020年1月在香港爆發後，機電署馬上採取相應措施，包括提醒各升降機和自動梯承辦商啟動緊急應變計劃，並敦促各承辦商檢視人手情況和零部件供應，確保本港升降機和自動梯的正常服務不受影響。在2019年的社會動盪中，我們也主動與多個註冊升降機及自動梯承辦商聯絡，以掌握每天遭損毀升降機及自動梯的數目，並監察和協調各承辦商的搶修工程，務求盡快為市民恢復正常的升降機及自動梯服務。

Annual Examination of Ngong Ping 360 Completed amid COVID-19

Aerial ropeways are required to undergo at least one examination by a ropeway surveyor every 12 months. The annual examination for Ngong Ping 360 was required to be completed before 21 May 2020. Due to immigration control during the COVID-19 pandemic, overseas surveyors could not travel to Hong Kong to carry out the annual examination. As there was no licensed surveyor available locally at the time, the facility faced suspension. To resolve the issue, we liaised with the operator and quickly identified a candidate with the relevant knowledge. By April 2020, after a few weeks of search, an Italian national present in Hong Kong was recommended by an overseas expert. Written tests and interviews were promptly arranged for his application to become a licensed surveyor. After he was issued with the licence, the annual examination for Ngong Ping 360 was completed with satisfactory results on 20 May, a day before the deadline, under the close supervision of our professional regulatory team. Ngong Ping 360 was re-opened smoothly to the public on 27 May.

Ever since the COVID-19 outbreak began in Hong Kong in January 2020, the EMSD has set various measures in motion, such as reminding all lift and escalator contractors to initiate their contingency plans and urging all contractors to review their manpower and spare part provisions to ensure that lifts and escalators operate as normal. During the social unrest in 2019, we also took the initiative to contact lift and escalator contractors to gauge the number of damaged lifts and escalators on a daily basis, as well as monitoring and co-ordinating emergency repairs by contractors, with the aim of resuming normal lift and escalator services for the public in a timely manner.

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機電近期出版的《有關裝設機械化泊車系統的指引》，詳述在香港引入這類泊車系統的程序。

The Guideline for Implementing Mechanized Vehicle Parking Systems recently published by the EMSD sets out the procedures for bringing in such systems to Hong Kong.



草擬機械化泊車系統指引

香港的泊車位供應一向緊張，市場對採用創新機械化泊車系統的需求日增。為配合此發展趨勢，機電署年內完成了《有關裝設機械化泊車系統的指引》（《指引》）的草擬工作，當中詳述申請引入此類系統的程序、須考慮的因素等，讓業界及業主有所依循。我們亦鼓勵系統供應商申請成為註冊升降機承辦商，在提供一站式服務予業主之餘，亦可提升機械化泊車系統的安全水平。《指引》的籌備工作年內已告完成，並將於2020年6月正式出版。

來年亮點

來年，我們的工作會繼續配合推動「智慧政府」措施。政府將為所有香港居民免費提供「智方便」戶口，讓居民能以數碼身分和認證，跟政府和商業機構進行網上交易。我們亦會由2020年年中起，接納以「智方便」戶口在網上辦理有關升降機及自動梯、建築工地升降機及機動遊戲機的申請，以期提升業界的營運效率，利便市民。

此外，為確保建築工地升降機及塔式工作台的業界有足夠人手，我們與建造業議會緊密合作，將於2020/21年度推出全新培訓課程，培養更多技術人員，並鼓勵更多業界人士成為《建築工地升降機及塔式工作台（安全）條例》所訂明的合資格人員。

在優化升降機資助計劃方面，我們會繼續提供技術支援，確保投標過程公正透明。由發展局、市建局和機電署代表組成的督導委員會，將監察已開展的優化工程項目進度。我們會全力投入這方面的工作。

Drafting Guidelines for Mechanised Vehicle Parking Systems

As parking spaces are in short supply in Hong Kong, the market demand for innovative mechanised vehicle parking systems (MVPSS) has been on the rise. In line with this trend, the EMSD drafted a "Guideline for Implementing Mechanized Vehicle Parking Systems" during the year. The guideline details the procedures for bringing in such systems and the factors to consider, for reference by the trade and property owners. We also encourage system suppliers to apply to become registered lift contactors so that they can provide one-stop services for property owners and enhance the safety level of MVPSS. Preparatory work for the guideline was completed during the year and the document was issued in June 2020.

Highlights of Next Year

In the year ahead, our work will continue to tie in with the implementation of the "Smart Government" initiative. As the Government will provide an "iAM Smart" account for all Hong Kong residents free of charge, enabling them to use a single digital identity and authentication to conduct government and commercial transactions online, we will adopt "iAM Smart" on various application systems starting from mid-2020. Applications from "iAM Smart" accounts will be accepted for online submissions related to lifts and escalators, the builders' lifts and amusement rides with a view to enhancing the operational efficiency of the trade and bringing convenience to the public.

To ensure the provision of sufficient manpower for the builder's lift and tower working platform trade, the EMSD will work in conjunction with the CIC to roll out new dedicated training courses in 2020/21. The courses aim to train up more technicians and encourage trade practitioners to become competent workers under the Builders' Lifts and Tower Working Platforms (Safety) Ordinance.

For the LIMSS, we will continue to provide technical support to ensure that the tender process is fair and transparent. A steering committee comprising representatives from the URA, DEVB and EMSD will monitor the progress of all LIMSS projects, and we will dedicate our best efforts to the work.

優質升降機服務認可計劃在過去幾年試行和改良後，已於2020年4月正式推出。計劃旨在鼓勵市民優化升降機，提升升降機的維修及安全水平。合資格申請者（包括業主、業主立案法團及物業管理公司等）可申請評核其升降機服務，從而獲得認可。我們期望透過嘉許優化升降機的持份者，加快優化升降機的進程。

在對外合作方面，除了持續深化與中國內地培訓機構的合作外，我們將於2022/23年度首度擔當國際纜車監管機構會議的主辦單位，希望藉此加強香港與國際纜車規管機構的聯繫。與此同時，山頂纜車系統現正進行升級工程設計，有關興建新纜車系統連接昂坪至大澳的議案亦已確定在技術上是可行的。這些新系統的規管工作都可借鑑國際技術專家及規管機構的寶貴經驗。來年，我們會積極展開年會的籌備工作。

The Quality Lift Service Recognition Scheme was introduced in April 2020 after piloting and fine-tuning over the past few years. The scheme aims to encourage the public to modernise aged lifts and enhance lift maintenance and safety. Eligible applicants including owners, owners' corporations and property management companies can apply to have their lift services assessed in order to gain recognition under the scheme. We expect to expedite the lift modernisation process by giving recognition to stakeholders who make an effort to modernise their lifts.

In terms of external collaboration, apart from deepening collaboration with the Mainland of China training institutions, we will also host the International Meeting of Technical Authorities for Cableways (ITTAB) in Hong Kong for the first time in 2022/23. Through this event, we hope to strengthen our ties with international regulators of aerial ropeway and funicular systems. As our Peak Tram system is undergoing a major revamp, and the proposal to connect Ngong Ping with Tai O by a new cableway was found technically feasible, it will be useful to take this opportunity to learn from other international experts and regulatory bodies for control over the new systems. Preparatory work for the ITTAB annual meeting will begin in the year ahead.



《升降機及自動梯設計及構造實務守則》最新修訂版，方便國際升降機及自動梯製造商了解香港的法規，有助香港引入更多元化的升降機及自動梯。

The newly revised edition of the Code of Practice on the Design and Construction of Lifts and Escalators makes it easier for international lift/escalator manufacturers to understand Hong Kong's regulations and help bring in a wider selection of lifts and escalators.

保障公眾安全 Protecting Public Safety



臨時調任 協助社區優化升降機 On Secondment to Help with Lift Modernisation in Community

一般法例部工程師張嘉裕先生由2018年8月起調派往市區重建局，支援落實政府的「優化升降機資助計劃」執行工作。以下是他這特殊任務的體驗。

Mr Cheung Ka-yu, Gary, Engineer of the General Legislation Division, has been seconded to the Urban Renewal Authority since August 2018 to support the implementation of the Government's Lift Modernisation Subsidy Scheme. This is an account of his unusual assignment.

為提升升降機的安全和進一步保障公眾安全，政府推出優化升降機資助計劃，向有需要的樓宇業主提供經濟誘因和適切的專業支援，協助他們進行升降機優化工程。政府夥拍市區重建局（市建局）推行此計劃，並交由市建局擔任計劃的管理機構。

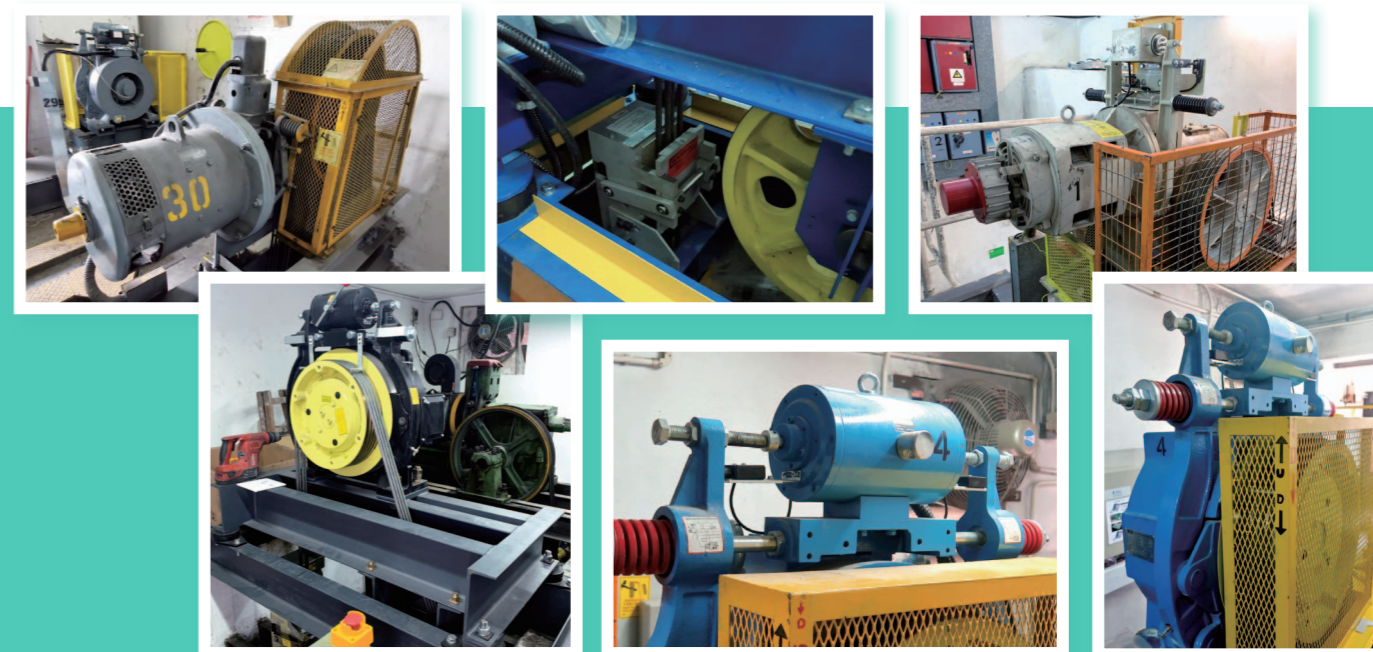
市建局在推行舊樓復修資助計劃方面具有相當經驗，而機電署則擁有升降機工程的專業知識和熟悉升降機行業的運作，因此，本署調派專業隊伍到市建局，為該計劃提供全面的專業技術支援，期望能夠通過雙方的合作為資助計劃擬訂一套以人為本、公平和顧及業界承受力的執行細節。由2018年8月起，一般法例部機電工程師張嘉裕先生與一名高級機電工程師一起借調至市建局，與市建局的團隊共同協作，擬訂資助計劃的細節，並落實推行計劃。嘉裕表示：「起初計劃只有大致的框架，我們的首要工作是盡快敲定細節，包括訂定資助範圍、優次條件、申請詳情等，務求在2019年第一季接受首輪申請。」在團隊的無間合作下，資助計劃首輪申請如期推出。

資助計劃共分兩輪申請，首輪共收到約1 200份申請，涉及約5 000部升降機，申請數目接近資助計劃原先所訂定的目標，反應十分踴躍。嘉裕表示：「過往部分業主在推行升降機優化工程時，或會因財政考慮、技術知識和組織能力不足等問題而卻步，而推出資助計劃正有助他們加快其優化升降機的進度。」

To enhance lift safety and further protect public safety, the Government has launched the Lift Modernisation Subsidy Scheme (LIMSS) to provide financial incentives and appropriate professional support for building owners in need to modernise their aged lifts. The LIMSS has been implemented in partnership with the Urban Renewal Authority (URA), which serves as the scheme's administrator.

While the URA has considerable experience in implementing subsidy schemes for the rehabilitation of old buildings, the EMSD has the expertise of lift works as well as a sound understanding of the lift industry. Therefore, the EMSD deployed a professional team to the URA to provide technical support for the LIMSS. The partnership aims to ensure that the scheme is people-oriented and fairly conducted, taking into consideration the capacity of the lift industry. Mr Cheung Ka-yu, Gary, an Electrical and Mechanical Engineer of the General Legislation Division, together with a Senior Electrical and Mechanical Engineer, has been seconded to the URA since August 2018 to help with the drawing up of the details of the LIMSS and its implementation. Gary said, "Initially, the scheme had only a framework. Our first and foremost task was to finalise the details, including the scope of subsidy, setting of priorities, application details, etc., with a view to receiving the first round of applications in the first quarter of 2019." With the concerted efforts of the team, the first round of applications was launched as scheduled.

Two rounds of applications were arranged, with overwhelming responses. About 1 200 applications involving about 5 000 lifts were received in the first round, which was close to the original target of the LIMSS. "In the past, owners might hesitate to upgrade their lifts due to financial considerations and a lack of technical knowledge and organisational capacity when implementing lift modernisation works. The introduction of the LIMSS can help them expedite the progress of lift modernisation," Gary said.



除了擬訂資助計劃的細節外，嘉裕也運用其升降機的專業知識，協助市建局聘請常駐顧問和擬備優化升降機工程的標準招標文件，確保在資助計劃下每項優化升降機工程均能達至相關的技術和安全標準。嘉裕補充：「為使資助計劃能順利推展和一步到位地協助參加樓宇，在訂定標準招標文件的技術細節時，要考慮多方面的因素，例如優化工程完成後的保養安排等。」另外，推行資助計劃要應付的不僅是工程技術的問題，對於只有一部升降機或各樓層只有一部升降機直達的大廈來說，歷時數月的優化工程期間沒有升降機服務，難免會影響住戶（尤其是長者）的日常生活，該如何減低優化工程對其造成的不便，確是一大挑戰。嘉裕說：「通過我們與發展局和市建局溝通和研究，資助計劃會加強這方面的支援，當中包括為有需要人士送遞膳食、代購日常生活用品，以及提供樓梯機服務。」

挑戰總是會有的，第二輪申請在2020年1月展開後，剛巧遇上2019冠狀病毒病疫情，很多業主立案法團因而無法舉行業主大會商議申請參加計劃的事宜。嘉裕表示：「有時真的要見招拆招，鑑於樓宇業主或受疫情影響而難以會面以通過申請參加計劃，我們與發展局和市建局討論後，決定優化申請程序，給予彈性讓樓宇業主以『先交表，後補文件』的方式參加計劃，並延長申請期限，讓樓宇業主有更充足時間準備申請事宜。」

由概念框架到落實執行，機電署發揮了專業的角色，與市建局互相協作，成功地推展了優化升降機資助計劃。該計劃不但能協助有需要的樓宇加快優化舊式升降機的進度，亦有助市民加深認識升降機安全及維修保養的重要性。嘉裕認為能夠成為此計劃專業隊伍的一員，為提升舊式升降機的安全出一分力，甚具意義。

Apart from working out the details of the LIMSS, Gary also applied his professional knowledge about lifts to help the URA recruit a resident consultant and prepare standard tender documents for lift modernisation works to ensure that every project would meet the relevant technical and safety standards. "To ensure smooth implementation and one-stop support for participating building owners, we took into consideration multiple factors when working out the technical details of the tender documents, including maintenance arrangements upon completion of modernisation works," Gary added. Technical issues aside, the team also had to take on the challenges of how to minimise the inconvenience inevitably caused to residents, especially the elderly, in buildings with only one lift or lifts serving alternate floors, when their lifts were out of service for several months. "After discussions and joint studies with the Development Bureau (DEVB) and the URA, it was decided that the LIMSS would provide support services in this aspect, including delivery of meals, purchasing daily necessities on residents' behalf, and provision of mechanised stair climbing devices," Gary said.

Challenges continued to emerge. The second round of applications was launched in January 2020 during the COVID-19 outbreak. In the light of the epidemic, many owners' corporations were unable to hold general meetings to discuss if they should join the LIMSS. "We have to be prepared to resolve problems come what may. As building owners could not meet to pass resolutions about applying for the LIMSS, we have, after discussions with the DEVB and the URA, decided to streamline the application process and allow flexibility for building owners to join the scheme by "submitting application forms first and providing supporting documents later". We have also extended the application deadline to give owners more time to prepare their applications," Gary said.

From conceptual framework to implementation, the EMSD has applied its professional expertise to successfully implement the LIMSS in collaboration with the URA. The scheme not only helps buildings in need to expedite modernisation of their aged lifts, but also raises public awareness of the importance of lift maintenance and safety. Gary believes that it is meaningful to be part of the professional team of the scheme to help enhance the safety of aged lifts.

保障公眾安全 Protecting Public Safety

急市民所急 加快工廈升降機優化工程維修審批成好人好事 Expediting Lift Modernisation Works Approval for Users' Convenience

機械督察馮少恒先生和他的團隊，協助柴灣一幢工廈加快其僅有的兩部升降機的復用證審批，大大減少因升降機暫停而對商戶造成的不便。

Mechanical inspector Mr Fung Siu-hang and his team helped expedite the approval of resumption permits for the only two lifts in a factory building in Chai Wan, making life much easier for its tenants.

巡查、搜證、執法，看似硬繃繃的規管任務，對一般法例部的同事來說，卻從來不是鐵板一塊。就如柴灣合時工廠大廈同時為兩部升降機加裝安全裝置，令到整幢大廈的升降機服務暫停，對商戶造成的不便不言而喻。一般法例部的同事於得悉事件後即義無反顧地全力跟進，憑着各級人員靈活配合，團隊將一般需時十數日的復用證審批時間壓縮至兩日內完成。事件被評選為2019/20年度的機電署「好人好事嘉許計劃」入圍案例，反映規管工作亦能饒有人情味。

有份參與其中的機械督察馮少恒憶述，該工廈的舊式升降機已沿用多年，缺乏符合最新安全標準的裝置，機電署於早前去信業主立案法團，建議為升降機加裝防止機廂不正常移動的保護裝置。未料及工廈會同時為兩部升降機進行優化工程，使商戶需要在後樓梯搭建臨時木板斜道，費勁地以人手搬運貨物上落。

「大廈管理處因此接觸我們，請求我們幫忙加快審批程序。我們最初不明為何如此緊急，於是到現場視察，發現商戶的確處於水深火熱的境地。我們秉承惠民的精神，應允在對方做足申請要求後，會儘快審批復用證。」

在收到申請後，團隊翌日即靈活調派兩組督察到場，同一時間審視承辦商在現場為兩部升降機進行測試。儘管團隊希望儘快處理申請，但對安全的監管卻絕不會鬆懈，例如承辦商未按規定為升降機進行負重測試，團隊隨即要求即日下午補做，以確保升降機在超載情況下的安全。

「整個程序牽涉三個職系的同事：督察級同事須現場監察測試，工程師核實檢測資料，而文書職系同事準備文件，以讓總工程師批核及簽發復用證。我們互相靈活配合，終於在當晚順利完成批核。」這種「急市民所急」的態度獲多方肯定，除了入圍「好人好事嘉許計劃」外，他們亦獲工廈致函感謝。

Inspection, investigation, enforcement... regulatory tasks sound rigid, but the team at General Legislation Division (GLD) is accommodating. For example, when Hop Shi Factory Building in Chai Wan decided to simultaneously modernise the only two lifts serving the building, which caused unspeakable inconvenience to the tenants in the building, the GLD team pulled out all the stops to expedite the approval process for issuing a resumption permit. What would normally take more than 10 days was done within two days. Their work was shortlisted in EMSD's 2019/20 "Good People, Good Deeds Commendation Scheme" campaign, and shows that regulators are empathetic.

Mechanical inspector Mr Fung Siu-hang was part of the team handling this case. He recalled that the EMSD issued a notice to the Owners' Corporation of the building to advise adding an unintended car movement protector to its aged lifts that had been in use for many years and missing the safety installations compliant with the latest safety standards. The building however had both lifts out of service at the same time for the lift modernisation works. Its tenants were forced to put up makeshift planks on staircases to strenuously move goods up and down.

"The building's management called us to ask for speeding up the approval process. We wondered why the urgency, so we made a site inspection, and found that the tenants were indeed in a dire situation. In the spirit of serving the public, we agreed to facilitate the approval process after they fulfilled all application requirements," Siu-hang said.

As promised, the team dispatched two teams of inspectors to simultaneously monitor the testing of the two lifts by the contractors after receiving the building's application. Enforcement standards were not compromised for speed, though. As the loading test was missing, the team asked the contractors to get it done that afternoon to make sure the lifts were safe even if overloaded.

"The whole process involved three groups of colleagues: inspectors monitored onsite testing, engineers verified test results and administrative colleagues prepared documents for the chief engineer to sign off on the resumption permit. We worked together flexibly to complete the entire process that night." The helpful initiative has been commended, not only as a model case of "Good People, Good Deeds Commendation Scheme" but also by the factory building's owner, who sent a note to the team to express gratitude.

鐵路安全

屯馬綫一期順利開通

年內的亮點之一，是屯馬綫一期順利開通。為使新綫能安全開通，鐵路科與相關的政府部門和香港鐵路有限公司(港鐵公司)保持緊密合作，進行實地檢測和審批涉及安全的各種系統，確保鐵路系統和設施(例如列車、信號及通訊系統、軌道、架空電纜系統等)的建造和操作符合有關國際安全標準和要求。鐵路科亦審視港鐵公司制訂的緊急事故應變程序，並監察港鐵公司的模擬緊急事故演練，包括與各政府部門的聯合演習，以檢查各項應變計劃的成效。在聯絡相關政府部門，並確定他們對屯馬綫一期的安全和服務水平等方面表示滿意後，鐵路科確認新綫各鐵路系統均達致「安全良好」狀態。屯馬綫一期於2020年2月14日正式開通，連接啟德站、鑽石山站、顯徑站及大圍站。通車後由大圍站到鑽石山站的車程由17分鐘縮短至9分鐘，為市民提供安全高效的鐵路服務。

屯馬綫全綫預計於2021年第三季開通。機電署聯同屋宇署、消防處、路政署、香港警務處和運輸署等部門現正全力進行實地檢測及審批工作，為如期通車作好準備。

RAILWAY SAFETY

Smooth Commissioning of Tuen Ma Line Phase 1

A major highlight of the year was the commissioning of the Tuen Ma Line (TML) Phase 1. To ensure safe commissioning of the new railway line, the Railways Branch (RB) worked closely with relevant government departments and the MTR Corporation Limited (MTRCL) for on-site testing, vetting and approval of safety-related systems, ensuring that the railway systems and facilities such as rolling stock, signalling and communication systems, trackwork, overhead line systems, etc., were constructed and operated in accordance with the relevant international safety standards and requirements. The RB also reviewed the MTRCL's emergency handling procedures and monitored its drills and exercises, including the joint emergency drills with government departments, with a view to examining the effectiveness of the relevant contingency plans. After liaising with relevant government departments and obtaining their acceptance on the safety and service level of the TML Phase 1, the RB confirmed that various railway systems of the new line were in a "safe and sound" condition. The TML Phase 1 was officially commissioned on 14 February 2020, connecting Kai Tak Station, Diamond Hill Station, Hin Keng Station and Tai Wai Station. The new line has shortened the journey between Tai Wai Station and Diamond Hill Station from 17 minutes to nine minutes, providing safe and efficient service to the public.

The entire TML is expected to be commissioned by the third quarter of 2021. To prepare for the scheduled commissioning, the EMSD, together with the Buildings Department, the Fire Services Department, the Highways Department, the Hong Kong Police Force and the Transport Department, are now going full steam ahead with the on-site testing, vetting and approval work.



全新的顯徑站車站大堂。顯徑站是屯馬綫一期的車站之一，新綫已於2020年2月14日開通。

Concourse of the brand-new Hin Keng Station, one of the stations of the TML Phase 1 opened on 14 February 2020.



顯徑站於2020年2月14日啟用，乘客眾多。

Lots of Passengers at Hin Keng Station on 14 February 2020, its first day of operation.

保障公眾安全 Protecting Public Safety

列車車底已加裝了路軌監察攝錄機。紅磡站發生列車出軌事故後，我們已要求港鐵進行多項改善措施，這是其中之一。

Gauge tracking cameras have been installed underneath train carriages. This is one of the remedial actions that the MTRCL was required to implement after the derailment incident of Hung Hom Station.



要求港鐵落實改善措施以提升鐵路安全

2019年，鐵路事故共有1 327宗，其中121宗為設備故障及員工行為所致，比2018年的數目為多。2018年的鐵路事故有1 143宗，其中95宗為設備故障及員工行為所致。2019年發生兩宗重大鐵路事故，分別為3月18日非載客行車時段有兩列港鐵列車在荃灣綫中環站進行新信號系統測試時發生碰撞，以及9月17日東鐵綫列車在進入紅磡站前出軌。兩宗事故反映我們必須盡快深入檢視港鐵公司的安全管理系統、維修保養管理系統及安全文化，找出安全隱患，以作修正和改善。

在完成紅磡站列車出軌事故調查後，機電署向運輸及房屋局局長報告調查結果。其後，運輸及房屋局局長引用《香港鐵路條例》(第556章)第28條賦予的權力，向港鐵公司發出通知，要求改善軌道維修保養管理，並在列車加裝實時監察設備以加強軌道監測，避免同類事故重演。這是政府首次援引該條例第28條要求港鐵公司採取具體改善措施，明確反映了我們改善鐵路安全的決心。

增加人手編制深化鐵路安全審核

年內鐵路科另一重要發展，是增加人手編制，開設兩個總工程師及其他職位，以聯同原來的團隊合力加強鐵路安全規管工作。鐵路科團隊現時的工作範圍，包括監察已投入服務的鐵路綫的安全事宜、評估正在規劃和興建中的新鐵路綫，以及對港鐵公司的資產管理系統和安全管理系統進行全面審核。鑑於近年港鐵公司的部分鐵路設施，包括信號系統、冷氣系統及閉路電視系統陸續進入更換周期，我們在過去幾年已相繼展開對這些系統更換工程的審核和規管工作，以策安全；加上2019年港鐵發生多宗嚴重鐵路事故，以及長遠來說鐵路科亦會協助落實《鐵路發展策略2014》所載的新鐵路綫發展，增加人手編制將有助實踐這些目標。

Requesting MTRCL to Implement Improvement Measures to Enhance Railway Safety

There were in total 1 327 railway incidents in 2019, of which 121 were due to equipment failure and staff behaviour. The numbers were higher than those in the previous year. A total of 1 143 railway incidents took place in 2018, of which 95 were due to equipment failure and staff behaviour. There were two major incidents in 2019. On 18 March, two MTR trains collided at Central Station of the Tsuen Wan Line during a new signalling system testing in non-traffic hours. On 17 September, an East Rail Line train derailed while entering Hung Hom Station. Both incidents underscored the urgency to thoroughly examine the MTRCL's safety management system, maintenance management system and safety culture, so as to identify potential safety risks for rectification and improvement.

Upon completion of the investigation into the Hung Hom Station derailment incident, the EMSD reported its findings to the Secretary for Transport and Housing (STH). The STH subsequently exercised the power under section 28 of the Mass Transit Railway Ordinance (Cap. 556) to issue a notice to the MTRCL, requesting the Corporation to improve management on track maintenance and install real-time monitoring system on passenger trains to enhance track monitoring to prevent recurrence of similar incidents. It was the first time the Government invoked section 28 of the Ordinance to request the MTRCL to take specified remedial actions, underlining our resolve to improve railway safety.

Expanding Our Teams to Step Up Railway Safety Audits

Another major development during the year was the expansion of the RB's establishment with the creation of two Chief Engineer posts and other posts to strengthen the regulatory control on railway safety. The RB team's remit includes conducting safety monitoring of railway lines in operation, appraisals of new lines in planning and under construction, and comprehensive audits of the MTRCL's Asset Management System (AMS) and Safety Management System (SMS). As some of the MTRCL's railway facilities, including signalling systems, air-conditioning systems and CCTV systems, are entering their replacement age, we have already begun in recent years various audits and regulatory control of their replacement works to ensure safety. In view of the major railway incidents in 2019 and the long-term need to assist in the development of new lines under the Railway Development Strategy 2014, increasing the RB's establishment would be conducive to these objectives.

我們的督察在顯徑站月台進行檢測工作。

Our inspector conducts testing on the Hin Keng Station platform.



顯徑站外觀。顯徑站是新近開通的屯馬綫一期的車站之一。

Exterior of Hin Keng Station, one of the stations on the recently opened Tuen Ma Line Phase 1.

2019年7月起，我們已開展全面和直接審核港鐵公司的資產管理系統和安全管理系統的工作。我們的團隊會逐一審核港鐵所有鐵路運營綫的各個主要鐵路系統，重點除了確保所有資產管理系統和安全管理系統符合要求之外，更在於全面及主動地找出安全隱患，務求徹底防止發生事故。全面和直接審核以五年為一周期，是長期持續的安全審核工作。

年內我們完成了對港鐵公司部分鐵路運營綫的資產管理系統和安全管理系統的全面和直接審核。例如在2019年第三季至2020年第三季期間，我們已就機場快綫、東涌綫及迪士尼綫的軌道系統及信號系統、東鐵綫的電力供應系統及軌道系統、荃灣綫的軌道系統及信號系統的資產管理系統，以及東涌綫、東鐵綫及觀塘綫的安全管理系統完成審核。港鐵公司大致接納審核報告的結果及改善建議。

以往的鐵路安全審核工作，多着眼於個別事故的調查和改善，近年我們則着重從整體系統入手，務求找出系統性的安全隱患，審查的範圍也更深更廣。專責團隊在完成每次的全面和直接審核之後，都會就審核結果向港鐵公司管理層提供改善建議，並確保管理層採取適當行動促使公司各層員工切實消除可能引致事故的安全隱患。

We have embarked on a series of comprehensive and direct audits of the MTRCL's AMS and SMS since July 2019. Our teams examine each major railway system of all MTR operating railway lines, not only to ensure all AMS and SMS are compliant with the requirements, but also to find out potential safety hazards in a comprehensive and proactive way to prevent any accident. These comprehensive and direct audits will be conducted in a five-year cycle as a sustained safety monitoring measure.

During the year, we completed the comprehensive and direct audits of the MTRCL's AMS and SMS for a number of operating railway lines. For instance, from the third quarter of 2019 to the third quarter of 2020, we completed the assessment of the AMS for the permanent way systems and signalling systems of the Airport Express Line, the Tung Chung Line and the Disneyland Resort Line; the power supply system and permanent way system of the East Rail Line; and the permanent way system and signalling system of the Tsuen Wan Line. We also completed the assessment of the SMS for the Tung Chung Line, the East Rail Line and the Kwun Tong Line. The MTRCL has generally accepted our findings and improvement recommendations.

Railway safety audits used to focus on incident-based investigations and improvements. In recent years, we have taken a more holistic approach to identify systemic safety hazards, with the scope of review expanded in depth and breadth. Responsible audit teams will provide improvement recommendations to the MTRCL's management team at the end of each comprehensive and direct audit, and ensure that they have taken appropriate actions to enable the MTRCL's staff at all levels to effectively eliminate all potential safety hazards that may cause accidents.

保障公眾安全 Protecting Public Safety

2019年9月的紅磡站列車出軌事故，凸顯了港鐵公司在維修保養方面的潛在問題。我們隨即展開特別審核，就每一條鐵路運營線的主要鐵路系統的維修保養工作，包括其方法、管理及質量，進行審核和提出改善建議。

應對疫情及突發情況

為確保在2019冠狀病毒病疫情下，鐵路服務仍然安全運作，我們審核了各個受規管機構制訂的「業務延續計劃」，包括港鐵公司、山頂纜車有限公司、香港電車，以及負責營運機場旅客捷運系統的機場管理局。我們特別關注各個機構如何處理懷疑感染個案、維修零部件庫存是否足夠維持正常運作、營運操作及維修保養人手調配，以及辦公室及鐵路場所和車站等應對疫情的安排。

廣深港高速鐵路(高鐵)香港段因應抗疫需要作出特別安排。自2020年1月下旬起，高鐵香港段暫停客運服務，但每日仍然維持適量班次來往深圳福田站及香港西九龍站，接載中國內地口岸區的人員往返工作，並透過日常有限度運作，確保設備狀態及各操作和維修人員的技能保持正常水平。此外，港鐵的高鐵列車車長亦如常參與每年的進修課程，以繼續駕駛證。

為應對去年發生的公眾活動，我們審視了各港鐵站的加強安全措施，並要求各受規管機構檢視和更新應對公眾活動的緊急事故處理程序。屯馬綫一期開通前，我們已檢視港鐵公司在新車站實施的臨時保護措施，包括加強保護新車站出入口，以確保屯馬綫一期順利於2020年2月14日投入服務。我們未來會提醒業界，從設計方面加強保護各鐵路設施。

監察山頂纜車優化工程

有130多年歷史的山頂纜車自2018年起展開全面優化工程。為增加載客量和改善候車環境，山頂纜車有限公司會擴充和翻新纜車總站，引入可載210人的全新纜車，取代現行只可載120人的纜車。因應車廂改動，山頂纜車有限公司亦會更換整個纜索系統、裝置新路軌，以及鞏固路軌地基。整個優化計劃預計於2021年竣工。為配合山頂纜車的優化工程，我們一直進行相關工程的審批和監察工作，並參考國際纜車安全標準，修訂《山頂纜車設計及建造實務守則》。

The derailment incident at Hung Hom Station in September 2019 exposed the inadequacies of the MTRCL's maintenance work. We immediately conducted a special audit on the methodology, management and quality of the maintenance work of major railway systems of each railway operating line, and provided suggestions for improvement.

Responding to COVID-19 and Other Emergencies

In view of COVID-19, we reviewed the business continuity plans of our regulatees, including the MTRCL, the Peak Tramways Company Limited, Hong Kong Tramways and the Airport Authority which operates the Automated People Mover (APM) at the airport. Our main concerns were how the organisations deal with suspected infection cases, whether their maintenance parts inventories were sufficient for maintaining normal services, as well as their manpower co-ordination for operation and maintenance, and epidemic control arrangements at offices, railway venues, stations, etc.

Special operational arrangement has been made for the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong High Speed Rail (HSR) in response to COVID-19. Starting from end-January 2020, the passenger service of the HSR Hong Kong Section has been suspended. Limited trains were maintained daily between Futian Station in Shenzhen and West Kowloon Station in Hong Kong to cater for the travelling needs of staff working in the Mainland of China Port Area. Through limited daily operation, condition of equipment and skills of operation and maintenance personnel were kept up. Besides, the HSR train drivers of the MTRCL attended the annual training as usual for renewal of driver licence.

In response to the public order events occurred last year, we inspected the safety reinforcement measures at various MTR stations. We also requested our regulatees to review and update their emergency handling procedures for public order events. Before the commissioning of the TML Phase 1, we inspected the MTRCL's provisional protective measures at its new stations, including the reinforcement for protection of station entrances to ensure successful commissioning of the TML Phase 1 on 14 February 2020. In future, we will remind the trade to strengthen the protection of railways facilities at the design stage.

Monitoring of Peak Tram Upgrade Project

The Peak Tram, with over 130 years of history, has been undergoing an upgrade project since 2018 to increase its carrying capacity and improve the queuing environment. Its terminuses will be expanded and renovated. New tramcars that can carry 210 passengers will replace the existing ones with capacity for only 120 people. To align with the new tramcars, the entire rope system will be replaced and new rails will be laid on strengthened track foundations. The upgrade project is scheduled to be completed by 2021. We have been vetting, approving and monitoring the upgrade works throughout the project period, while also working on the revision of the Code of Practice on the Design and Construction of Peak Tramway with reference to relevant international funicular safety standards.

推動業界善用創科提升鐵路安全

作為政府的「創新促成者」，機電署近年大力推動創新科技，鐵路科也積極促成鐵路業界引進更多創科方案，以提升安全水平。

舉例來說，我們鼓勵港鐵公司採用「建築信息模擬 — 資產管理 — 鐵路安全」方案，以收集操作數據，方便進行中央管理及預測性維修保養。港鐵公司也測試多個創科方案，例如在不同車站的12條自動梯安裝偵測異物裝置，防止異物導致自動梯事故；在部分車站測試送貨車追蹤系統，確保送貨車須在指定路綫和速度限制下行走，以保障乘客安全；在列車及車站安裝攝錄機，以監察集電弓破損、電弧或極高溫等異常情況；以及利用人工智能監察系統監察架空電纜和檢視支架有否出現異常或損壞。各種方案已分別於東鐵綫和東涌綫完成測試，務求善用科技提升鐵路安全。

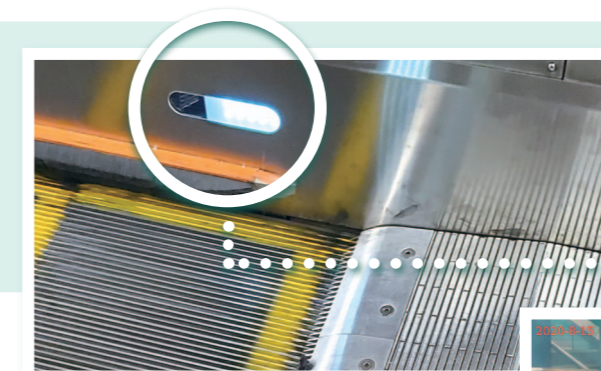
此外，機電署也主動進行創科項目測試，例如在車站入閘處安裝光學雷達物件偵測系統，如有攜帶大型物件的乘客，或行動不穩或不便者準備使用自動梯，裝置即會發出相關廣播及通報站內職員以提供協助，確保乘客安全。成功測試這類由機電署牽頭研發的創科項目後，我們會推動本地鐵路業界予以廣泛應用。

Facilitating the Trade in Adopting I&T for Railway Safety

As the Government's Innovation Facilitator, the EMSD has been redoubling its efforts in promoting innovation and technology (I&T). The RB also strives to facilitate the adoption of a wider range of innovative solutions by the railway industry to enhance safety.

For example, we encouraged the MTRCL to adopt a Building Information Modelling — Asset Management — Railway Safety (BIM-AM-RS) solution that enables the MTRCL to collect railway operating data for centralised management and predictive maintenance. The MTRCL has also implemented a range of I&T solutions for trial, such as foreign object detectors installed on 12 escalators in various stations to prevent escalator incidents caused by foreign objects, tracking systems installed in some stations to track delivery carts travelling in designated routes within speed limit to keep passengers safe, cameras installed on trains and in stations to detect pantograph defects, arcing or excessively high temperatures, as well as an artificial intelligence monitoring system to inspect overhead lines and their supporting frames for abnormalities or damages. These I&T solutions have been tested for the East Rail Line and the Tung Chung Line to enhance railway safety.

The EMSD also proactively conduct I&T trial projects such as the installation of a Light Detection and Ranging (LIDAR) object detection system at the entrance gates at stations. The system makes relevant public address announcement and alerts station staff for timely assistance if passengers carrying bulky items or passengers with unsteady gait or accessibility needs intending to use the escalators are detected, thus enhancing passenger safety. Spearheaded by the EMSD, these I&T solutions will be promoted to the local railway industry for wide adoption upon successful trial.



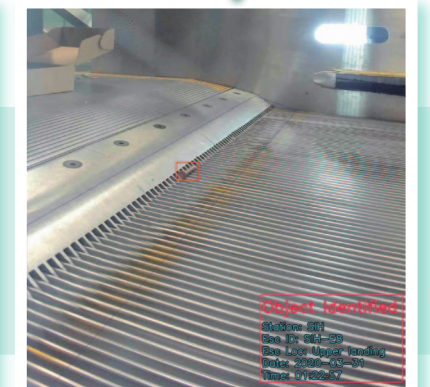
圖為一個安裝於港鐵自動梯的攝影機，用以偵測異物，防止事故。偵測異物裝置是港鐵公司現正測試的多個創科方案之一，藉以加強安全。

A camera installed on an MTR escalator to detect foreign objects and prevent incidents. This foreign object detection system is one of the I&T solutions being trialled by the MTRCL to enhance safety.

攝影機視角 Camera View

這兩張相片由自動梯攝影機拍攝。右邊相片顯示一個細小異物。偵測系統能及早發現異物，讓工作人員可盡快移除，有助提升自動梯安全。

These two photos are actual images captured by the escalator camera. The right photo shows a small foreign object. Early detection by the system and prompt removal by station staff will help enhance escalator safety.



保障公眾安全 Protecting Public Safety

輕鐵方面，我們建議港鐵公司為列車裝設超速警報系統，在列車超速時提醒車長減慢車速。港鐵公司已於2019年6月推出「綜合車速及位置監督系統(iSPS)」的警報系統，可準確地偵測列車的位置和速度，防止意外發生。我們還進一步建議港鐵公司盡量發揮系統的潛在功能，例如在月台加裝位置相配裝置，避免列車車門在非月台範圍打開，以及加入列車距離偵測功能，防止列車碰撞。2020年3月起，輕鐵系統已啟用位置探測功能。

另外，年內彩虹站的淡水冷卻塔發現隱藏細菌，導致退伍軍人症爆發。機電署參與調查，發現以往港鐵公司每月以人手為淡水冷卻塔消毒的做法存在人為失誤的風險。我們建議港鐵公司為淡水冷卻塔引進具智能感應的自動檢測水質系統，以定期自動加入適量消毒劑及在化學劑用量系統出現問題時向操作人員發出警告，確保清潔安全。

借鑑國際經驗強化鐵路安全規管

鐵路科向來重視與中國內地及國際交流，以借鑑經驗加強鐵路安全規管工作。年內，我們與新加坡和澳洲的鐵路監管機構進行交流，參考當地的鐵路安全規管制度。我們也參加了多個國際交流會議，包括於澳洲舉行的國際鐵路安全議會2019年度會議。我們會積極參與該議會因應疫情而定於2020年10月在網上舉行的2020年度會議。此外，我們也於纜車技術員組織國際年會上發表報告。

港鐵的輕鐵系統網絡正進行新列車測試。這批新車將是輕鐵系統的第五代列車。

New trains for the MTR Light Rail system network being tested. These will be the fifth generation rolling stock for the Light Rail system.



As to the Light Rail, we recommended that the MTRCL should install overspeed warning system on trains to prompt drivers to reduce speed when the speed limit is exceeded. In June 2019, the MTRCL introduced an Integrated Speed and Position Monitoring System (iSPS) with an accurate position detection function to prevent accidents. We urged the MTRCL to maximise the potential of the system's functions by adding matching installations on platforms to stop train doors from opening outside platform areas and including in the system an inter-vehicle distance monitoring function to avoid train collision. The position detection function has been adopted for the Light Rail since March 2020.

In 2019, a fresh water cooling tower at Choi Hung Station was found to be harbouring pathogens which caused an outbreak of Legionnaires' disease. The EMSD took part in the investigation and found that the MTRCL personnel disinfected the cooling towers every month manually, which posed risks of human errors. We advised the MTRCL to introduce a sensor-based automatic water quality monitoring and alarm system, which adds an appropriate amount of disinfectants to the fresh water cooling towers automatically and initiates warning message to operation personnel in the event of failure of the chemical dosing system to ensure hygiene and safety.

Strengthening Railway Safety Regulatory Work with International Experience

The EMSD values exchanges with the Mainland of China and international counterparts to gain insights on railway safety regulatory work. During the year, we visited the railway regulatory authorities of Singapore and Australia to learn about their railway safety regulatory regimes. We also took part in various international meetings, including the International Railway Safety Council 2019 Conference held in Australia. We will also participate in its 2020 conference in October, which will be conducted online due to COVID-19. Separately, our team made a presentation at the international annual conference of the Society of Ropeway Technicians.



來年展望

新鐵路綫方面，我們明年的重點是屯馬綫全綫的開通工作。我們會加緊進行各個鐵路系統的安全測試、檢查及演習，務使該綫能如期在2021年第三季全綫開通。我們同時會配合沙中綫「南北走廊」在2022年開通的目標，全力進行各種鐵路系統測試。

至於現有鐵路綫，最大挑戰是在各種主要工程系統（例如東鐵綫的新信號系統及九卡和十二卡混合車隊）測試期間，保持安全暢順的列車服務。由於本港鐵路服務非常繁忙，大部分系統測試都只能在凌晨時分的「黃金兩小時」內完成。我們會繼續努力監察有關工作，以確保鐵路安全。

我們也會展開香港國際機場三跑道系統項目的旅客捷運系統安全規管工作。運行於一號客運大樓綫及海天客運碼頭綫的旅客捷運系統正進行擴建工程，包括搬遷現有車廠的位置、將現行每列四卡的列車增至六卡，以及更新月台幕門及信號系統。

輕鐵方面，來年我們會繼續為第五代輕鐵列車進行安全評估工作，讓新列車盡快投入服務。

鐵路科團隊會就《鐵路發展策略2014》內其他新鐵路綫項目的安全規管展開籌備工作，以及就港鐵公司的資產管理系統及安全管理系統繼續進行全面和直接審核，以監察港鐵更換老化資產的工程和日常維修保養的作業方式及工程質素，務求以更積極主動的規管方式維持鐵路高度安全。

我們更會繼續借助科技，在鐵路規管、推廣和協作等範疇提升工作效率，例如港鐵公司在進行新鐵路綫項目或現有鐵路綫的重大改動工程前，須向「安全及保安統籌委員會」及「軌道安全及保安委員會」兩個由機電署擔任主席的跨部門委員會提交資料，以進行安全批核。為配合《香港智慧城市藍圖》下「智慧政府」的發展，我們會於來年引入具有電子簽署功能的電子提交文件系統，務求加快審批程序。此外，我們正研究引入虛擬實境應用方案，以協助規管鐵路運作安全，以及採用聊天機械人技術，以提升規管成效。

The Year Ahead

For new railway lines, our key focus for the coming year is to step up safety testing of the railway systems of the TML, as well as the inspections and drills for various railway systems in preparation for the commissioning of the entire TML scheduled for the third quarter of 2021. We will also work towards the target of commissioning the North South Corridor of the Shatin to Central Link by 2022 by going full steam ahead with all railway system testing.

For the operating railway lines, our major challenge is to ensure their safe and smooth operation during the testing of major engineering systems, for example the East Rail Line's new signalling systems and mixed fleet of 9-car and 12-car trains. As railway services in Hong Kong are extremely hectic, testing of numerous systems could only be conducted during the "golden two-hour" window in the early hours after midnight. We will keep up our monitoring work for railway safety.

We will also commence the safety regulatory work for the APM system of the Three-Runway System project of the Hong Kong International Airport. The existing T1 Line and the SkyPier Line will undergo expansion projects, which include relocation of the APM depot, replacement of 4-car trains by 6-car trains and upgrading of platform screen doors and signalling systems.

For the Light Rail, we will continue to conduct safety evaluation for the fifth generation of Light Rail trains in order to put them to service as soon as possible.

The RB team will start to prepare for the safety regulatory work for the new railway lines under the Railway Development Strategy 2014, and will continue with our comprehensive and direct audits of the MTRCL's AMS and SMS, so as to closely monitor its replacement works for aged assets and the practices and work quality of its routine maintenance and repair. Through a more vigorous and proactive regulatory approach, we aim to maintain a high level of railway safety.

We will continue to apply technology to our regulatory, promotion and collaboration work to enhance efficiency and effectiveness. For example, before the MTRCL carries out any works on new railway lines or any major modifications of existing lines, it shall provide safety information for approval by the inter-departmental Safety and Security Co-ordinating Committee and Trackside Safety and Security Committee, both chaired by the EMSD. In line with the Smart Government development under the Smart City Blueprint, we will introduce an electronic submission system with digital signature function next year to speed up the vetting and approval process. We are also researching into the introduction of virtual reality solutions to support our railway regulatory work and the use of chatbot technology to step up our regulatory services.

保障公眾安全 Protecting Public Safety

冷靜應對 協調和統籌嚴重鐵路事故調查 Staying Calm to Co-ordinate Major Railway Incident Investigation

重大事故的調查工作絕不容易，原因是現場環境有很多未知之數，並必須盡快搜集證據。鐵路科高級工程師李奕暉先生負責協調和統籌港鐵紅磡站列車出軌事故的調查工作，且聽他談箇中經驗。

Major incident investigations are never easy, as on-site situations are unpredictable and the evidences must be gathered promptly. Railways Branch Senior Engineer Mr Li Yick-fai, Ernest, recalls how he co-ordinates the investigation into the MTR Hung Hom Station derailment incident.

2019年9月17日，鐵路科高級工程師李奕暉先生剛踏進機電署總部大樓上班時，便接到通報，指東鐵綫發生列車在進入紅磡站時出軌的嚴重事故。他跑進辦公室集合同事，然後一行約十人趕赴現場。奕暉歷任機電署規管服務多個崗位，曾處理電力及氣體事故，因此面對東鐵綫首次出現載客列車在營運時出軌的嚴重事故，雖然心情緊張，卻仍能冷靜應對。

事故現場的範圍頗大，搜證及調查工作複雜及有一定困難。奕暉憶述：「首先我們要分析現場情況，確定事故的嚴重性，有沒有傷亡；然後視察服務受阻的程度，尋找事故成因，簡單地統計現場機件、儀器及路軌受損的程度；再檢查車站附近的錄影系統有沒有錄下事發片段；還要準備資料讓局長及署長回應傳媒提問；以及協調港鐵公司相關維修計劃及工作流程等。」

On 17 September 2019, at the time when Mr Li Yick-fai, Ernest, Senior Engineer of the Railways Branch (RB), returned to the EMSD Headquarters for work, he received a call about a serious incident, in which an East Rail Line (EAL) train had derailed while entering Hung Hom Station. He ran into the office to gather colleagues and rushed to the scene with about ten people. Ernest is a veteran in handling electrical and gas incidents as he has served in various posts in the EMSD. Although he was nervous, Ernest could still remain calm in the face of this serious incident, the first-ever derailment of an EAL train carrying passengers.

The site of the incident was extensive, making the investigation and evidence collection even more complicated and difficult. "First, we had to gauge the situation of the scene to ascertain how serious the incident was, and whether there were casualties. Then we had to determine how services were affected and what might have caused the incident. We did a quick tabulation of parts and equipment on site, and the degree of damage to the tracks, and then checked if any CCTV systems near the Station had captured footage of the incident. Additionally, we had to gather relevant information for the Secretary for Transport and Housing and our Director to make responses to media enquiries, as well as co-ordinating with the MTR Corporation Limited (MTRCL) on their repair plans and work flow," Ernest recalled.



在鐵路科團隊搜證期間，港鐵公司一直進行復修工作。翌日早上6時，紅磡站恢復有限度列車服務。隨後幾個晚上，維修工程在東鐵綫收車後繼續進行，奕暉及鐵路科同事輪流全程監察主要部件的維修工作及相關測試，例如路軌軌距、焊接位、軌枕、道岔轉轍器等，並使用無載客的列車試行，待證明行車安全及暢順，並對測試數據滿意後，才批准港鐵恢復該路段的列車服務。

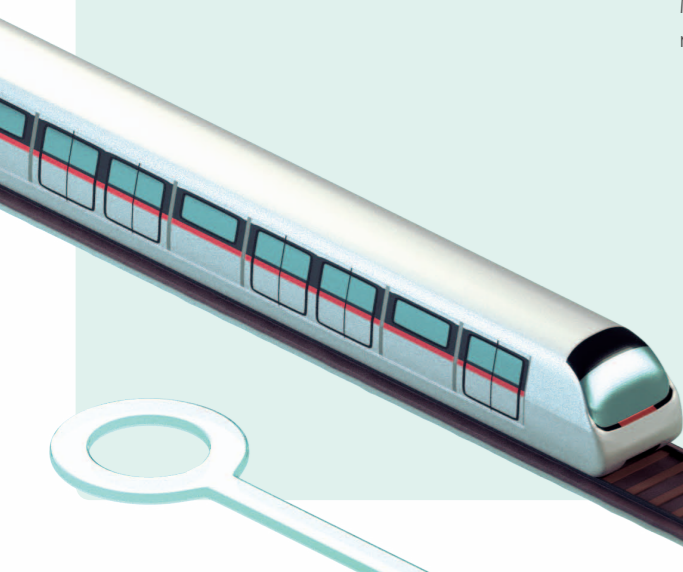
事故後，鐵路科邀請了具備鐵路事故調查經驗的資深外國專家協助調查工作。其後，相關的《港鐵東鐵綫紅磡站列車出軌事故技術調查報告》於2020年3月發布，當中提出多項改善建議，要求港鐵公司落實和執行，以確保同類事故不再重演。

奕暉說：「機電署作為規管機構，工作重點是運用我們的專業知識保障公眾安全。完成報告之後，我們一直監督港鐵公司落實報告中的改善措施。經過今次嚴重事故，鐵路規管工作會加大力度，目的是盡最大努力確保鐵路安全，挽回公眾對鐵路系統的信心。」

While the RB team was conducting on-site evidence collection, the MTRCL carried out repairs. Train services at Hung Hom Station partially resumed by 6 a.m. the next morning. Repairs continued for several nights after EAL services had finished for the day. Throughout this period, Ernest and his colleagues took turns to monitor the repairs and testing of key components including track gauge, welded joints, sleepers, and point machines at turnouts. A test run with an empty train was also carried out to confirm the safe and smooth operation of the service. The team approved a full resumption of services by the MTRCL through the affected rail section only after all the test data was satisfactory.

After the incident, the RB sought assistance from overseas experts experienced in investigating major railway incidents. Subsequently, the "Technical Investigation Report on Train Derailment Incident at Hung Hom Station on MTR East Rail Line" was released in March 2020, which recommended a number of improvement measures for the MTRCL to implement, so as to ensure that similar incidents would not happen again.

Ernest said, "As a regulator, the EMSD focuses on using our expertise to protect public safety. Upon completion of the report, we kept monitoring the MTRCL's implementation of the recommended remedial measures. Since this serious incident, the RB has stepped up its regulatory work to ensure railway safety and to regain public confidence in our railway systems."



保障公眾安全 Protecting Public Safety



把握鐵路維修「黃金兩小時」 保障乘客安全 Making the most of the "Golden Two Hours" in Railway Maintenance to Ensure Passenger Safety

當夜幕低垂、全城安睡的時候，鐵路科工程師陳靜文女士往往要通宵工作，到現場監察港鐵各條路線的維修保養工程，而凌晨2時至4時，更是鐵路維修保養和確保鐵路安全的「黃金兩小時」，且聽她分享。

As the city sleeps, Railways Branch Engineer Ms Chan Ching-man, Kitty, is often working in the early hours of the morning to monitor MTR railway maintenance works. She explains the importance of the 2 a.m. to 4 a.m. "golden two-hour" window in ensuring railway safety.

電力工程師出身的陳靜文，在2018年10月加入機電工程署鐵路科，卻沒料到自此要24小時候命。在鐵路進行維修的日子，她不時須在「黃金兩小時」內（即凌晨2時至4時港鐵收車後及早上出車前）親自到場監察，確保維修工程符合相關指引和程序。

靜文所屬的小組負責處理東鐵綫及興建中的紅磡至金鐘段東鐵綫延綫相關事宜。有關新綫路的工作尚可在日間進行，但營運中的綫路則只可在收車後的兩小時空檔中處理。靜文說：「鐵路事故即使看似輕微，背後卻牽涉許多維修及監察工作。由於東鐵綫歷史較長，以及其路軌為露天設計，突發事故自然較多。例如當路軌出現裂痕，我們便須在當晚收車後親自監察整個維修過程。」

Trained as an electrical engineer, Ms Chan Ching-man, Kitty, did not expect to be on call round the clock since she first joined the EMSD's Railways Branch in October 2018. Since railway maintenance has to be completed within the "golden two-hour" window between 2 a.m. and 4 a.m., i.e. the short period of time during which MTR train services have ended and are yet to resume, Kitty has to be on site during this period, whenever there are maintenance works for the railway system, to ensure that the works are conducted in accordance with the relevant guidelines and procedures.

Kitty's team is responsible for the matters relating to the East Rail Line (EAL) and its extension from Hung Hom to Admiralty. While the works on the new section can be done during the day, all works involving the operating section have to be conducted within the two-hour window at night. "Even seemingly minor railway incidents involve extensive maintenance and monitoring works. Due to the EAL's relatively long history and open-air rails, it is prone to having emergency incidents such as cracks on rails, which requires us to be present to monitor the repair process late at night when the train services have ended," Kitty said.

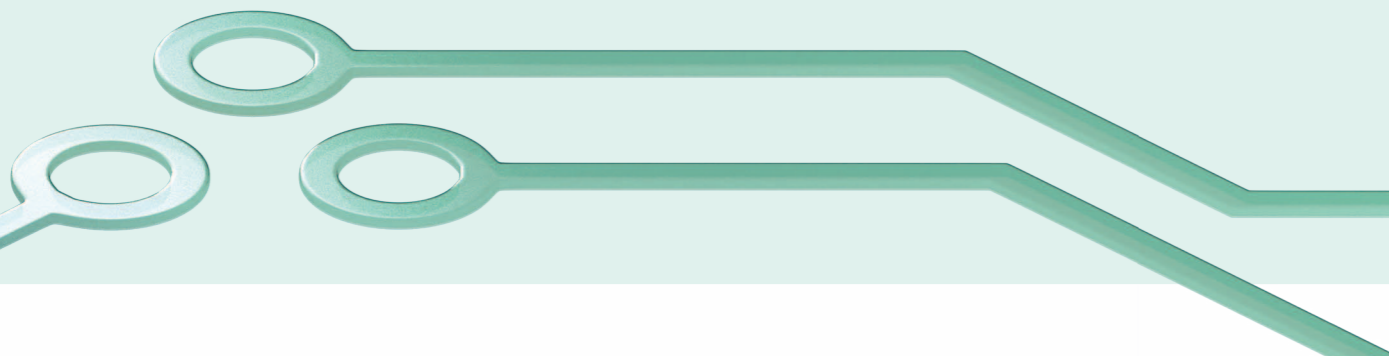


除日常的鐵路安全巡查工作及準備新綫路方面繁重的規管工作外，靜文所屬的小組於本年度亦須配合東鐵綫更換信號系統進行審批及現場測試工作，以及處理其他突發鐵路事故。因此，靜文每月平均須在晚上出動五至六次，最高記錄為一星期三次，地點更遠至上水、粉嶺等地區。晚上單人匹馬外出工作，靜文的家人最初也感到擔心。一位女士獨自從九龍市區乘坐的士到已收車的偏遠車站，接載靜文的司機亦往往為此感到疑惑。然而，靜文早已習以為常，而她就讀小學的兒子也很喜歡聽她講述於晚上出勤的種種故事。

為配合工作需要，靜文隨時候命，電話從不關機。靜文說：「接到車務控制中心的緊急來電時，我會頓生壓力。前綫維修人員的壓力源於時間緊迫及嚴峻的工作環境，而我們的壓力則來自於自己的職責，因為作為規管方，我們須小心監察整個維修過程，以確保鐵路安全。當鐵路恢復安全運作，乘客可繼續順利出行時，我才真正感到安心。」

In addition to the routine railway safety inspections and the hectic regulatory work in preparing the new section of the EAL for commissioning, Kitty's team has to conduct vetting and on-site testing in relation to the replacement of the signalling system of the EAL, as well as handle other railway-related emergency incidents. As a result, Kitty has to work at night five to six times a month on average. She once even worked at night three times in a week, travelling to distant areas such as Sheung Shui and Fanling. At first, her family was worried about her safety for having to leave home alone at night. Taxi drivers are often perplexed by why she has to travel by herself from urban Kowloon to a remote railway station that is already closed. However, Kitty has now gotten used to this work arrangement. Interestingly, her son, now in primary school, loves to listen to stories about her overnight "adventures" at work.

In order to meet operational needs, Kitty never switches off her mobile phone and is always ready for her job. "The emergency calls from the MTR Operations Control Centre always put me under pressure. While the pressure for frontline maintenance personnel stems from the tight timeframe and the challenging working environment, our pressure arises from our official duties as the regulator. We have to carefully monitor the entire repair process, so as to ensure railway safety. Only when the railway services resume normal and passengers are able to travel smoothly, will I truly have peace of mind," Kitty said.



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

「採電學社」進展良好

年內亮點之一，是環境局與機電署於2019年3月推出的「採電學社」取得良好進展。此計劃為期五年，旨在為合資格的非官立和非牟利中小學與幼稚園，以及接受社會福利署經常津助的非政府福利機構提供資助和一站式服務，協助在其處所安裝小型太陽能發電系統，以及參加本地兩家電力公司推行的上網電價計劃，鼓勵市民使用可再生能源。機電署會跟進整個安裝太陽能發電系統的過程，而所涉的相關開支將全數由「採電學社」支付。

「採電學社」自2019/20年度推出以來，反應踴躍，接獲的申請超過210份。我們根據實地視察及評估結果，選出約50家學校和非政府福利機構先行安裝太陽能發電系統，而有關安裝工作年內已告完成，預期可在下一年度為約135家合資格的學校及非政府福利機構安裝太陽能發電系統。據已裝設系統的學校表示，學校除了每年獲得數萬元上網電價收入，可供系統進行保養維修外，餘下的上網電價收入可用以加強環保教育及相關服務，有利重新調配資源，同時也讓學生近距離了解可再生能源的效益。

為加深學生對可再生能源的認識，我們聯同教育局及多所大學製作「採電學社」教材套，藉以輔助教學，提高學生興趣，並推廣低碳生活，應對氣候變化。

機電署同事正檢查安裝於「採電學社」參與學校的太陽能發電系統。這是我們為參加該計劃的合資格學校及非政府福利機構提供的一站式服務之一。

EMSD staff checking solar PV systems set up at a participating school of Solar Harvest, as part of our one-stop services provided to eligible schools and welfare NGOs under the scheme.



Remarkable Progress of Solar Harvest

A key highlight of the year was the remarkable progress of Solar Harvest made since its launch in March 2019 by the Environment Bureau (ENB) and the EMSD. The five-year programme is open to eligible non-government and non-profit-making kindergartens, primary and secondary schools and welfare non-governmental organisations (NGOs) subsidised by the Social Welfare Department. We offer one-stop services to help them install small-scale solar photovoltaic (PV) systems in their premises and apply to join the Feed-in Tariff (FiT) Scheme operated by the two power companies, in a bid to encourage public adoption of renewable energy (RE). The EMSD will follow through the entire process of solar PV system installation, and all the associated expenses are fully covered by Solar Harvest.

Since its start in 2019/20, Solar Harvest has met with enthusiastic response, with more than 210 applications received. About 50 schools and welfare NGOs were selected following on-site inspection and evaluation, and had their solar PV systems installed during the year. Some 135 eligible schools and welfare NGOs are expected to have their systems installed in the following year. The schools that have installed the systems intend to use the FiT revenue, to the tune of tens of thousands of dollars per year, to augment environmental-education and related services after deducting system maintenance expenses. This will contribute to redeployment of resources and enable their students to learn first-hand about the benefits of RE.

To help students understand more about RE, we are jointly developing a Solar Harvest education kit with the Education Bureau and universities. The kit will support teaching, making learning fun for students and promoting a low-carbon lifestyle to mitigate the impact of climate change.



我們的同事在巡查零售店鋪期間，以平板電腦核實和記錄能源標籤上的相關資料。

Our colleague uses a mobile tablet to verify and record information on an energy label during a retail shop inspection.

「強制性能源效益標籤計劃」第三階段全面實施

「強制性能源效益標籤計劃」（強制性標籤計劃）第三階段經過18個月寬限期讓業界做好準備後，已由2019年12月1日起全面實施。第三階段涵蓋電視機、儲水式電熱水器及電磁爐三類新增的電氣產品，並把兩類現有訂明產品的涵蓋範圍擴大，包括備有冷暖功能空調機的供暖部分，以及洗衣量超過7公斤但不超過10公斤的洗衣機。

強制性標籤計劃的三個階段合共規管八類家用電氣產品，佔全港每年住宅用電量約七成。第三階段全面實施後，估計每年可節省約1.5億度電，相當於每年減少排放105 000公噸二氧化碳。我們會繼續加強公眾教育，透過各類廣告密集宣傳，鼓勵公眾選用能源效益級別較高的電氣產品，並加強巡查零售店，又為業界安排相關研討會，以助業界遵行規定。

我們已開始籌備強制性標籤計劃第四階段的諮詢工作，擬涵蓋的產品包括發光二極管(LED)燈、氣體煮食爐和住宅式即熱氣體熱水爐，這會是強制性標籤計劃首次涵蓋氣體爐具。家用氣體產品佔全港耗能量約30%，將氣體爐具納入強制性標籤計劃，可開拓本港節能的新領域。

除了陸續擴大強制性標籤計劃的涵蓋範圍之外，我們對各類已納入該計劃的產品的能效表現標準也有嚴格監管。由2015年起，我們持續檢視和提升空調機、雪櫃和洗衣機等產品的能效表現標準。年內，我們檢視和提高了獨立式空調機(窗口機)、抽濕機和恆電膽的能效要求，相關的實務守則修訂版已於2020年6月5日刊憲。新標準將於2020年12月31日生效，設有12個月過渡期，由2021年12月31日起全面實施。

Third Phase of Mandatory Energy Efficiency Labelling Scheme Fully Implemented

The third phase of the Mandatory Energy Efficiency Labelling Scheme (MEELS) was fully implemented on 1 December 2019, after an 18-month grace period for the trade to get ready. The third phase covers three newly added types of electrical products, namely televisions, storage type electric water heaters and induction cookers. The scope of two existing prescribed products has also been extended to include the heating performance of room air-conditioners that have both cooling and heating functions, and washing machines with a rated washing capacity exceeding 7 kg but not more than 10 kg.

The three phases of the MEELS regulate a total of eight types of household electrical products, which account for about 70% of the annual electricity consumption in the residential sector in Hong Kong. Upon full implementation of the third phase, it is estimated that an annual energy saving of about 150 million kWh, which is equivalent to an annual reduction of 105 000 tonnes of carbon dioxide emissions, will be achieved. We will continue to reinforce public education through intensive advertising to encourage the public to choose electrical products that have higher energy efficiency. We will also step up inspection of retail stores and arrange trade seminars to facilitate their compliance.

We have initiated preparations for the consultation on the Fourth Phase of the MEELS which will include light-emitting diode (LED) lights, gas cookers and domestic gas instantaneous water heaters. This will be the first time that gas appliances are included in the MEELS. Domestic gas appliances constitute about 30% of Hong Kong's total energy consumption. Inclusion of gas appliances in the MEELS will open up a new frontier for energy saving in Hong Kong.

Apart from expanding the coverage of the MEELS, we have been strictly monitoring the energy efficiency performance of products already covered in the scheme. Since 2015, we have been reviewing and elevating the energy efficiency performance standards for products such as air-conditioners, refrigerators and washing machines. During the year, we reviewed and raised the energy efficiency requirements for single package type room air-conditioners, dehumidifiers and compact florescent lamps. The revised edition of the relevant code of practice was gazetted on 5 June 2020. It will be effective from 31 December 2020, and be fully implemented on 31 December 2021 after a 12-month transition period.

推廣能源效益及節能 Promoting Energy Efficiency and Conservation

全民節能 各界響應

「全民節能」運動是機電署與環境局合辦的周年旗艦活動。2019年，我們繼續舉辦這項節能運動，鼓勵市民身體力行，一起節約能源，緩減氣候變化。一如往年，「全民節能2019」包括《節能約章》、《4T約章》及「慳神大比拼」。另外又新增了「慳神重新校驗大比拼2019」項目。



環境局及機電署高層官員、業界伙伴及其他持份者出席「全民節能2019」的啟動典禮。

Senior officials from the Environment Bureau and EMSD, trade partners and other stakeholders at the launching ceremony of The Energy Saving for All 2019 Campaign.

「慳神重新校驗大比拼2019」旨在鼓勵各界機構牽頭規劃和實施重新校驗，以提高既有建築的能源效益，並分享他們在重新校驗工作中識別和落實節能機會的經驗和創科理念。是次活動共收到85份參賽作品，評選團由立法會議員及多個專業團體代表組成。

至於「慳神大比拼」的學生組別則推出了「新世代慳神大比拼2.0」，鼓勵青少年發揮創意，在日常生活中就節能及可再生能源概念和技術提出新構思。得獎者獲邀在公開研討會上，與大眾分享其落實節能慳電的經驗。

《節能約章》則要求參加的機構承諾在6至9月盛夏期間，把旗下物業的平均室內溫度維持在攝氏24至26度，並關掉不需使用的電器，以及選購獲一級能源標籤的高能效電氣產品。2019年簽署約章的機構約3 800個，其中12個機構更獲頒嘉許獎狀，以表揚其為《節能約章》招募參與者所付出的努力。

Energy Saving for All Campaign on Track

The Energy Saving for All Campaign is an annual flagship programme organised jointly by the EMSD and the ENB. In 2019, we continued the energy-saving campaign to encourage the public to take actions to conserve energy and mitigate climate change. As in past years, the 2019 Campaign consisted of the Energy Saving Charter, the 4T Charter and the Energy Saving Championship Scheme. New feature in 2019 was an organisation category in the Energy Saving Championship Scheme.

The Energy Saving Championship Scheme 2019 — Competition for Organisations is to encourage organisations in different sectors to take lead to plan for and implement Retro-commissioning (RCx) for enhancing energy efficiency of existing buildings and sharing their experience and Innovation and Technology (I&T) ideas in identifying and implementing the energy saving opportunities (ESOs) during their RCx works. The competition received a total of 85 entries undergoing an assessment by the Judging Panel comprising of Member of Legislative Council and representatives from various professional bodies.

The student category of the Energy Saving Championship Scheme 2019 encouraged young people to come up with new ideas on energy efficiency, conservation and RE initiatives and technology applicable to daily living. The winners were invited to share their energy conservation experience with the public at open seminars.

The Energy Saving Charter has its signatories pledge to keep their premises cool at an average indoor temperature of 24-26°C during the summer months between June and September, as well as switching off electrical appliances when not in use and procuring energy-efficient products with Grade 1 energy labels. About 3 800 organisations signed the Charter in 2019, and 12 of them were awarded appreciation certificates in recognition of their efforts in recruiting participants for the Charter.

《4T約章》的精神，是鼓勵參加機構根據「4T」框架，即承諾訂立節能目標 (Target)，並制訂相應的行動時間表 (Timeline)，在落實行動的過程中提高節能成效報告及建築物能源數據的透明度 (Transparency)，以及推動更多同行者 (Together) 以制訂和落實4T節能行動，務使參與機構更有系統地加強節能工作。目前已有1 500多個場所響應參與。

上網電價計劃 推動可再生能源

兩家電力公司實施上網電價計劃，為本港推廣可再生能源的工作增添新動力。我們在「香港可再生能源網」加入了上網電價計劃及可再生能源證書的最新資訊，例如太陽能發電系統承辦商的名冊，方便市民參與上網電價計劃。我們也推出了《太陽能光伏系統安裝指南》及《可再生能源發電系統與電網接駁的技術指引》，詳述申請上網電價的程序及相關技術。

機電署年內共舉辦了26場研討會及簡介會，講解接駁電網的裝置要求，並鼓勵業界向用戶提供優質的可再生能源裝置。業界積極響應活動，參加者多達約3 900人。由2018年6月至2020年3月，我們已舉辦和參與56場研討會及簡介會，共吸引約9 200人參加。兩電自實施上網電價計劃以來，已接獲10 000多份申請，足見計劃深受市民歡迎。

The 4T Charter encourages signatories to observe the 4T principles, i.e., setting an energy-saving Target with an action Timeline, enhancing Transparency of reporting of energy efficiency results and building energy efficiency data, and encouraging more stakeholders to work Together on the formulation and implementation of 4T energy-saving measures. More than 1 500 premises have joined the 4T Charter.

Feed-in Tariff Scheme Promotes Renewable Energy

The introduction of the FiT Scheme by the two power companies has added new impetus to the promotion of RE. The latest information of the FiT Scheme and the Renewable Energy Certificate is now included in the HK RE Net. A list of RE installation contractors has also been added to the portal to facilitate public participation in the FiT Scheme. We have introduced the Guidance Notes for Solar Photovoltaic (PV) System Installation and the Technical Guidelines on Grid Connection of Renewable Energy Power Systems to explain the procedures and technical details for FiT applications.

For the trade, the EMSD organised 26 seminars and briefing sessions during the year to explain the requirements for FiT installations and encourage the trade to supply high-quality RE installations to their customers. The events were well attended by about 3 900 participants. In total, we organised or took part in 56 seminars and briefing sessions between June 2018 and March 2020, which attracted about 9 200 participants. The FiT Scheme has been highly popular, with more than 10 000 applications received since its launch.



推廣能源效益及節能 Promoting Energy Efficiency and Conservation

我們於2019年首次舉辦「模範太陽能發電系統安裝選舉」，圖為評判團於尖沙咀海港城現場視察參選者的太陽能發電裝置。

Pictured is the judging panel of our inaugural Solar Photovoltaic System Installation Role Model Election in 2019 during a site visit to Harbour City in Tsim Sha Tsui to inspect solar panel installations of contestants.



為鼓勵市民採用優質可再生能源裝置，並進一步推廣上網電價計劃，我們在2019年首次舉辦「模範太陽能發電系統安裝選舉」，供個人或公司單位參與。參加評選的太陽能發電系統必須在2019年11月30日之前完成安裝和加入上網電價計劃。由機電署、多家機構和兩家電力公司的代表組成的評判團，更親身到訪參選單位視察裝置，最後選出五個模範裝置，涵蓋辦公大樓、樂園度假區和村屋等，而從該五個獲獎的模範裝置中，又評選出最佳設計、最佳安裝、最佳保養及最佳物料四個特別獎項。獲獎的系統可發揮示範作用，供其他有意安裝太陽能發電系統的業主及其承辦商作參考。

綠色校園 2.0

為配合行政長官在2019年《施政報告》中提出的「綠色校園2.0」計劃，我們年內着手籌備為合資格的中小學提供資助和一站式服務，把校園現有的空調機更換為變頻式空調機，以及把現有照明裝置轉換為LED燈，並安裝實時能源監察系統。機電署提供的服務包括進行實地視察和技術評估、擬定即時能源管理系統的設計、採購設備、安裝和進行系統測試、跟進整個節能項目的實行過程，以及負責所涉的工程開支。

我們已成立專責小組統籌計劃，申請期限延長至2020年8月15日，安裝工程將於2020/21年度展開，首年目標是為25家學校進行有關工程，並把握機會向學生及老師推廣節能概念，培養節能好習慣。

In an effort to encourage the public to adopt high-quality RE installations and further promote the FiT Scheme, we organised the inaugural Solar Photovoltaic System Installation Role Model Election in 2019, accepting submissions from individuals and organisations. The solar PV systems submitted for the election must be installed and connected to the grid on or before 30 November 2019. The judging panel, comprising representatives from the EMSD, the two power companies and other organisations, made site visits to evaluate the systems and selected five model installations. These covered installations at an office building, a theme park resort and village houses. Four special awards, namely the Best Design, Best Installations, Best Maintenance and Best Materials were given to winning entries from among the five model installations. The winning systems serve as model references for property owners who intend to install solar PV systems and their contractors.

Green Schools 2.0

In support of the Green Schools 2.0 initiative announced in the Chief Executive's 2019 Policy Address, we initiated preparations for providing funding and one-stop services to eligible primary and secondary schools to install inverter typed air-conditioners, LED lighting and real-time energy monitoring systems. Our services include conducting on-site inspections and technical assessments, drawing up the design of a real-time energy management system, procuring equipment, and installing and testing the systems. We take care of the entire process and full funding of the works.

A task force has been formed to co-ordinate the project, and the application deadline was extended to 15 August 2020. Installation works will begin in 2020/21, with the target of conducting the works for 25 schools in the first year. We will also make use of the opportunity to promote energy conservation concepts among students and teachers and help them develop good energy-saving habits.

推廣綠色創科

機電署與環境局在2019年8月首次合辦「綠色創科日」，於香港科學園展示本港和粵港澳大灣區其他城市在能源效益和可再生能源方面的創科成果。活動得到多個本地專業組織、廣東省科學技術廳和廣東省科學技術協會支持，吸引來自本港及大灣區其他城市的30多個參展機構和700多名人士出席。多位本港及中國內地專家亦分享了如何應用創新科技以應對氣候變化的經驗。

因應年內本港發生2019冠狀病毒病疫情，我們的工作模式亦趨向電子化。我們正積極研究是否可以數碼模式接受提交申請。舉例來說，我們考慮是否可向合資格的註冊能源效益評核人先簽發證書的電子版本，然後補發正本。我們也着手研究是否可接受運用建築信息模擬技術軟件遞交有關《建築物能源效益條例》的各類申請，特別是有關照明系統的申請。就此，我們的能源效益事務處來年會聯同建築信息模擬技術團隊開發先導計劃，以探討技術可行性及對規管制度的影響。

《建築物能源效益守則》和《能源審核守則》最新版本正式生效

最新修訂的《建築物能源效益守則》及《能源審核守則》2018年版本已分別於2019年5月和8月生效，以進一步提升建築物的能源效益，而與兩份守則相關的最新技術指引也分別於2019年6月和7月推出，協助持份者了解最新的規定。

兩份守則均根據《建築物能源效益條例》制訂，並會每三年進行一次檢討和修訂。我們每次都會諮詢專業團體、業界組織、學術界及相關政府部門，並參考最新的科技發展趨勢及國際能源效益標準。

Promoting Green Innovation and Technology

In August 2019, the EMSD and the ENB co-organised the first Green Innovation and Technology Day at the Hong Kong Science Park to showcase the innovation and technology (I&T) achievements in energy efficiency and RE in Hong Kong and other cities in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). The event had wide support from local professional organisations as well as the Department of Science and Technology of Guangdong Province and the Guangdong Provincial Association for Science and Technology. More than 30 exhibitors and 700 participants from Hong Kong and other GBA cities took part in the event. Experts from Hong Kong and the Mainland of China shared their experience in combating climate change with I&T solutions.

The COVID-19 outbreak has made us adopt more digital working methods. We are actively exploring the feasibility of using digital means to receive application forms. For instance, we will consider whether we can issue an e-certificate first to approved registered energy assessors and furnish a hard copy afterwards. We have also examined if different applications relating to the Buildings Energy Efficiency Ordinance (BEEO) can be submitted using the Building Information Modelling (BIM) software, especially those applications regarding lighting systems. Our Energy Efficiency Office (EEO) will develop a pilot scheme with our BIM team in the coming year and explore the technical feasibility as well as the impact on the regulatory regime.

Latest Building Energy Code and Energy Audit Code Being Effective

The latest 2018 versions of the Building Energy Code (BEC) and the Energy Audit Code (EAC) took effect in May and August 2019 respectively to further enhance the energy efficiency of buildings. The technical guidelines related to the two codes were also introduced in June and July 2019 respectively to help stakeholders understand the latest requirements.

Both the BEC and EAC were drawn up in accordance with the BEEO. They are reviewed and revised every three years in consultation with professional institutions, trade associations, academia and relevant government departments, taking into account the latest developments in technology and international energy efficiency standards.

推廣能源效益及節能 Promoting Energy Efficiency and Conservation

區域供冷系統最新進展及國際殊榮

啟德發展區的區域供冷系統一直進展良好，年內新完成的工程項目也陸續投入運作，為已接駁的建築物供應空調系統用的冷凍水。現有的啟德區域供冷系統在2025年全面落成後，會連接區內約50幢樓宇，每年共可節省約8 500萬度電，相當於每年減少排放59 500公噸二氧化碳。

隨着區內發展密度不斷提高，加上啟德體育園及新急症醫院的發展規模擴大，區內對供冷量需求也大幅增加，我們計劃為啟德發展區增設一個供冷量約為178兆瓦的區域供冷系統，以滿足額外需求。立法會財務委員會於2020年6月下旬已批准撥款，預計項目可於2020年第三季動工，在2022/23年度開始運作。此項目全面投入服務後，估計每年可節省約5 300萬度電，相當於每年減少排放37 000公噸二氧化碳。

我們也積極籌劃在其他新發展區（包括洪水橋新發展區、古洞北新發展區及東涌新市鎮擴展）興建區域供冷系統，規劃總面積逾967公頃。古洞北及東涌新市鎮擴展的區域供冷系統籌備工作進展良好，現已進入委聘顧問公司和設計的階段。至於洪水橋的區域供冷系統，我們亦快將委聘顧問公司。



Updates on Development of District Cooling Systems and International Recognition Gained

The District Cooling System (DCS) at the Kai Tak Development continued to make good progress, as the projects newly completed during the year went into operation to supply chilled water for air-conditioning in buildings connected to the DCS. When the DCS is fully commissioned in 2025, it will be connected to about 50 buildings in the Kai Tak Development to achieve an energy saving of about 85 million kWh every year, equivalent to an annual reduction of 59 500 tonnes of carbon dioxide emissions.

The increasing development intensity in the Kai Tak Development, coupled with the expanded scale of the Kai Tak Sports Park and a new acute hospital have brought about greater demand for cooling capacity. We plan to add a new DCS at the Kai Tak Development that will provide 178 megawatt cooling capacity to meet additional demand. Following the funding approval by the Finance Committee of the Legislative Council in late June 2020, the work on the new DCS will begin in the third quarter of 2020 and the system is expected to be operational by 2022/23. When the entire DCS at the Kai Tak Development is in full service, it will save about 53 million kWh of energy every year, equivalent to an annual reduction of 37 000 tonnes of carbon dioxide emissions.

Provision of DCSs in other new development areas, including Hung Shui Kiu, Kwu Tung North and Tung Chung New Town Extension, is also in planning. The total area covered in the planning exceeds 967 hectares. Preparatory work for DCSs for Kwu Tung North and Tung Chung New Town Extension has progressed well and is now at the stage of appointing consultants and design, and the commissioning of consultants for the Hung Shui Kiu DCS is imminent.

兩圖顯示東九龍總區總部及行動基地暨牛頭角分區警署的外觀。這幢18層高的新綜合大樓已接駁啟德發展區的區域供冷系統，成為系統的使用者之一。

Different views of the Kowloon East Regional Headquarters and Operational Base-cum-Ngau Tau Kok Divisional Police Station. The new 18-storey integrated complex has been connected to the District Cooling System at the Kai Tak Development as one of its users.



香港的啟德區域供冷系統是我們2019年向C40城市氣候領導聯盟提交的文章主題，並入選C40刊物的100個氣候行動方案。該項目也入選C40彭博慈善基金會獎項的「綠色科技」組別最後三強。

Hong Kong's Kai Tak District Cooling System was the subject of a submission we made to the C40 Cities Climate Leadership Group in 2019 and was selected by its publication as one of the 100 solutions for climate actions. The project was also one of the three finalists in the Green Technologies category in the C40 Bloomberg Philanthropies Awards.



香港的區域供冷系統享譽國際，堪稱典範。我們去年向C40城市氣候領導聯盟提交以《香港區域供冷系統》為題的文章，並成功入選C40刊物《城市100》的100個氣候行動方案，肯定了我們應對氣候變化危機和實現可持續發展的成果。此外，啟德區域供冷系統項目更入選本屆C40彭博慈善基金會頒獎典禮「綠色科技」組別的最後三強，成績令人鼓舞。

在《香港區域供冷系統》一文中，我們闡述了啟德區域供冷系統項目的效益，包括使用海水冷卻系統的能效比傳統氣冷式空調系統的能效高35%，能夠減少碳排放和污染、增加綠化空間和節省電費開支。文章也概述本港區域供冷系統的服務收費機制，以及現時為本港其他新發展區的區域供冷系統進行的規劃工作。

率先為政府建築物進行重新校驗 發揮示範作用

由2019年開始，我們率先為政府建築物進行重新校驗，至今已為約40幢政府建築物開展重新校驗工作。在未來七年，我們會為200多幢現有政府建築物進行重新校驗，並提升建築物的能源效益，為政府達到在五年內節省6%耗電量的目標而加倍努力。

除政府建築物外，我們也致力在社區層面推動既有樓宇的重新校驗工作。香港共有40 000多幢私人樓宇，其中七成樓齡超過20年，可見當中有極大的節能空間。政府建築物率先進行重新校驗工作，能起牽頭作用，鼓勵私人樓宇跟隨。同時，機電署的重新校驗資源中心網站，也為從業員及建築物擁有人提供重新校驗資訊，包括屋宇裝備系統問題的診斷技術指引、中央控制管理系統數據範本和重新校驗的經驗分享等，從而鼓勵業主為樓宇「驗身」，以節約能源和減少電費開支。

Hong Kong's DCSs have gained international recognition as model cases. Last year, we submitted an article titled "Hong Kong's District Cooling System" to the C40 Cities Climate Leadership Group (C40). The article was featured in C40's publication, Cities100, as one of the 100 solutions for climate actions. The recognition underscores our achievements in sustainable development to counter the climate change crisis. The Kai Tak DCS project was further shortlisted as one of the three finalists in the Green Technologies category at the ceremony of the C40 Bloomberg Philanthropies Awards.

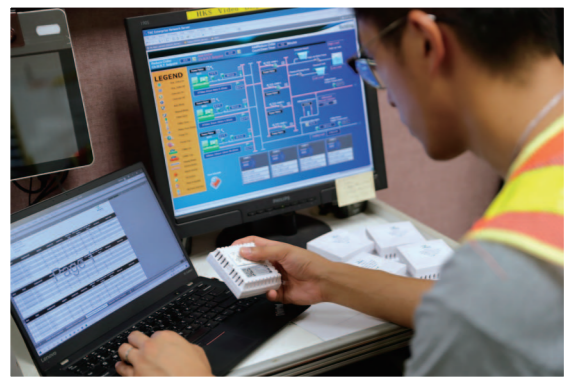
In the article titled "Hong Kong's District Cooling System", we explained the benefits delivered by the DCS in Kai Tak, that the energy efficiency of the seawater cooling system is 35% higher than standard air-cooling systems, and it can reduce carbon emissions and pollution, increase green space and cut power bills. The article also described the service fee mechanism of Hong Kong's DCSs, and the new DCSs being planned for other new development areas in our city.

Retro-Commissioning Pilots in Government Buildings as Showcases

RCx in government buildings has been kicked off since 2019, and about 40 government buildings have implemented RCx so far. In the next seven years, we will conduct RCx for more than 200 government buildings and strive to raise energy efficiency and contribute to the Government's goal of reducing electricity consumption by 6% within five years.

Apart from government buildings, we are also promoting RCx for existing private buildings. There are more than 40 000 private buildings in Hong Kong, and 70% of them were built more than 20 years ago, with much room for energy saving. With the Government taking the lead to carry out RCx in government buildings, private building owners will be motivated to follow suit. Meanwhile, the EMSD's Retro-Commissioning Resources Centre website provides ample information on RCx, such as the Technical Guidelines on Diagnosing Problems of Building Services System, data samples of the Central Control and Monitoring System and RCx case sharing. The information aims to encourage building owners to carry out RCx as a "health check" for their buildings so as to save energy and reduce electricity expenditure.

推廣能源效益及節能 Promoting Energy Efficiency and Conservation



機電署近年積極推動建築物的重新校驗，以提升能源效益，並與六個重要機構簽訂了《粵港澳大灣區重新校驗(再調適)合作備忘錄》，以作推廣。圖中人員正在進行重新校驗。

The EMSD has been promoting retro-commissioning of buildings in recent years for greater energy efficiency, and has signed a Memorandum of Co-operation on Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area with six key organisations to promote the practice. Photo shows retro-commissioning work in progress.

此外，我們聯同各專業機構，就香港綠色建築議會新推出的「重新校驗培訓及從業員註冊計劃」提供意見，使課程內容更實用、更切合業界需要。

We have also joined hands with professional organisations to provide input to the new Retro-commissioning Training and Registration Scheme launched by The Hong Kong Green Building Council. Our input contributed to making the course content more practical and relevant to the needs of the industry.

拓展區域及大灣區合作

年內，機電署一位助理署長繼續以亞太經合組織能源效益及節能專家小組主席的身分，開展區域性的能源效益推動工作。2019年9月，我們以主席的身分，與菲律賓能源部合辦亞太經合組織能源效益及節能專家小組第54次會議，討論節能工作進度。

Expanding Regional and Greater Bay Area Collaboration

During the year, an Assistant Director of the EMSD continued to serve as the Chair of the APEC Expert Group on Energy Efficiency and Conservation (EGEE&C) to spearhead regional energy efficiency promotional work. In September 2019, the EMSD chaired the 54th Meeting of APEC EGEE&C, jointly organised with the Department of Energy of the Philippines to discuss progress of energy efficiency work.

亞太經合組織經常為其成員經濟體提供撥款，用以進行能源效益及節能研究。香港年內提交了建議書，擬就降低亞太區城市化區域的能源強度進行研究，並選取七個城市作為研究對象，以探討其節能成就，從而為區內其他經濟體提供參考。我們很榮幸於2019年12月獲批撥款，研究工作正在進行，料將於2021年年中完成。

The APEC regularly provides funding to member economies to conduct studies on energy efficiency and conservation. During the year, we submitted a proposal to undertake a study on "Energy Intensity Reduction in Urbanised Areas in APEC Region". The study looks at seven cities and identifies their energy conservation achievements as references for other economies in the region. We were honoured to receive the funding approval in December 2019. The research is already underway and expected to be completed in mid-2021.

我們也向亞太經合組織提交建議項目，於2020年11月自資舉辦「亞太經合組織區域供冷/供暖系統工作坊」。

The EMSD has also submitted the proposal for an "APEC Workshop on District Cooling/Heating Systems", which will be a self-funded project to be held in November 2020.

與中國內地合作方面，機電署繼2018年與六個來自香港、澳門和大灣區其他城市的重要機構簽署《粵港澳大灣區重新校驗(再調適)合作備忘錄》後，成立了三個分別負責技術發展、人才培訓和推廣宣傳的工作小組，現正投入各項跟進工作。

In terms of collaboration with the Mainland of China, the EMSD signed a Memorandum of Co-operation on "Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area" with six key organisations from Hong Kong, Macao and other GBA cities in 2018. Three working groups, on technical development, capacity building and publicity matters respectively, have been set up and are functioning for follow-up work.

機電署再獲國際殊榮

機電署憑着在制訂、籌辦、管理和實施綜合能源管理計劃方面的傑出表現，於2019年榮獲美國能源工程師學會頒發亞太區「區域能源管理機構獎」，是繼2017年首度獲頒此獎後再奪殊榮。

International Award in Recognition of EMSD's Achievements

The EMSD's outstanding performance in developing, organising, managing and implementing its comprehensive energy management programme was recognised by the Regional Institutional Energy Management Award for the Asia-Pacific region, granted by the Association of Energy Engineers (AEE). This is the second time we received the award since 2017.

能源效益事務處自1994年成立以來，一直致力推廣節能減排，並與其他界別攜手合作，使香港的能源強度在過去十年間下降了31%，表現冠絕亞太經合組織成員經濟體。欣逢能源效益事務處成立25周年，部門再獲殊榮，可謂別具意義。

Since its establishment in 1994, the EEO has been promoting energy saving and carbon emission reduction in Hong Kong. With the joint efforts by the EMSD and various sectors, the energy intensity of Hong Kong has been reduced by 31% over the past decade. This performance was ranked among the best of APEC member economies. Receiving the award as the EEO celebrated its 25th anniversary was especially meaningful.



2010年至2020年香港「能源強度」下降幅度 Reduction of energy intensity in Hong Kong from 2010 to 2020

31%

來年展望

來年重點之一，是落實「綠色校園2.0」計劃，以配合政府應對氣候變化的工作。

The Year Ahead

One major focus for the year ahead is the implementation of Green Schools 2.0 initiative in tandem with the Government's efforts in combating climate change.

另一項重點工作是在2020年年底或2021年年初開展強制性標籤計劃第四階段的諮詢工作。

Another focus is launching the public consultation for the fourth phase of the MEELS by late 2020 or early 2021.

「全民節能」運動方面，我們會將2020年的《節約章》和《4T約章》延續一年，以保持業界攜手節能的動力。「採電學社」的工程也會繼續推展，鼓勵市民使用可再生能源，以及進一步推廣上網電價計劃。我們來年也會舉辦一個LED燈飾設計比賽，鼓勵市民在家居使用LED燈，並選購貼有自願性能源效益標籤的LED燈。

For the Energy Saving for All Campaign, we will extend the 2020 Energy Saving Charter and 4T Charter by another year to maintain the momentum of the industry's collective efforts in energy conservation. Solar Harvest works will be ongoing to encourage public adoption of RE, and further promote the FiT Scheme. We will organise a LED lighting design competition in the coming year to encourage the general public to use LED lighting at home, and purchase LED lights that bear a voluntary energy efficiency label.

待疫情減退後，我們會繼續重點推展政府建築物的重新校驗工作，目標是在2020/21年度分階段為約40幢政府建築物完成重新校驗。至於《粵港澳大灣區重新校驗(再調適)合作備忘錄》的工作，也期望待疫情減退後，可於2020年第三季舉行全體大會。

When COVID-19 comes under control, we will continue to implement the RCx work at more government buildings. The aim is to complete RCx for about 40 government buildings in stages during 2020/21. As to the MoC on Retro-commissioning of Buildings in the GBA, we hope to hold a plenary meeting in the third quarter of 2020, pending the subsidence of the epidemic.

至於《建築物能源效益守則》及《能源審核守則》，我們會於2020年年中展開製備2021年修訂版本的準備工作和徵詢業界的意見。啟德區域供冷系統的發展，以及在其他新發展區興建區域供冷系統的規劃和設計工作也會繼續進行。

For the BEC and EAC, we will begin preparations and trade consultation in mid-2020 for the 2021 round of revisions. The development of the DCS in Kai Tak and the planning and design of DCSs in other new development areas will also continue.

推廣能源效益及節能 Promoting Energy Efficiency and Conservation

讓社會未來主人翁近距離認識可再生能源 Connecting Future Generations with Renewable Energy

能源效益事務處工程師李恒敏先生參與推行「採電學社」計劃，因而與各學校的師生緊密合作，為學校安裝小型太陽能發電系統。他暢談向新一代推廣可再生能源的經驗。

The Solar Harvest programme has taken Mr Lee Hang-mun, Edward, an engineer in our Energy Efficiency Office, to work with students and teachers at schools to build small-scale solar photovoltaic systems. He shares his experience in promoting renewable energy to our future generation.

李恒敏先生矢志以工程師的專業在環保範疇作出貢獻。在不同私營機構累積多年工作經驗後，他在2019年7月加入機電工程署能源效益事務處擔任屋宇裝備工程師，並參與推行全新的「採電學社」計劃。該計劃旨在為合資格的學校及非政府福利機構提供一站式服務，包括安裝小型太陽能發電系統、協助參加本地兩間電力公司推出的上網電價計劃，以及全數資助有關開支。

恒敏說：「透過這個計劃，我們從多角度向學校及非政府福利機構推廣可再生能源，取得多項環保成果，包括提高學生、青少年及社會各界人士的環保意識。」

在上任後，恒敏率先為首批選出的學校，包括上水鳳溪創新小學推行有關計劃。為探討學校參與計劃的出發點，他與設計師親身拜訪校長及項目負責老師。此外，團隊為太陽能發電系統加裝感應器，收集太陽能發電的數據，以便學校借助計劃製作有關可再生能源的教材。此舉讓學生得以追蹤數據變化，親身體會可再生能源的效益，增加學習趣味。恒敏和他的團隊更直接與同學互動，鼓勵學生發揮創意，動手設計太陽能板的排列方式，例如拼砌出字母和多款有趣的圖案。部分學校最終更採用了學生的設計，令學生對計劃更為投入。

Mr Lee Hang-mun, Edward, is keen to contribute to the field of environmental protection through his profession as an engineer. After a number of years in the private sector, Edward joined the Energy Efficiency Office of the EMSD in July 2019 as a Building Services Engineer. He is responsible for implementing the new Solar Harvest programme, which is designed to provide one-stop service and full subsidy to help eligible schools and welfare non-governmental organisations (welfare NGOs) install small-scale solar photovoltaic (PV) systems and join the Feed-in Tariff (FIT) Scheme offered by the two local power companies.

"Through Solar Harvest, we promote renewable energy (RE) to schools and welfare NGOs from different perspectives, thereby obtaining multiple environmental achievements, including the enhancement of environmental awareness among students, young people and people from different sectors," Edward said.

After joining the EMSD, Edward first implemented the programme for the first batch of shortlisted schools including Fung Kai Innovative School in Sheung Shui. To explore the school's expectations for the programme, Edward and the designer paid a visit to the school to meet with the principal and teachers-in-charge. In addition, Edward's team added sensors to the school's solar PV system to collect data on solar power generation for the development of teaching materials on renewable energy. Through this programme, students were able to track the data and experience first-hand the benefits of renewable energy, adding more fun to learning. Edward's team also interacted with students, encouraging them to unleash their creativity by designing patterns for the placement of solar PV panels. Other than alphabets, many interesting designs were also presented. A number of schools adopted the students' designs, thus enhancing their sense of engagement with the programme.



為期五年的「採電學社」計劃大受歡迎，在推出首年已收到逾210份申請。過去一年，恒敏和他的團隊已為50間學校及非政府福利機構安裝太陽能發電系統，而它們也陸續賺取了「上網電價」。為使更多學校及非政府福利機構受惠，恒敏和他的團隊將增加人手，以期在2020/21年度完成更多安裝工程。

恒敏說：「我們希望爭取時間，讓更多學校及非政府福利機構受惠於『採電學社』計劃。同時，我們以鳳溪創新小學等成功案例作為模範，透過辦學團體向屬下學校大力進行推廣，鼓勵更多學校參與計劃，讓同學在求學時期近距離接觸可再生能源，了解能源效益的重要性。與參加計劃的學校及非政府福利機構一起『種電採電』，共同應對氣候變化，就是我最大的動力。」

Well-received by schools and welfare NGOs, the five-year Solar Harvest programme received more than 210 applications in its first year of implementation. Last year, Edward's team assisted 50 schools and welfare NGOs to install solar PV systems. Participating schools and welfare NGOs also received payments from the FIT Scheme. In order to benefit even more schools and welfare NGOs, Edward's team will be expanded to complete more installation works in 2020/21.

"We hope to benefit more schools and welfare NGOs with our Solar Harvest programme as quickly as possible. We will also showcase successful cases, such as Fung Kai Innovative School, in order to promote the programme to schools through their sponsoring bodies. With more schools taking part in the programme, more students will be able to learn about RE and the importance of energy efficiency with first-hand experience. I am most motivated to combat climate change by cultivating and harvesting electricity together with the participating schools and welfare NGOs," Edward said.



提升公眾安全及節能意識

RAISING PUBLIC AWARENESS OF SAFETY AND ENERGY CONSERVATION

2019/20年度，規管服務錄得的事故數字持續下降，原因之一是我們積極加強與業界及公眾的溝通，並致力開拓與其他機構協作的途徑，推出創新活動，讓機電安全和節能訊息更有效傳遞給業界人士和市民。規管服務深信防患於未然，向業界及市民進行宣傳教育，是提高公眾機電安全和節能意識的最有效方法。

應對疫情及突發情況

年內，本港先後出現社會事件和2019冠狀病毒病疫情，我們因應情況，迅速調整工作模式，例如確保所有受規管機構(如電力及氣體供應公司)具備有效的緊急應變和業務延續計劃，以及與機電署訂立各種溝通安排，以便無論發生任何緊急情況，都能為市民維持正常供應和服務。此外，受規管機構也須為員工提供防護裝備、檢視各種零部件和物資儲備和供應情況，以及確保有足夠人手維持各種生產操作和服務。

為配合全城抗疫，機電署與其他政府部門同樣於疫情期間提供必要及有限度的公共服務，以盡量減低病毒在社區傳播的風險。我們曾因疫情兩度暫停註冊及許可證辦事處的服務，但其間設立了投遞箱，讓業界遞交相關申請，並鼓勵他們以郵遞方式交表，以便我們無間斷地處理各種申請。鑑於疫情也影響了機電業界及車輛維修工場人士的生計，我們促使機電業界及車輛維修工場成為「防疫抗疫基金」受惠對象，以期紓緩業界面對的經濟壓力。

同時，為讓業界人士在疫情期間能符合各種註冊續期所需的「持續進修」要求，我們善用科技，在短時間內推出全新網上持續進修課程，相關人士只需登入觀看培訓資料並完成考核問題，即符合註冊續期要求。憑藉網上持續進修方案，註冊電業工程人員和註冊車輛維修技工解決了疫情期間無法面對上課的問題，效果理想。我們會繼續與業界商討，參考這次網上方案的成效，探討日後將線上與線下持續進修及考核方式靈活配合，利用科技方便業界人士。

In 2019/20, the number of incidents related to Regulatory Services continued to decline, thanks to our enhanced communication with the industry and the public, our endeavours to establish collaboration channels with other organisations and our innovative activities that enabled us to deliver messages of electrical and mechanical (E&M) safety and energy conservation more effectively to the trade and the public. We strongly believe that among other preventive measures, public education is the most effective means to enhance public awareness of E&M safety and energy conservation.

Responding to COVID-19 and Other Emergencies

In response to the challenges arising from the series of social incidents and COVID-19 this year, we swiftly adjusted our services to ensure that all regulatees (e.g. power and gas supply companies) had put in place effective contingency and business continuity plans, and implemented various communication arrangements with the EMSD for maintaining supply and services to members of the public in any emergency. They were also required to provide protective equipment for staff, review the stock and supply of spare parts and other equipment and ensure adequate manpower for sustaining all production operations and services.

To align with the territory-wide anti-epidemic measures, the EMSD, among other government departments, maintained essential and limited public services during the epidemic, so as to minimise the risk of spreading COVID-19 in the community. During the two service suspension periods of our Registration and Permit Office, we maintained our services with alternative means by setting up drop boxes to accept applications and encouraging submissions by mail. As the epidemic affected the livelihood of the E&M trades and vehicle maintenance workshops, we urged the Government to include them in the Anti-epidemic Fund so as to alleviate their economic pressure.

To facilitate trade practitioners in fulfilling the Continuing Professional Development (CPD) requirements for registration renewal during the epidemic, we made good use of technology by introducing a new online CPD platform within a short period to enable trade practitioners to study the training materials and complete the evaluation online, thereby fulfilling the registration renewal requirements. The online CPD model successfully solved the problem of registered electrical workers and registered vehicle mechanics being unable to attend face-to-face CPD courses due to the epidemic. We will take note of the satisfactory result of this measure and explore with the trade the possibility of integrating online learning into offline CPD training and evaluation in the future, thus offering more convenience to trade practitioners through technology.



杭州會議也是機電署與中國內地合作伙伴的第16次年度會議，雙方多年來就機電安全及能源效益事務一直合作無間。The occasion in Hangzhou also marked the 16th annual meeting between the EMSD and our Mainland of China co-operation partner on matters relating to E&M safety and energy efficiency.

機電署與中國內地海關總署於2019年10月在杭州簽署了新的合作備忘錄，成立「跨境電商工作小組」，聯手加強監控跨境電商平台供應的電氣產品的品質及安全。

The EMSD and the Mainland of China's General Administration of Customs signed a new MoC in Hangzhou in October 2019 to set up a new Cross-border E-commerce Working Group to jointly monitor the quality and safety of electrical products supplied via cross-border e-commerce platforms.



國際和區域交流進展

十多年來，我們一直積極拓展與中國內地(內地)及其他區域的交流，務求讓規管服務同事在規管知識、專業技術及宏觀視野方面，都能與內地及國際接軌。在機電安全和能源效益方面，機電署與內地海關總署根據現有的合作協議合作無間，而在2019年10月於杭州市舉行的年度會議上，雙方更簽訂了新的合作備忘錄，成立「跨境電商工作小組」，共同加強對跨境電商平台供應的機電產品的質量及安全監管工作。雙方將加強相互通報和跟進在跨境電商平台上發現懷疑不合格的機電產品。我們也與中國家用電器研究院建立聯繫，希望透過協作，聯繫國際電工委員會旗下負責家用電氣產品安全的技術小組，參與制訂家用電氣產品安全標準的工作，為推動電氣產品安全出一分力。氣體安全方面，我們於2019年10月參與在青島市舉行的第十一屆西太平洋地區燃氣具認證會議，從而加深了與地區性核證團體的交流和合作。繼機電署與廣州市工貿技師學院於2018年簽訂合作備忘錄後，我們的員工也於2019年9月前往該學院，參加易燃雪種冷氣機安裝及維修保養培訓，拓闊視野。機械安全方面，為深入了解升降機/自動梯及機械化泊車系統的技術及檢測工作，機電署同事在年內參加了深圳市特種設備安全檢驗研究院的相關培訓，希望日後與內地就此繼續保持聯繫。

International and Regional Connections

Over the past decade or so, we have been actively promoting exchanges with regulatory bodies of the Mainland of China (Mainland) and other regions to enhance our colleagues' professional knowledge and widen their perspectives so as to better connect with the Mainland and the international community. We have maintained collaboration with the Mainland's General Administration of Customs on E&M safety and energy efficiency. In October 2019, both parties signed a memorandum of co-operation (MoC) during the annual meeting in Hangzhou to form a new Cross-border E-commerce Working Group to strengthen collaboration on monitoring of quality and safety of E&M products supplied via cross-border e-commerce platforms. Both parties would step up the efforts in cross-border reciprocal notification and follow-up of suspected non-compliant E&M products supplied via e-commerce platforms. We also established contact with the China Household Electric Appliance Research Institute (CHEARI). Through collaboration with the CHEARI, we hope to connect with the International Electrotechnical Commission's technical group for household electrical product safety and participate in the formulation of household electrical product safety standards, thus contributing to promoting electrical product safety. As for gas safety, we participated in the 11th Gas Appliances Certification Meeting of the Western Pacific Region (GACM) held in Qingdao in October 2019 to consolidate the communication and co-operation with regional certification bodies. Following our MoC with the Guangzhou Industry and Trade Technician College in 2018, a number of EMSD colleagues attended a training course at the college in September 2019 to learn more about installing and maintaining air-conditioners with flammable refrigerants. As regards mechanical safety, our colleagues joined the training at the Shenzhen Institute of Special Equipment Inspection and Test to gain insights into the technology and examination of lifts/escalators and mechanised vehicle parking systems. We hope to maintain connections with the Mainland in the future.

提升公眾安全及節能意識 Raising Public Awareness of Safety and Energy Conservation



機電署助理署長/電力及能源效益以亞太經合組織能源效益及節能專家小組主席的身分，於2019年與菲律賓能源部合辦該小組的第54次會議。

As Chairperson of the APEC Expert Group on Energy Efficiency and Conservation (EGEE&C), the EMSD's Assistant Director/Electricity and Energy Efficiency jointly organised the 54th EGEE&C meeting with the Department of Energy of the Philippines in 2019.

我們的助理署長/電力及能源效益以亞太經合組織能源效益及節能專家小組主席的身分，主持該小組的會議。

Our Assistant Director/Electricity and Energy Efficiency chairing the APEC EGEE&C meeting.



我們多年來積極參與亞太區經濟合作組織(亞太經合組織)的能源工作組，近年更成為該工作組的能源效益及節能專家工作小組主席，發揮領導角色。年內，機電署助理署長/電力及能源效益以亞太經合組織能源效益及節能專家小組主席的身分，與菲律賓能源部合辦亞太經合組織能源效益及節能專家小組第54次會議，商討相關節能工作的拓展計劃。我們也積極參與有關亞太區的能源研究項目，並成功取得亞太經合組織撥款，展開城市節能研究，藉此梳理亞太區內城市節能的概況、政策和特點，分享香港在降低能源強度方面的成功經驗，並探討進一步推動城市節能的發展策略。鐵路規管方面，鐵路科近年積極拓展與中國內地和國際的交流，並與各方保持緊密聯繫，包括國際鐵路安全議會、國家鐵路局，以及廣州鐵路監督管理局等。

As an active member of the Asia-Pacific Economic Co-operation (APEC) Energy Working Group (EWG), we have taken on a leadership role as the Chair of the Expert Group on Energy Efficiency and Conservation (EGEE&C) of the EWG in recent years. The EMSD's Assistant Director/Electricity and Energy Efficiency, Chairperson of the EGEE&C, jointly organised the 54th meeting of APEC EGEE&C with the Department of Energy of the Philippines during the year to discuss the work on promoting energy efficiency. The EMSD also stayed active with regional research projects on energy efficiency and obtained an APEC grant to conduct a study on urban energy conservation to review the status, policies and characteristics of energy efficiency initiatives in cities in the Asia-Pacific region. The study would also share Hong Kong's successful experience in reducing energy intensity and explore development strategies for further promoting urban energy efficiency. In respect of railway regulatory work, the Railways Branch has been striving to establish connections with the Mainland of China and the international community in recent years. We have maintained close contact with the International Railway Safety Council, the National Railway Administration, the Guangzhou Railway Supervisory Administration, etc.

業界溝通添新猷

業界機構和從業員既是受規管方，也是我們推廣宣傳安全意識的協作伙伴。我們相信與業界持份者保持緊密溝通，既能加強業界的安全、節能和守規意識，亦能有效提高全港的機電安全和能源效益。

年內，我們除了如常舉辦各種業界簡報會、技術研討會、論壇及諮詢會外，更根據個別規管範疇需要，推出新措施以加強業界溝通。例如為進一步了解食肆的氣體安全狀況和預防相關事故，我們除加強巡查和宣傳外，更於2019年推出全新的外展及食肆問卷調查計劃，為全港持牌食肆進行氣體安全狀況調查，以掌握數據對症下藥。我們的氣體安全督察及調查公司走訪全港持牌食肆，向負責人講解為店內氣體裝置適時進行安全檢查的重要性，鼓勵他們盡快進行安全檢查。我們根據調查結果，評估食肆的氣體安全狀況，並篩選需要優先處理的對象，敦促他們盡快進行快速檢查。

根據這次問卷調查的結果而建立的數據庫，讓我們可全面了解全港持牌食肆和會所的氣體使用情況，對促進持牌食肆氣體安全工作帶來突破。

New Initiatives in Trade Communication

Trade organisations and practitioners are both our regulatees and our safety promotion partners. We believe that close communication with stakeholders from the trade could effectively enhance the awareness of safety, energy conservation and compliance among trade practitioners and raise the general E&M safety and energy efficiency in Hong Kong.

In addition to regular trade briefings, technical seminars, forums and consultation meetings, we introduced new initiatives in each of our regulatory areas during the year to strengthen trade communication. For example, besides stepping up our ongoing inspections and promotion work, we launched an outreach visit and questionnaire survey programme in 2019 to collect data across the territory for formulating focused gas safety measures, so as to get a better grasp of the current gas safety situation in licensed food premises and prevent gas-related incidents. Our gas safety inspectors and survey contractor visited the owners of all licensed food premises in Hong Kong to explain the importance of having timely safety inspection of gas installations, and encouraged them to conduct safety inspections as soon as possible. Based on the survey results, we assessed the gas safety level of the licensed food premises, identified the ones that required immediate attention, and urged them to carry out a "Quick Check" for their gas installations as soon as possible.

The database established through this programme has provided us with a more comprehensive picture of the gas utilisation of all licensed food premises and clubs in Hong Kong. This initiative marks a breakthrough in boosting the gas safety in licensed food premises.

調查公司在進行外展宣傳時，會向受訪食肆派發最新設計的定期安全檢查宣傳單張。
A newly designed leaflet for promotion of regular safety inspection was distributed to food premises by the survey contractor during outreach visits.



提升公眾安全及節能意識

Raising Public Awareness of Safety and Energy Conservation

另一項新措施是為電業界首度舉辦「表現優異註冊電業承辦商比賽」，以期為業界樹立典範，鼓勵註冊電業承辦商改善施工質素及工作流程。我們多年來一直與業界團體聯合舉辦「傑出註冊電業工程人員選舉」等活動，提升業界工程人員的安全意識、技術水平及工作安全文化。這次將比賽拓展至涵蓋註冊電業承辦商，有助提升電業界整體安全水平。

能源效益方面，我們在2019年推出「模範太陽能發電系統安裝選舉」。這項活動供個人或公司參加，旨在鼓勵業主採用優質可再生能源裝置，以配合推廣上網電價計劃，並為承辦商樹立優質裝置典範。參加評選的太陽能發電系統須在2019年11月30日或之前完成安裝和加入上網電價計劃。由機電署、多家機構和兩家電力公司代表組成的評判團，現場視察安裝於辦公大樓、商場、主題樂園和村屋的太陽能發電系統，其後選出五個模範裝置，以及評選最佳設計、最佳安裝、最佳保養及最佳物料四個獎項。

作為政府的「創新促成者」，機電署負責推動政府部門採用創新科技。我們聯同環境局於2019年8月在香港科學園舉辦首個「綠色創科日」，展示本港和粵港澳大灣區其他城市在提高能源效益和可再生能源方面的創科成果。活動得到多個本地專業組織、廣東省科技廳和廣東省科學技術協會支持，吸引了本地及大灣區其他城市共30多個機構參展和700多名人士出席。多位本港及中國內地專家亦就「綠色轉型」、「明日低碳城市」、「可持續創新驅動力」及「智能環境大數據」等重要議題，分享應用創新科技以應對氣候變化的經驗。

機電署與環境局於2019年8月合辦「綠色創科日」。

The EMSD and ENB jointly organised Green Innovation and Technology Day in August 2019.

Another new initiative was the first Outstanding Registered Electrical Contractors Competition organised for the electrical trade. The competition was designed to establish role models and encourage contractors to improve the quality of electrical engineering and work processes. It complemented the Outstanding Registered Electrical Worker Awards Scheme that the EMSD jointly hosted with the trade over the years to enhance practitioners' safety awareness and technical standards and promote a safe working culture. Extending the Scheme to registered electrical contractors will help enhance the overall safety standards of the electrical trade.

For energy efficiency, we organised the inaugural Solar Photovoltaic System Installation Role Model Election in 2019. Accepting applications from individuals and organisations, the event served to encourage property owners to adopt high-quality renewable energy installations for the Feed-in Tariff (FiT) Scheme and identify role models for contractors. The solar photovoltaic (PV) systems submitted for the election must be installed and connected to the grid on or before 30 November 2019. Comprised of representatives from the EMSD, the two power companies and other organisations, the judging panel made site visits to inspect the solar PV systems installed at office buildings, shopping malls, theme park and village houses, and selected five installations as the role models. Four special awards, namely the Best Design, Best Installations, Best Maintenance and Best Materials awards, were also selected.

As the Government's Innovation Facilitator, the EMSD promotes the adoption of innovative technology by government departments. In August 2019, we jointly organised the first Green Innovation and Technology Day with the Environment Bureau at the Hong Kong Science Park to showcase the innovation and technology (I&T) achievements in energy efficiency and renewable energy of Hong Kong and other cities in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). Supported by local professional organisations, the Department of Science and Technology of Guangdong Province and the Guangdong Provincial Association for Science and Technology, the event attracted more than 30 exhibitors and 700 participants from Hong Kong and other GBA cities. Experts from Hong Kong and the Mainland of China shared their experiences in combating climate change with I&T solutions, on the topics of Green Transformation, Tomorrow Low-carbon City, Sustainable Innovative Drivers and Big Data for Smart Environment.



港鐵公司已於列車車底安裝監察設備，監測軌道狀況。這是以科技提升鐵路安全的例子之一。

Devices have been installed by the MTRCL under its train carriages to monitor track conditions, which is one of the examples of deploying technology to enhance railway safety.

機電署也致力推動受規管機構善用科技，以提升安全水平。例如我們積極鼓勵香港鐵路有限公司（港鐵公司）採用「建築信息模擬 — 資產管理 — 鐵路安全」方案，以收集操作數據，方便進行中央管理及預測性維修保養。2019年9月港鐵紅磡站發生列車出軌事故，在機電署完成獨立調查後，運輸及房屋局局長引用法例，要求港鐵公司採取多項改善措施，包括在列車車底加裝監察設備以監察軌道狀況，以科技減少發生同類事故的風險。

機電署制訂和出版的各種實務守則和指引，務求協助業界執行日常工作和符合法例要求，堪稱從業員的「指路明燈」。我們也持續進行更新版本的工作，在每次修訂新版的過程中，我們必定充分諮詢業界意見，並參考本地及國際的最新技術發展和規管趨勢。例如為電氣產品供應商提供重要參考的《電氣產品（安全）規例指南》，經廣泛向公眾及業界諮詢後，最新版本已於2019年12月出版，當中以更清晰的方式說明相關規例，讓小型零售商更容易檢查其供應的電氣產品是否符合規例要求。另外，我們已展開《電力（線路）規例工作守則》的檢討及修訂工作，並於2019年成立包含各業界代表的工作小組，以商討建議修訂的內容。新版本預計於2020年年底出版。

機械安全方面，我們於年內修訂了《升降機及自動梯設計及構造實務守則》。新版以國際標準為藍本，清晰標註了不適用於香港的條文及本港特有的法規，讓讀者一目了然，方便國際供應商了解本港規定，鼓勵他們供應更多元化的升降機及自動梯產品。新版守則已於2019年8月刊憲，並於2020年6月生效。此外，為配合市場對引入創新機械化泊車系統的要求，機電署已於年內完成草擬《有關裝設機械化泊車系統的指引》，詳述申請引入此類系統的程序和考慮因素，讓業界及業主有據可依。有關籌備工作已在年內完成，指引已於2020年6月出版。

The EMSD also encourages its regulatees to make use of technology to enhance safety. For example, we encouraged the MTR Corporation Limited (MTRCL) to adopt a Building Information Modelling — Asset Management — Railway Safety (BIM-AM-RS) solution that enables the MTRCL to collect railway operating data for centralised management and predictive maintenance. Following the EMSD's independent investigation into the derailment incident at Hung Hom Station in September 2019, the Secretary for Transport and Housing invoked the relevant legislation to request the MTRCL to implement various improvement measures, including the installation of devices under the carriages to monitor track conditions and the application of technology to prevent similar incidents.

The Codes of Practice (CoP) and guidance notes formulated and published by the EMSD are useful for the trade to check if their works comply with regulatory requirements. We continue to update these CoPs and guidelines regularly. In each revision, we ensure that the trade is extensively consulted and the latest development of local and international trends are taken into account. An example is the latest version of the Guidance Notes for the Electrical Products (Safety) Regulation published in December 2019 following extensive public and trade consultation. The revised guidance notes explained the regulations concisely to help small retailers easily check whether the electrical products they supply are in compliance with the regulation. Meanwhile, the review and revision of the Code of Practice for the Electricity (Wiring) Regulations have commenced. In 2019, a working group comprising diverse trade representatives was set up to deliberate on the proposed revision. The revised CoP will be tentatively published at end-2020.

For mechanical safety, we revised the Code of Practice on the Design and Construction of Lifts and Escalators during the year. Using international standards as a blueprint, the new CoP marked clearly provisions that are not applicable to Hong Kong and those that are unique to Hong Kong. Apart from helping international manufacturers easily understand Hong Kong's relevant regulations, the new CoP also encourages them to provide a wider range of lifts and escalators to Hong Kong. The new CoP was gazetted in August 2019 and came into effect on 1 June 2020. In a separate development, the EMSD drafted a Guideline for Implementing Mechanized Vehicle Parking Systems during the year to cater to the increasing market demand for innovative mechanised vehicle parking systems. The guideline details the procedures for bringing in such systems and various consideration factors for reference by the trade and property owners. The preparatory work for the guideline was completed during the year and the guideline was issued in June 2020.

提升公眾安全及節能意識

Raising Public Awareness of Safety and Energy Conservation

我們在能源效益和節能工作方面也有相應的守則配合。新修訂的2018年版《建築物能源效益守則》和《能源審核守則》已分別於2019年5月和8月生效，相關的最新技術指引亦分別於2019年6月和7月推出，以協助持份者了解最新守則內容。為進一步提升建築物能源效益，兩份守則會繼續每三年更新一次，新一輪檢討修訂的籌備工作現已展開。至於「強制性能源效益標籤計劃」（強制性標籤計劃），為進一步鼓勵供應商引進高能效的產品以供消費者挑選，我們將會提高獨立式空調機（窗口機）、抽濕機和緊湊型熒光燈（慳電膽）的能源效益評級標準。相關的實務守則修訂版已於2020年6月5日刊憲，並將於2020年12月31日生效。此外，我們已開始籌備強制性標籤計劃第四階段的諮詢工作，預計會涵蓋發光二極管（LED）燈、氣體煮食爐和住宅式即熱氣熱水爐，是該計劃首次涉及氣體爐具。家用氣體爐具佔全港耗能量約30%，將氣體爐具納入強制性標籤計劃，可開拓本港節能的新領域。

協作創新 加強公眾宣傳教育

近年規管服務透過一般媒體和渠道進行公眾宣傳工作，例如海報及單張、通訊刊物、各種比賽活動、講座及研討會、電視電台及報章廣告、網站資訊和社交媒體，以及機電安全大使團隊到學校、長者中心和街頭進行外展探訪和舉行講座等。此外，我們亦很重視與不同機構的協作宣傳活動，讓目標羣組能快速而準確地接收針對機電安全和節能的訊息，務使與市民的溝通更到位，以收事半功倍之效。

新推出的電氣產品安全政府宣傳短片。機電署經常製作嶄新的宣傳短片，以提升公眾的機電安全及能源效益意識。

A new TV Announcement in the Public Interest (API) with safety messages on electrical products. The EMSD produces new APIs from time to time to enhance public awareness of E&M safety and energy efficiency.

Our work in energy efficiency and conservation is also supported by corresponding codes. The latest 2018 versions of the Building Energy Code (BEC) and the Energy Audit Code (EAC) took effect in May and August 2019 respectively. The technical guidelines related to the two codes were also introduced in June and July 2019 respectively to help stakeholders understand the content of the latest codes. To further enhance energy efficiency of buildings, we will continue to review the two codes every three years. Preparations for the next round of revision have commenced. Regarding the Mandatory Energy Efficiency Labelling Scheme (MEELS), to further encourage suppliers to provide more energy-efficient products for consumers, the energy efficiency grading requirements of single package type room air-conditioners, dehumidifiers and compact fluorescent lamps will be upgraded. The new relevant CoP was gazetted on 5 June 2020 and will take effect on 31 December 2020. At the same time, we have begun preparations for the consultation of the Fourth Phase of the MEELS, which will include light-emitting diode (LED) lamps, gas cookers and domestic gas instantaneous water heaters. It is worth noting that gas appliances will be included in the MEELS for the first time. Given that domestic gas appliances constitute about 30% of Hong Kong's total energy consumption, introducing gas appliances into the MEELS will open up a new frontier for energy saving in Hong Kong.

Enhancing Public Education through Collaboration and Innovation

Public education work of the Regulatory Services in recent years is conducted through conventional media and channels such as posters and leaflets, newsletters, various competitions and events, seminars and forums, advertisements on television, radio and newspapers, website and social media, as well as outreach visits and talks conducted by our E&M ambassadors to schools, elderly centres and outdoor locations. We also value the collaboration with various organisations so as to deliver focused E&M safety and energy conservation messages to our targeted audiences quickly and precisely. Our goal is to make our communication with the public on target and at optimal effectiveness and efficiency.



根據機電工程署的規定

舉例來說，為加強村屋業主及住戶的電力安全意識，以及預防固定電力裝置因缺乏維修保養而發生漏電等事故，我們於數年前已開始積極探訪村屋進行宣傳工作。年內，我們更積極與鄉議局合作，在2020年1月與鄉議局委員會面及宣傳電力安全訊息，並透過鄉議局的鄉郊聯繫提升我們村屋巡查工作的效率。2019年，我們進行了超過1 800次村屋巡查，透過與村屋住戶直接溝通，提升他們的電力安全意識。同時，我們在香港物業管理公司協會的協助下與其會員機構聯絡，成功走訪全港約550個大型屋苑合共4 000多幢建築物，當中包括不少單幢住宅樓宇，把電力安全訊息推廣至全港更多住戶。

自2018年起，我們與市區重建局（市建局）合作推行優化升降機資助計劃。機電署更為此成立了全新的專責部別，並借調員工到市建局為成功申請者提供技術支援。我們和市建局的團隊主動聯繫社區服務團體，於工程期間，在只有一部升降機或各樓層只有一部升降機能直達的樓宇，為有需要住戶（例如長者和殘疾人士等）提供外展社區服務，包括送遞膳食、代購日用品以至安排樓梯機服務等，務求用以為本的方式妥善落實計劃。以上種種都是我們年內展開的新協作活動。

與此同時，我們也持續加強與現有伙伴的合作。例如機電署近年聯同香港房屋委員會、香港房屋協會、香港中華煤氣有限公司和多家供應石油氣的註冊氣體供應公司，在多個公共屋邨推廣定期安全檢查計劃，主動接觸「長期沒接受安全檢查服務」的煤氣及管道石油氣公共屋邨用戶，勸諭戶主盡早進行安全檢查，避免發生氣體事故。這項協作宣傳已見成效，截至2020年年初，「長期沒接受安全檢查服務」的公共屋邨用戶數目已顯著減少，整體入屋檢查率逾99.3%，檢查覆蓋率大為提高。

我們也與市建局合辦簡報會，為紅磡區的私人樓宇業主及住戶講解大廈氣體安全事項，以及參加深水埗民政事務處為該區「三無」樓宇業主及住客舉辦的氣體安全講座。此外，為了提高不同族裔人士對氣體安全的認知，我們除了在假日派出氣體安全大使前往外傭的熱門聚集地點進行宣傳和與慈善團體協作外，還透過不同族裔的電台以印尼語、泰語、尼泊爾語和年內新增的印地語和烏爾都語，廣播氣體安全訊息，務求令宣傳和教育的效果更到位。我們十分重視與不同機構的協作關係，日後定將予以深化。

For instance, we have been proactively visiting village houses in recent years to enhance the electrical safety awareness among owners and residents, and prevent incidents such as electricity leakage caused by improper maintenance of fixed electrical installations. During the year, we collaborated with Heung Yee Kuk and met with its committee members in January 2020 to promote electrical safety messages. Leveraged the organisation's rural connections, we have enhanced the efficiency of our village houses inspections. In 2019, we conducted more than 1 800 visits to village houses to directly communicate with residents to raise their awareness of electrical safety. At the same time, our team gained much help from The Hong Kong Association of Property Management Companies to connect with its member organisations. This enabled us to visit more than 4 000 buildings in about 550 large-scale residential estates, including a number of single-block residential buildings, to promote electrical safety messages to more households in Hong Kong.

Since 2018, we have joined with the Urban Renewal Authority (URA) to implement the Lift Modernisation Subsidy Scheme (LIMSS). The EMSD has set up a dedicated section and seconded colleagues to the URA to provide technical support for successful LIMSS applicants. For buildings with a single lift or with floors served by one lift only, our section and the URA team have taken the initiative to work with community service groups to explore ways to help needy residents, such as the elderly and the disabled during the works period. The services include delivery of meals, procurement of daily necessities and provision of stair-climber services. Our goal is to implement the LIMSS with a people-oriented approach. These are just some examples of the new collaborations we initiated during the year.

At the same time, we also continued to strengthen our collaboration with existing partners. For instance, we have been working with the Hong Kong Housing Authority, the Hong Kong Housing Society, the Hong Kong and China Gas Company Limited and various registered gas supply companies providing LPG to promote Regular Safety Inspection (RSI) Programme to the "long-time-no-service" (LTNS) households in public housing estates. The purpose of the promotion is to urge these households to conduct RSI as soon as possible to avoid gas incidents. The joint publicity campaign has yielded remarkable results. As of early 2020, the number of LTNS households in public housing estates was reduced notably and the overall RSI coverage rate was significantly increased to more than 99.3%.

We joined hands with the URA to hold briefings for owners and residents of private housing in Hung Hom district about gas safety in buildings. Our team also took part in gas safety talks held by the Sham Shui Po District Office for owners and residents of "three-nil" buildings in the concerned district. To enhance gas safety awareness among different ethnic groups, our gas safety ambassadors visited popular gathering places of domestic helpers during public holidays for outreach promotion, and collaborated with several charity organisations. We also made use of radio channels dedicated to different ethnic groups to disseminate gas safety messages. In addition to broadcasting messages in Bahasa Indonesia, Thai and Nepali, we added messages in Hindi and Urdu during the year to make the promotion more effective. We value the opportunity to collaborate with different organisations and hope to strengthen the partnerships in the future.

提升公眾安全及節能意識

Raising Public Awareness of Safety and Energy Conservation

年內，我們在不少極受歡迎的公眾教育活動中增添了新元素。例如在與環境局合辦的一年一度「全民節能」運動中，除了原有的多個約章活動和比賽外，2019年更啟動了「慳神重新校驗大比拼2019」，鼓勵社區為建築物進行重新校驗，以加強機電設施的操作效率，提升能源效益。我們也就一些新推出的項目進行重點宣傳，當中較大型的是於2019年3月底開始接受申請的優化升降機資助計劃。我們與市建局於年內舉行了11場大型公眾簡介會，為目標樓宇的業主講解計劃和申請詳情，並同步推出一系列電視電台宣傳廣告、海報和單張等，以作配合。

機電青少年大使計劃穩步發展

為慶祝機電青少年大使計劃成立十周年，我們特別舉辦了兩項別出心裁的活動，即「星級大使訓練班」和「STEM工作坊」。星級大使訓練班的對象為小四至中三的大使。活動邀請了規管服務的工程師擔任導師，教授大使們各種與機電工程及法例有關的基本知識，課堂後更帶領大使進行實地參觀，以培養「星」級大使，讓他們在社區推廣機電安全及能源效益。參加活動的大使需提交工作報告以作記錄，經審閱合格後，便可獲取相關主題單元的獎狀及星章，成為「星」級大使。由於STEM近年為教育界熱門題目，我們也為大使安排了共五場STEM工作坊，透過親手製作機械人、四驅車等機械小玩意，讓他們了解機械和電能的原理，提升對STEM的興趣。

傳媒聚會

機電署十分重視傳媒關係，除了主動發放部門資訊和積極回應傳媒的日常查詢，確保部門工作高度透明外，亦每年舉辦傳媒聚會，讓新聞界更深入了解部門的最新動向。

During the year, we added new elements to some highly popular public education activities. In the annual Energy Saving for All Campaign we co-organised with the Environment Bureau, we launched the Energy Saving Championship Scheme, in addition to the various charters and competitions in the umbrella campaign, to encourage the community to adopt retro-commissioning (RCx) for their buildings in order to enhance operational efficiency of E&M facilities and energy efficiency. There were also focused publicity campaigns of new schemes, a key one being the LIMSS, which was opened for application in late March 2019. We held 11 large-scale mass briefings in conjunction with the URA to explain the scheme and application details to owners of targeted buildings. A series of TV and radio announcements, posters and leaflets were concurrently launched to support the scheme.

Making Steady Progress in the E&M Young Ambassador Programme

In celebration of the 10th anniversary of the E&M Young Ambassador (EMYA) Programme, we organised two tailor-made events, namely the Star Ambassador Training Class and the STEM Workshop. Targeted at Primary Four to Secondary Three ambassadors, the Training Class invited engineers from our Regulatory Services to be the instructors to teach participants basic knowledge of E&M engineering and legislation. After class, the instructors also conducted site visits with the participants to nurture Star Ambassadors, who would, in return, promote E&M safety and energy efficiency in the community. Upon reviewing the reports submitted by participants, certificates and star badges of the relevant module were presented to the qualified ambassadors, thereby signifying their becoming of Star Ambassadors. As STEM education has become a hot topic in the education sector in recent years, the EMSD organised five STEM workshops to provide participants with the chance to make mechanical gadgets such as robots and four-wheel-drive vehicles. The workshops enabled them to experience first-hand the principles of machinery and electric energy, enhancing their interest in STEM learning.

Media Gathering

The EMSD takes media relations seriously. In addition to proactively sharing departmental information with the media and responding to daily media enquiries so as to ensure a high degree of transparency about our work, we also organise an annual media gathering to enable the press to better understand our latest developments.

我們邀請了青少年大使與家人出席機電青少年大使計劃於機電署總部大樓舉行的周年聚會，當中進行多項頒獎儀式，大家更分享有關樂齡項目的經驗，濟濟一堂歡度一天。

Annual gathering of the E&M Young Ambassador Programme, where ambassadors and their families were invited to the EMSD Headquarters for prize presentations, experience sharing on gerontech projects and a day of fun.



機電署於2020年1月舉行年度傳媒聚會，機電署署長及部門高層管理人員陪同傳媒朋友，參觀機電署總部大樓內新落成的「技能評估中心」及「技能發展中心」。

At the EMSD annual media gathering held in January 2020, our Director and senior management took journalists on a tour of our new Skill Assessment Centre and Skill Development Centre at the EMSD Headquarters.



最近一次傳媒聚會於2020年1月16日舉行，共有20多家媒體代表出席。聚會主題是「用心培訓成就啟航」，由署長聯同高層管理人員主持，並帶領傳媒朋友參觀機電署總部大樓內新落成的「技能評估中心」和「技能發展中心」。在聚會上，高層管理人員概述機電署近年積極投放資源培訓機電業人才，除了支持香港持續發展外，亦希望可以與年青人同行，用心為他們鋪建一條「機電路」，讓他們盡展所長，為建設香港作出貢獻。

The last media gathering was held on 16 January 2020, attended by representatives from more than 20 media organisations. Themed "Training for E&M Go", the event was hosted by the Director of Electrical and Mechanical Services and other members of senior management. They took the media on a tour of our new Skill Assessment Centre and Skill Development Centre at the EMSD Headquarters. Our senior management also gave an overview of how we had been investing considerable resources in nurturing E&M talent in recent years. Our aim is to support Hong Kong's sustained development and create an E&M career path for young people, through which they can apply their talents and contribute to Hong Kong's development.



機電工程營運基金報告

ELECTRICAL AND MECHANICAL SERVICES TRADING FUND REPORT

抱負 VISION

致力提供優質機電工程服務，精益求精，以提升市民的生活質素。

To improve the quality of life for our community through continuous enhancement of our electrical and mechanical engineering services.

使命 MISSION

客戶 CUSTOMER

提供優質的工程方案，以滿足客戶的需要。

Providing quality engineering solutions to satisfy our customers' needs.

員工 STAFF

建立一支卓越的員工隊伍，並維持和諧的工作環境。

Developing a competent workforce and maintaining a harmonious environment.

部門 ORGANISATION

掌握科技發展和流程改善，以提供更佳服務。

Keeping pace with technology development and process improvement 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、具成本效益和優質的服務。

We provide safe, reliable, efficient, cost-effective and quality services.

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 support。

We focus on the needs of our customers and provide engineering solutions in a proactive and responsible manner to win their trust and support.

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

林世雄太平紳士
Mr Lam Sai-hung, 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)

張遠芳太平紳士
Mr Cheung Yuen-fong, JP

機電工程署副署長/營運服務
Deputy Director/
Trading Services, EMSD

秘書 SECRETARY

袁秀明女士
Ms Yuen Sau-ming, Anna

機電工程署主任秘書
Departmental Secretary, EMSD

* 薛永恒太平紳士出任機電工程署署長至2020年4月21日
Mr Sit Wing-hang, Alfred, JP was Director of Electrical and Mechanical Services up to 21 April 2020

* 彭耀雄太平紳士出任機電工程署副署長/營運服務至2019年9月14日
Mr Pang Yiu-hung, JP was Deputy Director/Trading Services, EMSD up to 14 September 2019

管理委員會 MANAGEMENT BOARD



主席 CHAIRMAN

- 1 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)

* 機電工程署財政經理職位於2020年4月1日開始改名為機電工程署總庫務會計師/財政管理
The post title of Finance Manager, EMSD was renamed to Chief Treasury Accountant/Financial Management, EMSD with effect from 1 April 2020

* 梁淑貞女士及劉啟榮先生出任署理機電工程署員工關係主任至2019年10月7日
Miss Leung Suk-ching, Olivia and Mr Lau Kai-sun were Acting Staff Relations Officers, EMSD up to 7 October 2019

* 薛永恒太平紳士出任機電工程署署長至2020年4月21日
Mr Sit Wing-hang, Alfred, JP was Director of Electrical and Mechanical Services up to 21 April 2020

* 彭耀雄太平紳士出任機電工程署副署長/營運服務至2019年9月14日
Mr Pang Yiu-hung, JP was Deputy Director/Trading Services, EMSD up to 14 September 2019

* 張遠芳太平紳士出任機電工程署助理署長/2至2019年9月14日
Mr Cheung Yuen-fong, JP was Assistant Director/2, EMSD up to 14 September 2019

成員 MEMBERS

- 2 張遠芳太平紳士
Mr Cheung Yuen-fong, JP**
機電工程署副署長/營運服務
Deputy Director/Trading Services, EMSD
- 3 王錫章太平紳士
Mr Wong Sek-cheung, JP**
機電工程署助理署長/1
Assistant Director/1, EMSD
- 4 黃偉光先生
Mr Wong Wai-kgwong**
機電工程署助理署長/2
Assistant Director/2, EMSD
- 5 陳志偉太平紳士
Mr Chan Chi-wai, Richard, JP**
機電工程署助理署長/3
Assistant Director/3, EMSD
- 6 李碧雲女士
Ms Li Pik-wan, Clara**
機電工程署總庫務會計師/財政管理
Chief Treasury Accountant/Financial Management, EMSD
- 7 劉志偉先生
Mr Lau Chi-wai, Wilfred**
署理機電工程署員工關係主任
Staff Relations Officer (Acting), EMSD

秘書 SECRETARY

- 8 袁秀明女士
Ms Yuen Sau-ming, Anna**
機電工程署主任秘書
Departmental Secretary, EMSD

業務回顧與前瞻 OPERATIONS REVIEW AND OUTLOOK



張遠芳太平紳士
Mr Cheung Yuen-fong, JP

機電工程署副署長 /
營運服務

Deputy Director/
Trading Services, EMSD

機電工程營運基金在2019/20年度的業務表現保持穩定，總收入為80.87億港元(2018/19年度：75.23億港元)。近年的業務增長主要來自服務需求持續增加，以及有賴客戶信任和員工努力。

業務增長 穩步向前

儘管本港受2019冠狀病毒病疫情及公眾活動影響，我們2019/20年度的收入回報率仍能維持6.2%，可見發展正面及符合我們的營運原則，即讓客戶保留資金，為服務對象創造最大價值。

在未來數年，不少新的政府大樓及基建項目將陸續落成啟用，例如蓮塘/香園圍口岸、東九文化中心、新的入境事務處總部和多條新隧道等，因此，長遠而言，我們預期營運基金的業務可保持增長。醫院管理局(醫管局)的第一個和第二個十年醫院發展計劃也同樣至關重要。作為醫管局的密切合作伙伴，我們已成立新部別，專責支援落實兩個十年醫院發展計劃的工作，為我們的業務注入新動力。

巨大挑戰 迅速應變

2019/20年度發生的公眾活動和2019冠狀病毒病疫情，為香港帶來前所未有的挑戰。有賴全體同事緊守崗位，我們才能順利支援客戶，共同渡過艱難時刻。公眾活動帶來的挑戰之一，是必須搶修大量受破壞的公共設施，包括約750個路口的交通燈。我們與其他政府部門通力合作，迅速擴展和調動維修團隊，徹夜搶修，務使受損的交通燈能盡快恢復正常運作。

海底隧道同樣因公眾活動而遭受嚴重破壞。為此，我們立即成立了24小時緊急應變小組，進行現場檢查、制訂復修策略、成立系統化匯報機制、進行現場測試、監察緊急的復修工作，以及協調超過一百人的機電署工作人員和業界伙伴搶修隧道。我們與各有關政府部門及業界伙伴日以繼夜、努力不懈，在清理現場後100小時內復修所有受損的隧道設施，確保隧道全面恢復運作，為市民提供服務。

The Electrical and Mechanical Services Trading Fund continued to see steady business performance in 2019/20, with total revenue at HK\$8,087 million (2018/19: HK\$7,523 million). The business growth in recent years was attributable to a sustained increase in service demand, the trust from our clients and the dedication of our staff.

LONG-TERM GROWTH

Despite the impact of the COVID-19 epidemic and the public order events, our return on revenue in 2019/20 held steady at 6.2%, which was a positive development consistent with our operating principle to help our clients retain funding to optimise value for their customers.

In coming years, we expect to see continued and long-term business growth for the EMSTF as new government buildings and infrastructures will be commissioned, such as the Liantang/Heung Yuen Wai Boundary Control Point, the Kowloon East Cultural Centre, the new Immigration Headquarters and several new tunnels. The first and second Ten-year Hospital Development Plans (HDPs) of the Hospital Authority (HA) are also of great significance. As a close partner of the HA, we set up a new Division dedicated to supporting the implementation of the HDPs, bringing fresh momentum to our business.

PROMPT RESPONSE TO UNPRECEDENTED CHALLENGES

The public order events and the COVID-19 epidemic in 2019/20 posed unprecedented challenges to Hong Kong. Thanks to the commitment of our colleagues, we were able to support our clients during these difficult times. One of the challenges arising from the public order events was the need to quickly repair numerous damaged public facilities, such as the traffic lights at around 750 road junctions. Working closely with other government departments, we promptly expanded and mobilised our maintenance team to conduct repair works for the traffic lights overnight, so that the damaged traffic lights could resume normal operation as soon as possible.

The Cross-Harbour Tunnel was also severely damaged due to the public order events. We set up a 24-hour dedicated emergency team immediately to carry out on-site inspections, to develop recovery strategy, to establish systematic reporting mechanism, to conduct on-site tests and monitoring of the exigency recovery works as well as to co-ordinate over 100 on-site working members of EMSD and trade partners for the urgent repair of the tunnel. We worked relentlessly with relevant government departments and trade partners, and made strenuous efforts to recover all damaged tunnel facilities within 100 hours after clearance of the site, enabling the tunnel to resume its full operation for members of the public.

業務回顧與前瞻

Operations Review and Outlook

至於2019冠狀病毒病疫情，我們於2003年協助客戶對抗嚴重急性呼吸系統綜合症的經驗，對今次抗疫工作有莫大幫助。疫情爆發後，我們馬上為28家公立醫院和100多家診所的空調和通風系統加強檢查及保養，又安裝了40多個發燒偵測系統和240多個「流動組合式—高效能空氣微粒子過濾器」，並將普通病房改為負壓病房供2019冠狀病毒病患者入住，務求在短時間內提升服務量。此外，我們也為190多輛救護車的空調系統進行清潔及消毒，並為200多輛救護車加裝空氣過濾網。

檢疫方面，我們調派了專責團隊，為相關的政府部門及機構提供技術意見，並參與改建檢疫中心的工作，以及為檢疫中心的機電設施提供維修保養服務。我們也運用部門的「機電創科網上平台」（「網上平台」），為客戶迅速物色市場上的抗疫創科方案。我們的團隊為客戶安裝智能發燒偵測系統，並為邊境口岸、政府辦公室和法院加強空調和通風系統，減低病毒傳播風險。

面對2019冠狀病毒病疫情等危機，客戶變得更樂於採納創科方案。我們將繼續密切留意疫情發展，並為客戶提供相應支援。

引領創科 促進合作

作為政府的「創新促成者」，我們肩負協助政府部門在工作上採用創科的重任，而所有策略業務單位也一直致力為客戶物色和測試各種創科方案，以滿足其業務需求。有關詳情載於本報告內。

在企業層面，機電署於2019年6月與五所本地大學和七家科研機構簽署合作備忘錄，以支援政府部門應用創科和利用「網上平台」提升服務。2019年8月，我們與粵港澳大灣區的三個重要團體，即廣東省科學技術協會、廣東省生產力促進中心及廣東省科學院簽署合作備忘錄，建立新的合作關係，進一步加強創科協作。創新是未來增長和進步的動力源頭，上述各種策略伙伴關係，將締造更緊密長遠的合作，為所有參與機構孕育更豐盛的創科機會，帶來莫大裨益。

With regard to the COVID-19 epidemic, the EMSTF's experience in helping clients fight the Severe Acute Respiratory Syndrome in 2003 was valuable to the anti-epidemic work this time. We promptly stepped up the examination and maintenance of air-conditioning and ventilation systems at 28 public hospitals and over 100 clinics, installed more than 40 fever screening systems and over 240 Mobile Modular High Efficiency Particulate Arrestance Filter Units, and converted general wards into negative pressure wards for COVID-19 patients to increase service capacity in a short period of time. We also carried out cleaning and disinfection of air-conditioning systems in over 190 ambulances, and installed additional air filters in more than 200 ambulances.

On the quarantine front, we assigned dedicated teams to provide technical advice to relevant government departments and organisations, participated in the conversion works of various quarantine centres, and provided maintenance services for their E&M facilities. We also leveraged our E&M InnoPortal to help clients quickly access innovation and technology (I&T) solutions from the market to help fight the virus. Our team helped clients install the Smart Fever Screening System, and enhanced the air-conditioning and ventilation systems at boundary control points, government offices and law courts to reduce the risk of infection.

In times of crisis such as the outbreak of COVID-19, clients became more ready to embrace I&T solutions. We will continue to monitor the situation and support our clients accordingly.

OUR ROLE AS GOVERNMENT'S INNOVATION FACILITATOR

Given our role as the Government's Innovation Facilitator to help government departments adopt I&T in their work, all our Strategic Business Units were dedicated to supporting our clients in identifying and testing various I&T solutions that suit their operational needs, the details of which are outlined in this report.

On a corporate level, the EMSD signed memoranda of co-operation (MoC) with five local universities and seven research institutions in June 2019 to support I&T application in government departments and enhance their services through the E&M InnoPortal. More partnerships were forged in August 2019 when we signed MoC with three prominent entities in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), namely the Guangdong Provincial Association for Science and Technology, the Guangdong Productivity Centre and the Guangdong Academy of Sciences, to enhance I&T co-operation. As innovation is the engine of growth and advancement, these strategic partnerships have great value for all parties concerned in enriching I&T opportunities through closer and long-term co-operation.

自2019年年中起，我們的「網上平台」已與廣東省華南技術轉移中心的網站「華轉網」連接。我們的目標是使「網上平台」成為搜尋本港政府部門及公營機構各種「創科願望」的首選網站，以及匯聚整個大灣區的供應商和合作伙伴所提供「創科方案」的平台。事實證明，「網上平台」也有效協助客戶迅速物色240多個合適的抗疫創科方案，包括有助消防及救護學院、大欖女懲教所和中央郵件中心能迅速設置使用消毒機械人。

屢獲嘉獎 碩果纍纍

年內，有賴上下員工的努力，營運基金贏得多個公營及私營機構頒發的獎項，表揚同事在公共服務、科技、創新、數碼化及培訓方面的傑出成就。我們的「非一般創新訓練」參賽項目，在2019年公務員優質服務獎勵計劃中勇奪「隊伍獎（內部支援）」金獎和「特別嘉許獎（創科應用）」，成績令人欣喜。此外，兩位營運基金技術員於2019年8月，在俄羅斯喀山舉行的第45屆世界技能大賽中贏得優異獎，再次證明本港技術員的機電技能，在國際間首屈一指。

與此同時，我們與懲教署共同開發的「懲教署『智慧監獄』」項目，也在2019年公務員優質服務獎勵計劃中榮獲優異獎。營運基金的多位同事，也憑着出色工作表現，分別獲得2019年公務員事務局局長嘉許狀、2019年申訴專員嘉許獎及2020年香港工程師學會創意獎。

此外，我們為香港兒童醫院和天水圍醫院設計的「建築信息模擬—資產管理」項目，獲「型建香港」頒發「最佳BIM政府部門大獎」，而我們為建造業零碳天地設計的「建築信息模擬—資產管理」項目，也贏得Autodesk香港的「BIM設計大獎」，實在令人鼓舞。

Since mid-2019, our E&M InnoPortal has been connected to the website of the South China Technology Commercialization Center. Our aim is to make the E&M InnoPortal the go-to website for searching "I&T wishes" of government departments and public organisations in Hong Kong, as well as a platform of "I&T solutions" offered by providers and co-operation partners from the entire GBA. Indeed, the E&M InnoPortal has proved effective in helping clients quickly access over 240 suitable I&T solutions to fight COVID-19, including the speedy deployment of disinfection robots at the Fire and Ambulance Services Academy, the Tai Lam Centre for Women and the Central Mail Centre.

YEAR OF AWARDS AND ACCOLADES

During the year, the EMSTF was honoured with awards from both public and private sectors for our colleagues' accomplishments in public service, technology, innovation, digitisation and training, an achievement we owe to our staff. We are particularly delighted that our "Training Beyond Innovation" submission won the Gold Prize in Team Award (Internal Support) and the Special Citation Award (Application of Innovation and Technology) in the Civil Service Outstanding Service Award Scheme 2019. Two EMSTF technicians also won the Medallions for Excellence in the 45th WorldSkills Competition held in Kazan, Russia, in August 2019, showing once again that Hong Kong technicians' skills are among the best in the international arena.

Meanwhile, our submission titled "Smart Prison" of Correctional Services Department jointly developed with the Correctional Services Department won a Meritorious Award in the Civil Service Outstanding Service Award Scheme 2019. Other individual EMSTF colleagues were also honoured with the Secretary for the Civil Service's Commendation Award 2019, the Ombudsman's Awards 2019 and the Hong Kong Institution of Engineers Innovation Award 2020 for their outstanding performances.

We were also delighted to learn that the EMSD was awarded the "Best BIM Government Department Award" from buildingSMART Hong Kong for our Building Information Modelling – Asset Management (BIM-AM) projects for the Hong Kong Children's Hospital and the Tin Shui Wai Hospital, as well as the "BIM Award" from Autodesk Hong Kong for our BIM-AM work at the CIC-Zero Carbon Building.

業務回顧與前瞻

Operations Review and Outlook

策略計劃 樂見成效

儘管面對2019冠狀病毒病疫情，營運基金的第二個五年策略計劃仍然取得良好進展。五年計劃的三個主要策略，即「機電數碼化」、「培育團隊」和「科技・創新」，均帶動營運基金朝預期方向邁進。

「機電數碼化」方面，我們的重點工作之一，是在機電署總部大樓設立首個區域數碼監控中心，讓我們為客戶設施進行預測性維修保養。「培育團隊」方面，我們今年招聘更多年輕見習技術員，為機電業培育新血。此外，我們亦已全面更新訓練設施，包括增設數碼訓練中心，為訓練課程加入創新及數碼元素。

至於「科技・創新」方面，截至2020年3月，我們的「機電創科網上平台」已為客戶發布逾230個創科願望，並收到逾470個解決方案，當中60多個方案已開始進行測試，20多個方案更已順利完成。此外，我們繼續推行內部創新比賽等活動，以期培養部門的創意及協作文化。

來年展望

我們來年的工作重點，仍是致力推動和幫助客戶採納創科方案。我們會繼續不遺餘力，讓員工有更多機會接觸科技，例如「建築信息模擬－資產管理」和綜合樓宇管理系統等技術，以不斷創新的精神力求進步。

我們也將繼續保持與機電業界的良好合作。為鼓勵政府工程採用創科方案，我們會為機電維修保養的定期合約及工程合約的投標評分制度，引入創科元素。此外，我們正與業界伙伴合作，編撰一系列《機電資產最佳操作和維修作業守則》，涵蓋電氣、空調、消防、升降機及自動梯系統等範疇。該系列《守則》旨在協助大廈業主及物業設施管理公司，對機電服務供應商定下更高的水平和期望，從而鼓勵業界提供高於法定要求水平的服務。

STRATEGIC PLAN ON THE RIGHT TRACK

Despite the outbreak of COVID-19, the EMSTF's second Five-year Strategic Plan made good progress. The three strategies, namely "E&M Digitisation", "Excellent Work Team", and "Technology · Innovation", steered our development forward as planned.

One of the highlights of our work in "E&M Digitisation" was the launch of our first Regional Digital Control Centre at the EMSD Headquarters, which enabled us to carry out predictive maintenance for clients' facilities. On establishing an "Excellent Work Team", we have recruited more technician trainees this year to nurture new blood for the E&M industry. Also, we have comprehensively renewed our training facilities, such as establishment of new Digital Training Centre, to include innovation and digitised elements to our training scheme.

As for "Technology · Innovation", more than 230 I&T wishes from our clients have been posted on the E&M InnoPortal and over 470 solutions were received as of March 2020. Over 60 I&T project trials have kicked off, among which over 20 have been completed. Other measures, such as the internal inno-competitions, have continued to foster a culture of creativity and collaboration within the EMSD.

THE YEAR AHEAD

Facilitating our clients in adopting I&T solutions will continue to be our focus next year. We will also spare no efforts in ensuring that our staff have broad exposure to technologies such as BIM-AM and integrated Building Management System, so as to keep advancing through innovation.

We will keep our momentum in working with the E&M trade. To encourage adoption of I&T solutions in government works, we will introduce I&T elements to the marking schemes of tenders of E&M maintenance term contracts and works contracts. Also, we are collaborating with trade partners to formulate a series of booklets titled Best Practices for Operation and Maintenance of E&M Assets, covering electrical, air-conditioning, fire services, and lift and escalator systems. The booklets aim to help building owners and facility management companies set higher standards and expectations of their E&M service providers, thus motivating the trade to perform at a level higher than statutory requirements.

回顧2019/20年，我們衷心感謝所有客戶的信任和員工的承擔。一如既往，對於常務委員會和各個決策局給我們指導和支持，我們深表謝意。我們感謝各商會、大學及學者、專業團體、培訓及研究機構給予的意見和支持，也感謝為我們提供服務的顧問和承辦商，以及本港和中國內地的合作伙伴，讓我們順利提升服務和落實各種創科項目。

我們期待來年與所有持份者繼續合作無間。



張遠芳
機電工程署副署長/營運服務

Looking back at 2019/20, we must sincerely thank all our clients for their trust, and our staff for their commitment. As always, we owe our steady performance to the guidance and support of the Executive Board and policy bureaux, for which we are most grateful. Our appreciation goes to the trade associations, universities and academics, professional bodies and training and research institutions for their advice and support. We must also thank our consultants and contractors, as well as our co-operation partners in Hong Kong and the Mainland of China, without whom our service enhancements and I&T initiatives would not have been successful.

We look forward to yet another year of collaboration with all our stakeholders.



Cheung Yuen-fong
Deputy Director/Trading Services, EMSD

營運服務 TRADING SERVICES

合作無間 同心抗疫

2019冠狀病毒病疫情為我們的生活和經濟帶來了前所未有的挑戰。公共衛生是我們當前的首要工作，營運基金的所有策略業務單位全力為我們所有客戶提供支援，特別是醫院管理局（醫管局）、衛生署、紀律部隊如消防處等，共同一起齊心抗疫。

事實上，早在2020年1月香港確診首宗2019冠狀病毒病病例之前，我們已經加強對醫管局及衛生署轄下28家公立醫院和100多家診所的空調和通風系統的檢查和維修保養的工作，並且在隔離病房、監察病房、急症室以及指定診所等高風險地方，為所有機電設備加強維修保養，為醫護人員提供安全的工作環境。

自疫情於2020年1月開始爆發至4月為止，我們的團隊檢查了現有的隔離病房，又重新啟用早前停用的負壓病房，並且在公立醫院和診所安裝了40多個發燒偵測系統。我們還設計、建造和安裝了240多個「流動組合式—高效能空氣微粒子過濾器」，將普通病房改裝為供2019冠狀病毒病患者使用的二線負壓病房。



我們的同事在二線負壓病房檢查「流動組合式—高效能空氣微粒子過濾器」的運作，務求為醫護人員及病人提供安全的工作和治療環境。

Our colleague is conducting inspection of the operation of the MMHU in a second-tier negative pressure isolation ward so as to create a safe environment for medical personnel to provide treatment to patients.

CONCERTED EFFORTS TO FIGHT COVID-19

The Coronavirus Disease 2019 (COVID-19) epidemic has brought unprecedented challenges to our lives and the economy. With public health as our top priority, all EMSTF Strategic Business Units work together to support our clients, especially the Hospital Authority (HA), the Department of Health (DH), the disciplined forces such as the Fire Services Department (FSD), and indeed all clients, in fighting the virus.

Even before Hong Kong confirming its first COVID-19 case in January 2020, we had already begun stepping up the examination and maintenance of air-conditioning and ventilation systems at 28 public hospitals and over 100 clinics under the HA and the DH, and had introduced enhanced maintenance for all E&M equipment in high-risk areas such as isolation wards, surveillance wards, accident and emergency departments and designated clinics, so as to provide a safe working environment for medical staff.

From the start of the outbreak in January to April 2020, our team also reviewed existing isolation wards, reactivated those negative pressure wards stepped down before, and installed over 40 fever screening systems at public hospitals and clinics. We also undertook the design, construction and installation of over 240 Mobile Modular High Efficiency Particulate Arrestance Filter Units (MMHUs) to convert general wards into second-tier negative pressure wards for COVID-19 patients.

我們對救護車的保養亦同樣升級。自從疫情2020年1月開始爆發至4月期間，我們為消防處190多輛救護車進行清潔及消毒，並在200多輛救護車的後置空調系統加裝了更高效能的空氣過濾網。我們還為曾經接載過確診患者的警車進行消毒。同時，我們一直在研究其他消毒方法，包括臭氧和納米光觸媒，以不斷提高我們的抗疫能力。

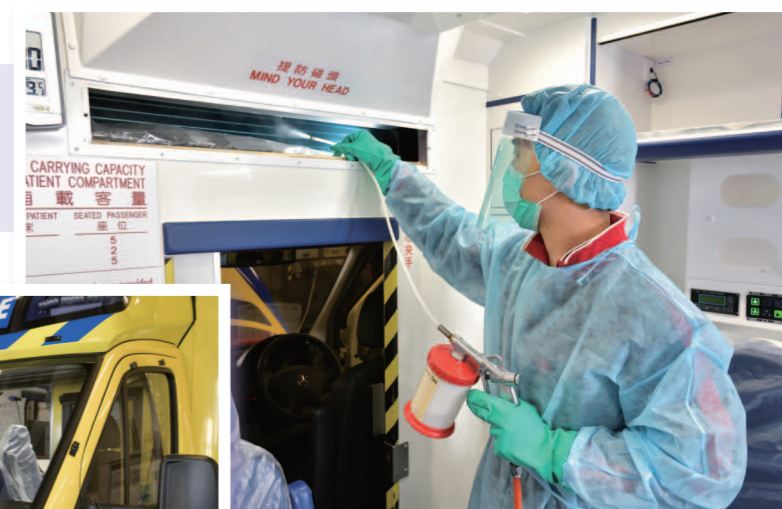
由於2019冠狀病毒傳染性極高，因此必須為確診個案的密切接觸者以及所有從中國內地（內地）或海外入境香港的人士進行隔離檢疫，避免病毒在社區廣泛傳播。各個政府部門和組織已提供不同場所改作檢疫中心之用。營運基金不僅安排專責團隊為改建工程提供意見及參與有關工作，並為有關機電設備提供持續保養維修服務。我們曾參與相關工作的檢疫設施包括暉明邨、駿洋邨、饒宗頤文化館翠雅山房、少年警訊永久活動中心暨青少年綜合訓練營、柴灣鯉魚門公園度假村、保良局賽馬會北潭涌度假營、竹篙灣檢疫中心，以及中山紀念公園體育館的臨時氣膜實驗室。

Our maintenance for ambulance is also stepped up. From the start of the outbreak in January to April 2020, we helped the FSD clean and disinfect over 190 ambulances and installed additional higher-efficiency air filters in the rear air-conditioning systems of over 200 ambulances. We also helped disinfect police vehicles used to transport confirmed patients. Meanwhile, we have been exploring other disinfection methods, including ozone and nano-photocatalyst, to continuously improve our capabilities.

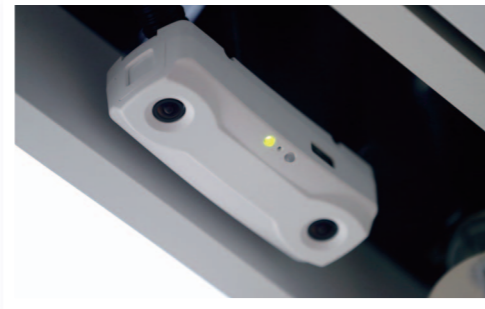
As COVID-19 is highly contagious, it is vital to quarantine people who are close contacts of confirmed cases, as well as all of those entering Hong Kong from the Mainland of China (Mainland) or overseas countries, in order to protect the community from widespread infection. Various government departments and organisations have made available different venues for conversion into quarantine centres. The EMSTF team has not only assigned dedicated teams to advise and participate in conversion works, but also provided ongoing E&M maintenance services for quarantine facilities such as Fai Ming Estate, Chun Yeung Estate, the Heritage Lodge of the Jao Tsung-I Academy, the Junior Police Call Permanent Activity Centre and Integrated Youth Training Camp, the Chai Wan Lei Yue Mun Park and Holiday Village, the Po Leung Kuk Jockey Club Pak Tam Chung Holiday Camp, the Penny's Bay Quarantine Centre, as well as the temporary air-inflated laboratory at Sun Yat Sen Memorial Park Sports Centre.

我們為救護車更換空調系統的空氣過濾網，並於出風口位置噴灑消毒劑。

We replace air filters for air-conditioning systems and disinfect the air vents by spraying disinfectant for ambulances.



營運服務 Trading Services



我們為入境事務處轄下場地安裝人流量統計系統。系統能實時計算人流進出的數據，一旦到達人數上限，入口顯示屏便會顯示警告信息。

We have installed at venues of the Immigration Department headcount sensor control systems that provide real-time information on people in and out of the venues. Once the number of people reaches the limit, an alert message will be shown at the display screen at the entrance.

為了維持入境事務處場地的運作，並盡量減低2019冠狀病毒病傳播的風險，我們在32間人事登記辦事處和智能身份證換領中心安裝了人流量統計系統，以便實時並持續監控辦事處和中心內的人數。一旦到達人數上限，職員會馬上採取措施控制人流，以保持社交距離。

To maintain the operation of the venues under the Immigration Department and minimise the risk of spreading COVID-19, headcount sensor control systems were installed in 32 Registration of Persons Offices and Smart Identity Card Replacement Centres. With these systems, real-time occupancy information inside the offices and centres is readily available for continuous headcount monitoring. Once the threshold limit is reached, immediate measures to control visitor flow are implemented to achieve social distancing.

在衛生署物色合適場地，例如亞洲國際博覽館以作臨時檢測中心，營運基金同樣會提供技術意見，協助衛生署就各個臨時檢測中心選址和設施進行技術評估，用作無症狀入境旅客等待2019冠狀病毒病檢測結果或自我隔離的地方。

Similarly, the EMSTF provided technical advice to the DH in identifying venues to be used as temporary test centres, such as the one at AsiaWorld-Expo. We also helped the DH conduct technical assessment of various potential sites and facilities to be used to house asymptomatic inbound travellers awaiting their COVID-19 test results or for self-quarantine purpose.

為協助衛生署加強對入境旅客的篩檢，我們在各個邊境口岸安裝發燒偵測系統，包括機電署獲獎的智能發燒偵測系統，調配額外流動發燒偵測系統到機場應對運作需要，以及為衛生署提供備用的熱成圖像體溫探測器。我們亦加強邊境口岸的空調和通風系統的檢查和維修保養，以確保口岸設施安全衛生。

To help the DH tighten the screening of inbound passengers, we installed fever screening systems, including our award-winning Smart Fever Screening System, at various boundary control points, deployed additional mobile fever screening systems to the airport to meet operational needs and made available spare thermal imaging units for the DH's deployment. Air-conditioning and ventilation systems at boundary control points also underwent enhanced inspection and maintenance to ensure their hygienic condition.

我們為政府產業署在港珠澳大橋香港口岸安裝發燒偵測系統。該系統能實時為職員自動檢測體溫，並即時提供體溫數據，有助提升邊境管制站的工作效率，讓人流更為暢順。

The fever screening system installed for the Government Property Agency at the Hong Kong-Zhuhai-Macao Bridge Hong Kong Port automatically detects in real time the temperatures of staff. It provides operators with real-time data, thus enhancing the operational efficiency at the border control point and facilitating the smooth flow of staff.



我們於機電署總部大樓地下大堂測試智能防疫通道。通道分為前後兩部分，前通道採用紅外線熱成圖像為人體測溫，另設有鞋底除塵消毒功能；後通道則設置殺菌消毒及淨化通風系統，對使用者隨身衣物進行全面消毒。

The Intelligent Epidemic Prevention Channel is being tested at the ground floor lobby of the EMSD Headquarters. Consisted of two sections, the first section of the channel provides temperature screening by an infrared thermal imager, and carries out dust removal and sanitising for shoes, while the second section thoroughly sterilises clothes and carry-on items of users with its sterilisation, air purification, and ventilation systems.



機電署協助懲教署組裝、測試和調校多部口罩生產機，以支援本港2019冠狀病毒病抗疫工作。

The EMSD carries out assembly, testing and commissioning of mask-making machines for the CSD in a bid to support the city's fight against COVID-19.

2020年2月，有部分在南沙下船的「世界夢號」郵輪旅客確診感染2019冠狀病毒病，郵輪隨即獲安排在啟德郵輪碼頭接受隔離檢疫。我們的員工加入政府調查團隊，提供專業意見。政府於同月成立了跨部門應變小組，集合各部門具備不同專業知識的同事進行調查工作，例如檢查長康邨及富亨邨確診個案的居住單位。機電署作為小組成員，隨時候命，為有關調查提供技術意見及支援。

In February 2020, the World Dream cruise ship was quarantined at Kai Tak Cruise Terminal after some passengers who disembarked at Nansha were confirmed to have infected with COVID-19. Our staff joined the investigation team and provided professional inputs. The EMSD was member of a Multi-Disciplinary Response Team set up by the Government in the same month to facilitate investigations that require technical expertise of different departments, such as examining the residential units of confirmed cases at Cheung Hong Estate and Fu Heng Estate. The EMSD stands ready to provide technical advice and support in these investigations.

醫院的病人衣服必須徹底清洗及消毒。深灣洗衣房經翻新後，於2019年第三季重新啟用，及時應付疫情爆發期間急升的洗衣需求。營運基金在六個月內協助醫管局更換了深灣洗衣房的老化水管、蒸氣管道和有關設備，並為採購洗衣設備提供技術支援，隨後更承接洗衣房機電系統的操作及維修保養服務。

Hospital clothing for patients must be thoroughly cleaned and disinfected. The re-opening of Shum Wan Laundry in the third quarter of 2019 after its renovation, was in time to meet the surge in demand for laundry services amid the COVID-19 outbreak. The EMSTF assisted the HA in replacing aged water pipes, steam pipelines and related equipment in a six-month period, provided technical support for acquisition of laundry equipment, and subsequently took up the O&M services for its E&M systems.

壁屋洗衣房也為公立醫院提供洗衣服務。我們在洗衣房測試了智能防疫通道，為所有進出洗衣房的人員進行消毒，以確保洗衣房及相連的壁屋懲教設施高度清潔。

Meanwhile, we tested an Intelligent Epidemic Prevention Channel for Pik Uk Laundry, which also provides laundry services to public hospitals. The system was designed to sanitise everyone entering and leaving the facility to ensure a high level of cleanliness in the laundry and the correctional facility in which it is situated.

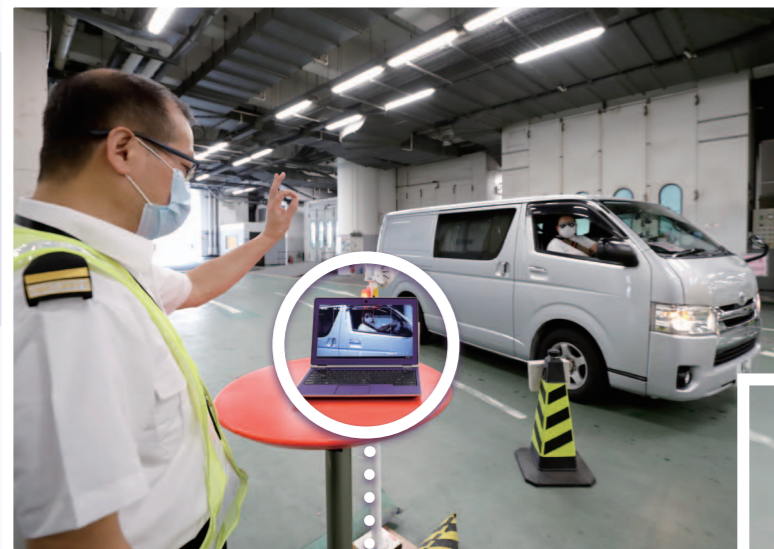
佩戴口罩能有效預防冠狀病毒病。懲教署委託營運基金在羅湖懲教所和赤柱監獄安裝、調校和測試五台新增的口罩生產機，以提高外科口罩產量，供應給所有政府部門。我們更為口罩生產機提供維修保養服務，這項服務雖然超出了我們一般的機電服務範疇，但為了公眾利益，我們勇於接受挑戰。

Wearing a face mask is an effective means of protection against COVID-19. The Correctional Services Department (CSD) has entrusted the EMSTF with installing, calibrating and commissioning five additional mask-making machines at the Lo Wu Correctional Institution and the Stanley Prison to step up production of surgical masks for all government departments. We also provide maintenance services for the mask-making machines, which is beyond our normal E&M service scope but a challenge we have readily taken on for the common good.

營運服務 Trading Services

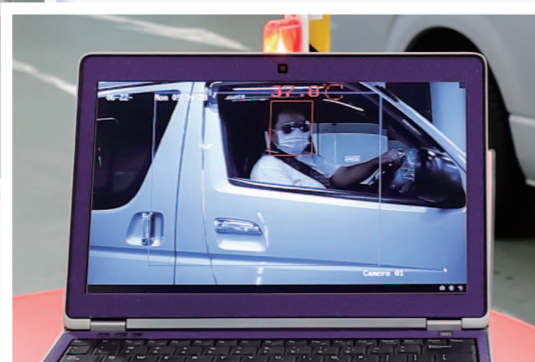
確保所有使用政府建築物的人士免受2019冠狀病毒病感染亦同樣重要。疫情爆發初期，我們幫助許多部門採購發燒偵測系統，以應付政府辦公室和法院等場地因需監測體溫而大增的工作量。至於確診個案的密切接觸者曾經到訪的政府建築物，我們亦進行了緊急清潔和消毒。此外，為準備因疫情而延遲至2020年4月下旬舉行的香港中學文憑考試，我們也為香港考試及評核局就試場內監測學生體溫及採購相關設備方面，提供專業意見。

這次疫情加快了創新科技(創科)解決方案的開發，有助減少人們接觸易受污染的物件表面，如升降機按鈕，務求減少病毒傳播。疫情期間，客戶對機械人的需求也大大增加，利用機器代替人手操作，減輕前線員工的工作量。



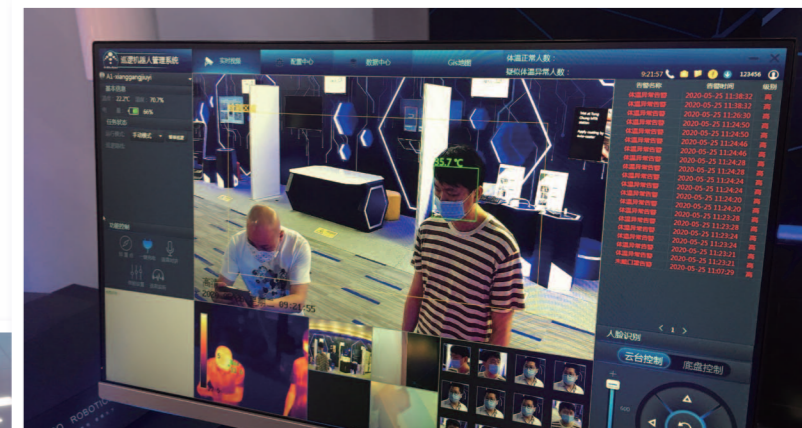
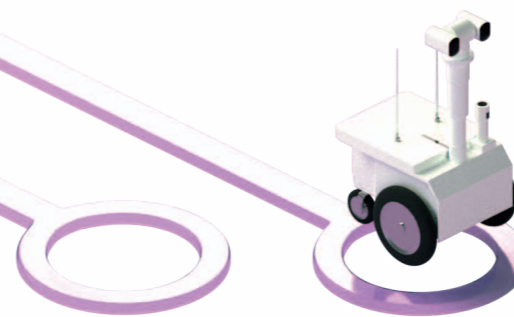
設於機電署總部大樓地下停車場的發燒偵測系統透過人臉識別技術，讓私家車及輕型貨車司機在車上接受體溫檢測，使檢測更為便捷。

The fever screening system installed in the carpark on the ground floor of the EMSD Headquarters uses facial recognition technology to conduct temperature screening for drivers of private cars and light goods vehicles inside the vehicles, boosting the efficiency and convenience of the screening.



It is also important to keep everyone using government buildings safe from COVID-19. During the early stage of the outbreak, we helped many departments procure fever screening systems to cope with the workload of body temperature monitoring at premises such as government offices and law courts. We also conducted emergency cleaning and disinfection at government buildings where close contacts of confirmed cases were found to have visited. Also, in preparation for the Hong Kong Diploma of Secondary Education Examination, which was postponed to late April 2020 due to the epidemic, we provided professional advice to the Hong Kong Examinations and Assessment Authority regarding body temperature monitoring of students at examination centres and gave advice on equipment procurement.

The epidemic has expedited the development of innovation and technology (I&T) solutions that help minimise human contact with easily contaminated surfaces, such as lift buttons, to reduce the spread of virus. Robots for manual tasks have been in demand to reduce the workload of frontline staff.



移動體溫探測機械人是我們透過「機電創科網上平台」物色的創科協作項目，用以在不同環境(例如社區、辦公室、隔離檢疫區等)執行巡邏測溫工作。這些機械人可採用自動遙遠控制，以減低人與人之間距離接觸。

The mobile fever screening robot, which we sought from an I&T collaboration project from our E&M InnoPortal, can perform fever screening in different environments, such as the community, office, quarantine area, etc. Its automatic remote control function can be used to minimise close person-to-person contact.

為了加快開發創科方案的步伐，我們於2020年2月在「機電創科網上平台」增設抗疫主題的專頁，發布客戶八個抗疫「創科願望」，反應熱烈，共收到超過240個創科方案，例如用於檢測體溫和送餐的移動機械人，以及利用納米技術為物件表面消毒抗菌的方案。同時，我們的團隊一直與初創企業和科研機構緊密合作，安排其創科方案原型在客戶場地進行測試。

香港經歷過2003年對抗嚴重急性呼吸系統綜合症(「沙士」)一役，汲取了寶貴經驗，對今次對抗冠狀病毒病發揮重要作用。2020年1月疫情甫爆發，我們的公共衛生系統及各種規格已準備就緒，市民也迅速加強個人防護和衛生。營運基金當年曾對抗「沙士」的員工隨即與年輕一代同事分享知識和經驗，讓他們建立抗疫所需要的心態和信心。另外，疫情期間全球供應鏈一度出現斷鏈危機，我們積極面對挑戰，與相關承辦商及供應商合作，致力確保設備及零部件的供應可以滿足需求。

2020年4月，我們成立了一個全新部別，支援醫管局落實兩個十年醫院發展計劃。兩個發展計劃涵蓋現有醫院的重建或擴建工程，及新醫院興建工程。由於新部別能夠參與醫院設計階段的工作，我們可以盡早提供意見，使日後的機電設施能為用戶及病人帶來最大效益。隨着醫院發展計劃逐步落實，加上我們與客戶合作無間，未來倘再爆發疫情，本港的抗疫能力也必會大大提升。

To speed up I&T solutions development, we set up a special anti-epidemic page on our E&M InnoPortal in February 2020, which received enthusiastic response of over 240 "I&T solutions" to eight "I&T wishes" from clients to fight COVID-19. Examples included mobile robots for fever detection and meal delivery, and nano technologies to sanitise surfaces. Meanwhile, our team has been working closely with start-ups and research institutes to test their I&T prototypes at client venues.

Hong Kong's experience in fighting the Severe Acute Respiratory Syndrome (SARS) in 2003 was valuable in the current battle against COVID-19, as the public health system and protocols to contain the virus were already in place in January 2020 and the community was quick to protect themselves and step up personal hygiene. Within the EMSTF, staff with experience fighting the SARS readily shared their knowledge and experience with younger colleagues to equip them with the necessary mindset and confidence. In addition, there was a crisis of suspension of global supply chain during the epidemic. To overcome the challenges, we worked with relevant contractors and suppliers to ensure that the supply of necessary equipment and parts could meet the demand.

In April 2020, a new Division was set up to support the HA in implementing its two Ten-year Hospital Development Plans (HDPs), which cover the redevelopment or expansion of existing hospitals and the construction of new ones. As the new Division can be involved at the hospital design stage, we can provide input early on to maximise the benefits of future E&M facilities for users and patients. The implementation of the HDPs and our close partnership with our clients will no doubt boost the city's capacity to fight future epidemic.

營運服務 Trading Services



與口罩機結緣 Close Encounters with Face Mask Machines

胡棣旋先生及其團隊負責羅湖懲教所機械設備的維修保養工作，他們在短時間內掌握組裝、測試和調校口罩生產機的技術，克服種種障礙，確保口罩生產機的可靠性和高產能。

Mr Wu Tai-suen and his team support the maintenance work of mechanical facilities at Lo Wu Correctional Institution. They have overcome all technical obstacles and equipped themselves with skills of assembly, testing and commissioning of mask-making machines in a short time to ensure reliability and high productivity of the machines.

自從2020年1月爆發2019冠狀病毒病以來，外科口罩需求隨即大幅上升。保安及車輛工程部二級監工胡棣旋先生帶領他的團隊，駐守羅湖懲教所，日常負責機械系統的維修保養工作。2020年2月初，幾台來自內地的新口罩生產機運抵羅湖懲教所，以應付急升的口罩需求。胡先生臨危受命，擔起安裝和調校這批口罩生產機的重任。

胡先生說：「安裝和調校口罩生產機對我們來說是全新的工作。那批口罩機的款式和來源都各有不同，也沒有操作手冊，而原來來港負責安裝的技術人員，卻因內地封城而被迫延遲行程。」及後的數個月，胡先生和團隊經歷不少挑戰，然而憑着他們豐富的機械經驗，以及積極上網尋找資料，並向本地業界伙伴與熟悉口罩機操作的廠家取經，終於在極短時間內掌握所需知識。

他解釋道：「最難的地方是調校耳線機。」每台口罩生產機都配有兩部耳線機，而每部耳線機每分鐘可生產40條耳線。耳線的拉力必須恰當，口罩才能貼服地包住面部，因此耳線機的調校很重要，讓耳線不會太鬆或太緊。由於口罩機和耳線機都要24小時不停高速運作以滿足口罩需求，機器長時間密集式使用，必須時常進行調校並更換零部件。他憶述：「我們很快發覺，口罩機雖不涉及高科技，但口罩的製作步驟卻很繁複，而且對規格的要求也很高。幸好我們不久已掌握竅門，也能在本地找到全部所需的零部件。」

那數個月，胡先生的團隊每天24小時輪班工作，讓口罩機得以不停運作，同時亦要兼顧懲教署的其他日常維修保養工作。經歷今次的經驗，他有甚麼體會和心得？「看似簡單的事物，原來毫不簡單；每次總會學到新的東西。」

Demand for surgical masks suddenly shot up after the COVID-19 outbreak in January 2020. In early February 2020, Mr Wu Tai-suen, a works supervisor II at the Security and Vehicle Services Division, who heads up the resident team responsible for mechanical systems maintenance at Lo Wu Correctional Institution, was tasked with installing and calibrating several new mask-making machines from the Mainland to cope with increasing demand.

"Installing and calibrating mask-making machines was new to us" said Mr Wu. "The machines were of different types and origins, with no operating manuals. What's more, the technical person who was supposed to come to Hong Kong to set the machines up had his trip postponed due to the Mainland lockdown." What followed was a few months of challenging work and a steep learning curve, drawing on the team's mechanical experience, online research and advice from local trade partners and manufacturers familiar with mask machines.

"The biggest challenge was calibrating the earloop machines," he explained. Each mask-making machine comes with two earloop machines, each churning out 40 earloops per minute. The earloops must be of the right tensile strength so the mask can cover the face snugly, and calibration of the machine is important to make sure the earloops are not too tight or too loose. As the mask and earloop machines must operate 24x7 at high speed to satisfy demand, this heavy use meant they had to be calibrated often and their parts replaced frequently. "We soon realised that though the machines are not involved with high tech, the mask-making steps are complex and the specification requirements are actually very high," he recalled. "Luckily, we got the hang of it after a while and managed to find locally all the spare parts we need."

Mr Wu's team had to work round the clock in shifts in those months to keep the machines running, which was on top of normal maintenance duties for the CSD. Any insight from the experience? "What looks simple, may not be simple at all. There is always something new to learn," Mr Wu concluded.



爭分奪秒 改裝駿洋邨 Racing Against Time to Convert Chun Yeung Estate

鄧再展先生參與了駿洋邨檢疫中心的現場準備工作(例如煤氣熱水爐安裝)。他因有2003年應對沙士的經驗，所以對參與是次抗疫籌備工作可以心手相應。

Mr Tang Choi-chin participated in the on-site preparation works, such as Towngas water heater installation, at the Chun Yeung Estate quarantine centre. With the experience of fighting against SARS in 2003, he is proficient in taking part in the anti-epidemic preparation works this time.

2020年1月的農曆大除夕，因應衛生署的要求，衛生工程部總技術主任鄧再展先生收到上司電話，着他馬上安排團隊，準備將一個尚未入伙的新公共屋邨，改裝成2019冠狀病毒病檢疫中心。鄧先生於2003年「沙士」期間，曾參與建造負壓病房的工作，經驗豐富。他晝夜集齊同事並組織起團隊，馬上行動。不幸那屋邨的多項設施很快遭到破壞，因此已改裝完成的檢疫單位均未能使用。

政府迅速物色另一個位於火炭的新公共屋邨——駿洋邨，準備改裝為檢疫中心。鄧先生需要組織一個跨部門的團隊於2020年2月9日開始進場全力工作。他說：「營運基金的角色，是分階段為邨內其中約3 200個單位安裝超過16 000個照明燈泡，和每個單位安裝及檢測一台煤氣熱水爐，合共約3 200台。」

第一階段工程必須於2020年2月19日完成，以接收即將乘搭政府包機回港進行14天檢疫的首批「鑽石公主號」郵輪上的香港居民，因此時間十分緊迫。鄧先生回憶說：「我們在改裝駿洋邨上遇到的最大挑戰，是新裝煤氣熱水爐的檢測工作。雖然煤氣公司已提供人手幫忙安裝熱水爐，但爐具必須由營運基金的團隊進行檢測，而檢測過程需時。」

鄧先生更指出，政府2012年代號「翡翠」的跨部門聯合演習，測試病毒大流行時的緊急應變，對2020年的抗疫工作十分有用。「我有幸參加了八年前那次演習，所以今次進行任務時，能馬上與團隊成員分享所需知識，並消除部分同事對因工作受感染的疑慮。」

駿洋邨改裝工程最終準時完成，鄧先生總結說：「今次這個跨部門任務給我最深印象，是同事們表現的團隊互信及緊密合作精神。而『翡翠』演習也證明，培訓和經驗傳承至為重要。」

On Chinese New Year's Eve in January 2020, Mr Tang Choi-chin, a chief technical officer of our Health Sector Division, received a call from his senior asking him to quickly assemble a team to get ready to convert a new but unoccupied housing estate into a COVID-19 quarantine centre as requested by the DH. Mr Tang, with experience in building negative pressure wards during the SARS outbreak in 2003, mobilised a team overnight and took immediate action. Unfortunately, a number of facilities in the housing estate were promptly vandalised. Hence, the newly converted quarantine units could not be put into operation.

Chun Yeung Estate in Fo Tan, another new housing estate, was soon identified for conversion. Mr Tang needed to mobilise an inter-divisional team to commence the work there at full steam on 9 February 2020. "The EMSTF's role was to install more than 16 000 light bulbs in around 3 200 units, and to install and test around 3 200 gas water heaters, one in each unit by phases," he said.

Time was tight, and first-phase installation had to be completed by 19 February 2020 when the first batch of Hong Kong residents on board the Diamond Princess cruise ship, was expected to return to Hong Kong on a Government-chartered flight for their 14-day quarantine at the Estate. "It turned out that testing the gas water heaters was the biggest challenge," Mr Tang recalled. "Though Towngas had provided manpower to help install the water heaters, it was necessary for the EMSTF team to conduct the testing, which was time consuming."

According to Mr Tang, the Government's inter-departmental drill exercise code-named Jadeite in 2012 to test contingency actions in the event of a virus outbreak, proved highly valuable in 2020. "Thanks to the drill I participated eight years ago, I was able to equip team members this time with the necessary knowledge and resolve infection control concerns that some had," he said.

The conversion at Chun Yeung Estate was completed on time. "Our colleagues' team spirit of mutual trust and seamless collaboration in this cross-divisional mission was most impressive. Exercise Jadeite also proves the value of training and the importance of passing on experience," Mr Tang concluded.

營運服務 Trading Services

隨時候命 服務摯誠

一直以來，營運基金為政府部門及公營機構的機電系統提供操作、維修保養及項目管理服務，當中包括運輸基建及各種提供社區服務的建築物、場所及設施。我們的職責是支援客戶，為公眾提供無間斷的服務。

2019年6月至12月期間在本港發生的公眾活動，令大量運輸基建和政府設施嚴重受損。營運基金需要在短時間內完成大量緊急維修，挑戰前所未見。我們的同事竭誠支援客戶，日夜趕工，不遺餘力，為公眾維修受損設施，務求盡快令各種公共設施恢復正常運作。

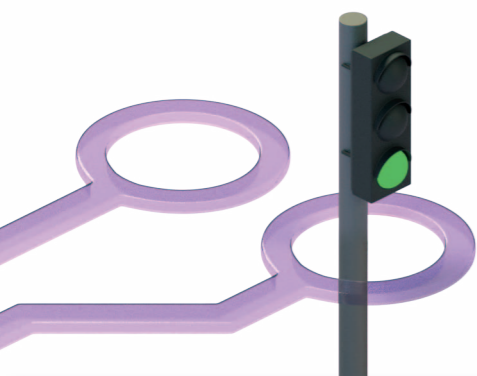
以交通燈為例，全港約750個路口的交通燈受嚴重破壞逾1 400次，部分控制電箱也同樣遭受破壞。我們迅速調動一支約160人的團隊，徹夜搶修，務求在翌日早上能讓受損的交通燈恢復正常運作。截至12月下旬，所有路口已恢復正常運作，但由於零部件需求急增，供應商的庫存耗盡，部分受損交通燈仍正等待備件以作修復。此外，我們也為部分交通燈及控制電箱加裝了額外保護措施。

DEDICATED AND READY TO SERVE AT ALL TIMES

The EMSTF has long provided government departments and public organisations with operation, maintenance and project management services for the E&M systems in transport infrastructure and a wide variety of buildings, venues and facilities which serve the community. It is our duty to support our clients in providing uninterrupted services to the public.

The public order events occurred in Hong Kong from June to December 2019 resulted in serious damage to a large number of transport infrastructures and government facilities, posing unprecedented challenges to the EMSTF as numerous urgent repairs had to be carried out in a very short period of time. Dedicated to supporting our clients, our colleagues worked relentlessly and made strenuous efforts to repair damaged facilities for members of the public, so that such facilities could swiftly resume normal operation.

Taking traffic lights as an example, at some 750 road junctions throughout Hong Kong, numerous traffic lights were severely damaged for more than 1 400 times, some controllers were also vandalised. A team of about 160 people was promptly mobilised to conduct repairs overnight, so that the damaged traffic lights could resume normal operation by the following morning. By late December, all road junctions had resumed normal operation, despite some damaged traffic lights were still awaiting spare parts as the sudden surge in demand exhausted suppliers' inventory. Extra protective equipment were installed at some traffic lights and controllers as a precaution.



機電署協助運輸署修復遭破壞的交通燈及控制電箱，以確保道路安全。
The EMSD assisted the Transport Department in repairing damaged traffic lights and controllers to ensure road safety.

立法會綜合大樓在去年的公眾活動中遭受嚴重破壞。機電署為其設施進行修復工程，協助加快立法會恢復運作。

The EMSD took part in the repair works of the facilities of the Legislative Council Complex that were severely damaged in the public order events taken place last year, so as to expedite the resumption of the operation of the Legislative Council.



數以百計的警車因公眾活動遭受破壞，當中包括特別用途車輛。我們迅速進行維修，並更換遭刺破的輪胎。此外，我們也在車輛加裝新的防護功能，加強保障操作人員的安全。對於政府總部、多幢政府辦公室大樓、社區會堂、多區的警署及紀律部隊宿舍內遭受破壞的機電設施，我們同樣盡快進行復修，並按需要加裝保安及監察設施。

立法會綜合大樓和海底隧道（紅隧）也遭受嚴重破壞。立法會綜合大樓在2019年7月初遭受大肆破壞，必須全速維修，以便在2019年10月如期展開新的立法會會期。我們與客戶緊密合作，及時修復所有機電設施，同時也按需要加裝保安及監察設施。

Hundreds of police vehicles, including specialised vehicles, were also damaged from the public order events. Repairs were carried out promptly, and punctured tyres were replaced. In addition, new protective features were added to enhance the safety of vehicle operators. In response to the damaged E&M assets at the Central Government Offices, various government office buildings, town halls, police stations and disciplined services quarters, we carried out repair works as soon as possible, with additional security and monitoring facilities installed where necessary.

The Legislative Council (LegCo) Complex and the Cross-Harbour Tunnel were both severely damaged. The LegCo Complex was extensively damaged in early July 2019 and had to be repaired at full speed so that the LegCo could commence its new session in October 2019. Working closely with the client, we managed to restore all E&M facilities in time. Similarly, extra security and monitoring facilities were installed where necessary.



去年11月，機電署與多個政府部門合力為遭受嚴重破壞的海底隧道行政大樓及海底隧道收費廣場進行多項緊急維修，並於100小時內迅速完成修復工程。

We co-ordinated with various government departments to conduct emergency repair works at the Cross-Harbour Tunnel Administration Building and the toll plaza of the Cross-Harbour Tunnel in November last year. The repair works were swiftly completed within 100 hours.

營運服務 Trading Services

紅隧於2019年11月遭受嚴重破壞，必須暫時關閉，導致另外兩條過海隧道於繁忙時段出現嚴重交通擠塞。我們與不同政府部門及業界伙伴緊密合作，迅速開展復修工程，尤其是受到嚴重破壞的收費廣場收費系統及行政大樓的控制系統。我們亦為隧道的所有機電系統進行「健康檢查」，確保隧道運作安全才重新啟用。紅隧最終在清理現場後100小時內恢復運作，把對市民造成的不便減至最少，再次凸顯營運基金勇於承擔及堅守核心價值的精神。

公眾活動發生期間，我們考慮到一些物質一旦進入醫院通風系統，或會對醫院運作造成影響，於是我們在醫院內的敏感地點暫時關閉了醫院通風系統的鮮風進氣口，並根據需要，為經常發生公眾活動地點附近的醫院，更換通風系統和醫療空氣系統的過濾網。此外，我們也就公共衛生檢測中心曾遭破壞的閉路電視和消防系統等，進行了維修及改善工程。

2020年農曆年宵市場於1月在本港部分公園及戶外遊樂場舉行。為確保活動順利進行和保障公眾安全，我們為各個年宵市場的照明和公共廣播系統提供緊急後備電源。此外，我們也確保有足夠人手隨時候命，以提供緊急支援。

新落成的救護車輛接待處和輕型車輛接待處空間寬敞，光線充足，並設有玻璃窗，使停泊的車輛一目了然。我們着重客戶服務，在接待處設有等候區域，可供休息。

The new reception offices for ambulances and light vehicles are spacious and well lit. Clients can also see the vehicles parked outside through the offices' glass windows. With customer service being one of our high priorities, we have set up in the reception offices a waiting lounge, where clients are welcome to take a rest.



The Cross-Harbour Tunnel was severely damaged in November 2019 and had to be temporarily shut down, resulting in serious traffic congestion at the other two harbour crossings during peak hours. We collaborated with different government departments and trade partners closely and swiftly to perform rectification works, in particular on the seriously damaged toll systems at the toll plaza and the control systems at the Administration Building. We also performed "health checks" for all E&M tunnel systems to ensure tunnel operation safety before re-opening. Operation of the Cross-Harbour Tunnel was resumed within 100 hours after site clearance to minimise the inconvenience to the public, demonstrating once again the core values and full commitment of the EMSTF.

Mindful of the possible impact of substances entering air ventilation systems of hospitals during public order events, we arranged temporary closure of fresh air intakes for air ventilation systems at sensitive locations within hospitals, and replaced filters for air ventilation systems and medical air systems on a need basis at hospitals near locations of frequent public order events. We also carried out repair and enhancement work at the Public Health Laboratory Centre, which suffered damage to its CCTV, fire services systems, etc.

The 2020 Lunar New Year Fairs were held in January at some parks and outdoor playgrounds in Hong Kong. To ensure smooth operation and public safety, we provided emergency power supply to all lighting and public announcement systems at the fairs. We also made sure that there were sufficient standby staff to provide emergency support.



我們為路政署購入橋樑檢測車，以進行不同橋樑結構（例如懸索橋和斜拉橋）的檢查及維修任務，保障工作安全並提高檢修效率。

We procured for the Highways Department two bridge inspection vehicles in order to facilitate the inspection and maintenance of different bridge structures, such as suspension bridges and cable-stayed bridges, guaranteeing work safety and raising the inspection and maintenance efficiency.

營運基金感謝所有員工，在沉重壓力下努力完成維修工作。此外，我們也感謝客戶、相關部門及其樓宇管理人員的支持和緊密合作。我們會汲取經驗，協助客戶為各種機電設施進行所需加固保護，並制訂緊急行動清單和指引，加強保障員工日後在類似緊急情況下的安全。

為進一步加強客戶服務，我們於年內翻新了機電署總部分別用於救護車和輕型車輛的車輛接待處。接待處為客戶提供舒適的專用環境，也讓他們從辦事處內即時看到自己的車輛。我們也計劃為垃圾收集車設立類似的接待處。同時，我們的團隊一直與客戶合作，協助採購新的特別用途車輛，例如邊境口岸的流動X光車輛，以及機場三跑道系統的機場救援和消防車輛等。

特別用途車輛採購項目還包括兩輛橋樑檢測車。有關車輛已於2020年3月交付路政署，用以加強青馬大橋、汲水門大橋、汀九橋和昂船洲大橋的檢查和維修工作。橋樑檢測車配備轉盤和四支伸縮臂，可以迅速、暢順及安全地檢查橋樑的上層建築及橋底結構。

年內，車輛工程服務團隊的業務錄得理想增長，原因是許多客戶都與我們續訂較長年期的服務水平協議，例如香港海關、律政司、政府物流服務署、社會福利署、食物環境衛生署和衛生署，續訂的協議年期為五年至十年不等。

2019/20年度，我們與食物環境衛生署和康樂及文化事務署這兩個主要客戶簽訂新的服務水平協議，加強合作伙伴關係。新協議於2020年4月開始，為期六年。續訂年期較長的協議不單證明客戶對我們的服務非常滿意，更有利於維持雙方的穩定伙伴關係，讓我們為客戶籌劃更長遠的機電資產改善計劃。

The EMSTF is grateful to all staff who worked hard to complete repair work under stressful circumstances. Furthermore, we appreciate the support and close co-operation of our clients, relevant departments and their building management personnel. Learning from the experience, we will help clients make necessary reinforcement to their E&M facilities while also laying down emergency action checklists and guidelines to enhance the safety of staff during similar emergency situations in future.

To further enhance our customer services, we renovated two vehicle reception offices at the EMSD Headquarters during the year, one for ambulances and the other for light vehicles. A dedicated area with comfortable environment, the vehicle reception offices enable clients to see their vehicles from the office. A new reception office for refuse collection vehicles is under planning. Meanwhile, our team has been working with clients to help them procure new specialised vehicles, such as mobile X-ray vehicles for the boundary crossing facilities, new airport rescue and fire-fighting vehicles for the Three-runway System at the airport, etc.

Among these specialised vehicle procurement projects, two additional bridge inspection vehicles (BIVs) were delivered to the Highways Department in March 2020 for enhancing the inspection and maintenance of the Tsing Ma Bridge, Kap Shui Mun Bridge, Ting Kau Bridge and Stonecutters Bridge. With the turntable and four extending booms of each BIV, quick, unhindered and safe access to both the superstructure and structure underneath the bridges is assured.

The vehicle engineering service team received a boost during the year as many clients renewed their Service Level Agreements (SLAs) with a longer duration, including the Customs and Excise Department, the Department of Justice, the Government Logistics Department, the Social Welfare Department, the Food and Environmental Hygiene Department and the Department of Health, with renewed SLAs ranging from five to ten years.

During 2019/20, we fostered our partnerships with two major clients, namely the Food and Environmental Hygiene Department and the Leisure and Cultural Services Department, each with a six-year SLA commencing in April 2020. These renewals not only proved a high level of client satisfaction, but also provided us with more stability to plan for longer-term E&M asset improvement initiatives for clients.

營運服務 Trading Services



在2018年9月超強颱風「山竹」襲港期間，機械督察鄭偉倫先生秉持「急市民所急」的服務精神，連續40多小時處理與公眾渡輪碼頭相關的突發事件。他憑藉專業表現獲頒發2019年申訴專員嘉許獎。

During the passage of super typhoon Mangkhut in Hong Kong in September 2018, Mr Kwong Wai-lung, a mechanical inspector, dealt with emergencies related to public ferry piers for more than 40 consecutive hours, upholding the spirit of "addressing the community's pressing needs". In recognition of his professionalism, he was presented the Ombudsman's Award 2019.

年內，營運基金員工出色的客戶服務表現亦獲得嘉許。2018年超強颱風「山竹」襲港，使梅窩碼頭及紅磡(北)渡輪碼頭嚴重受損，我們的同事迅速為運輸署安排緊急維修工作，因而獲頒2019年申訴專員嘉許獎的「公職人員獎」。此外，我們的同事憑着研發「建構香港智慧監獄—移動及位置監察系統和維生指標監察系統」項目，以及「利用光纖傳感技術對升降機進行預測性保養」項目，分別在「香港工程師學會創意獎(青年會員組)2020」組別I及組別II獲頒優異獎。我們與懲教署聯合提交的「懲教署『智慧監獄』」項目，也在2019年公務員優質服務獎勵計劃中榮獲優異獎。

The EMSTF staff also won awards for our work for clients during the year. A colleague received the Ombudsman's Awards 2019 for Officers of Public Organisations for his work for the Transport Department in the prompt repairs of the Silvermine Bay Ferry Pier and the Hung Hom (North) Ferry Pier, which were severely damaged by super typhoon Mangkhut in 2018. Other colleagues won a Certificate of Merit (Category I) and a Certificate of Merit (Category II) in the Hong Kong Institution of Engineers Innovation Award 2020 (Young Member Group) for the project on the Development of Smart Prison in Hong Kong — Passage Surveillance and Health Signs Monitoring System, and the Development of Predictive Maintenance of Lifts Using Optical Fibre Sensing Technology respectively. The Correctional Services Department and the EMSD also won a Meritorious Award in the Civil Service Outstanding Service Award Scheme 2019 for our joint submission titled "Smart Prison" of Correctional Services Department".



我們透過非侵入式的光纖傳感技術監測升降機重要部件的運作和進行故障預測。該系統在監測到異常情況時，會即時發出故障預警，以確保升降機日常運作的安全及穩定性。

We monitor the operation of lift's critical parts and predict component faults using a non-invasive optical fibre sensing technology. If abnormalities are detected, the system would immediately issue an early fault warning, thereby ensuring the safety and reliability of lift operation.



搶修交通燈與海底隧道 回復正常運作 Restoring Normality to Traffic Lights and Cross-Harbour Tunnel

2019年下半年香港發生連串公眾活動，期間大量公共設施遭受破壞。同屬邊境及運輸工程部的高級工程師陳瑩瑩女士及工程師陳健康先生，帶領同事緊守崗位，為市民搶修損毀的交通燈及紅磡海底隧道。

The series of public order events taken place in the second half of 2019 in Hong Kong resulted in extensive damage to a large number of public facilities. Ms Chan Ying-ying, Dorothy, a senior engineer, and Mr Chan Kin-hong, Keith, an engineer, both under the Boundary Crossing Facilities and Transport Services Division, remained dedicated and led our colleagues to make strenuous efforts to repair damaged traffic lights and the Cross-Harbour Tunnel for the public.

2019年年中，邊境及運輸工程工程師陳健康先生管理交通燈維修保養小組已有六年，然而陳先生和他的團隊從未遇上好像2019年下半年，因着全港約750個路口的交通燈遭受破壞，而需要維修那麼多的交通燈。

陳先生說：「那數個月的搶修工作，用盡了相當於十年的備用零件數量，可見維修工程相當龐大。」他的團隊和數個承辦商通力合作，不斷通宵達旦搶修交通燈，盡量在第二天清早讓最多的交通燈能恢復正常運作，保障市民安全。由於部分控制電箱也遭受破壞，令情況較為複雜，往往需要掘路更換地下的電線。經過數月的艱辛工作，所有交通路口已於2019年12月回復正常運作，而所有復修工程亦在2020年7月全部完成。我們在較重要位置的交通燈和控制電箱也加裝了保護設施，以作預防。

與此同時，邊境及運輸工程高級工程師陳瑩瑩女士也率領一支團隊，為於2019年11月遭嚴重破壞的紅磡海底隧道進行機電設施復修工作。她統籌及聯絡多個政府部門，並帶領一支超過一百人的機電署團隊在現場工作。政府的目標是要在清理現場後100小時內完成所有復修工作。

陳女士憶述：「為了把握寶貴的時間，我們馬上制訂快速復修計劃，並在進行半天的現場評估後，隨即展開搶修工作。」首要搶修的是收費系統，使它盡快回復正常運作，並要檢查隧道所有機電系統，以及尋找足夠的零件進行各項復修工程。她補充：「尋找零件是個很大挑戰。」幸好得到其他政府部門和業界伙伴幫忙，團隊終能齊備復修工程所需的零件。所有復修工程全速進行後都能準時完成，海底隧道也於2019年11月27日早上五時順利重新開放。

陳女士對團隊能為便利市民作出努力，凸顯了機電工程營運基金的核心服務價值和承諾，感到很高興。

By mid-2019, Mr Chan Kin-hong, Keith, an engineer of the Boundary Crossing Facilities and Transport Services Division (BTSD), had been running its traffic lights maintenance unit for six years. Yet his team had never had to repair as many traffic lights as it would have to do in the second half year of 2019, when lights at some 750 road junctions were vandalised.

"The fact that we exhausted ten years' supply of spare parts in just a few months shows the scale of the repair works," said Mr Chan. Supported by several contractors, his team worked through numerous nights to repair traffic lights so that as many as possible could resume operation early next morning to ensure public safety. Some traffic light controllers were damaged too, which posed complications as road works would be necessary to replace the underground electric wiring. After months of hard work, all traffic junctions were back to operation by December 2019, and all repairs completed by July 2020. Protective measures were added to traffic lights and controllers at strategic locations as a precaution.

Meanwhile, BTSD senior engineer Ms Chan Ying-ying, Dorothy, led a team to repair the E&M facilities of the Cross-Harbour Tunnel, severely damaged in November 2019. Ms Chan co-ordinated and collaborated with various government departments and led a 100-plus EMSD team on-site. The Government's target was to complete all repairs within 100 hours after site clearance.

"To make the most of precious time, we developed a rapid recovery plan and began repair works immediately after a half-day on-site assessment," she recalled. Essential tasks were identified, such as resuming the normal operation of the toll systems, carrying out health checks for all E&M tunnel systems and finding enough spare parts for all repairs. "Sourcing spare parts was a challenge," she said. Thanks to the help from other government departments and trade partners, the team got the spare parts needed for restoring systems. After working at full speed, all repairs were completed on schedule, and the tunnel was re-opened smoothly at 5 a.m. on 27 November 2019.

Ms Chan felt proud that the team had contributed to making life convenient for the public, which demonstrated EMSTF's core service value and commitment.

營運服務 Trading Services

全力以赴 推廣創科

機電署自2019年4月起擔當政府部門的「創新促成者」，在2019/20年度繼續向本港公營機構積極推廣創新及科技(創科)。我們深明本地和區域合作對促進創科發展至為重要，因此在年內簽訂了多份合作備忘錄。

2019年6月，我們與五所本地大學和七間科研機構建立策略伙伴關係，合作支援政府部門應用創科，並推廣運用機電署的「機電創科網上平台」(「網上平台」)，以提升服務及工作效率。2019年8月，我們分別與三個團體，即廣東省科學技術協會、廣東省生產力促進中心及廣東省科學院，簽署合作備忘錄，加強粵港澳大灣區的創科合作。「網上平台」於2019年年中與廣東省華南技術轉移中心的網站「華轉網」連接，讓大灣區的初創企業及科研機構，可瀏覽營運基金客戶及香港公營機構羅列在「網上平台」的創科願望，而「網上平台」的用戶也可在「華轉網」搜尋和物色中國內地(內地)提供的創科方案，從而促進跨境合作。

2019年8月，機電署分別與廣東省科學技術協會(右)、廣東省生產力促進中心(左下)和廣東省科學院(右下)簽訂合作備忘錄，加強粵港創科交流及合作。

The EMSD signed memoranda of co-operation with the Guangdong Provincial Association for Science and Technology (right), the Guangdong Productivity Centre (bottom left) and the Guangdong Academy of Sciences (bottom right) respectively in August 2019 to enhance I&T exchange and co-operation between Guangdong and Hong Kong.



PROMOTING INNOVATION AND TECHNOLOGY

Hailed as "Innovation Facilitator" for government departments in Hong Kong since April 2019, the EMSD kept up the momentum in promoting innovation and technology (I&T) in the public sector in 2019/20. Fully aware of the importance of local and regional collaboration in I&T promotion, we signed several memoranda of co-operation (MoC) during the year.

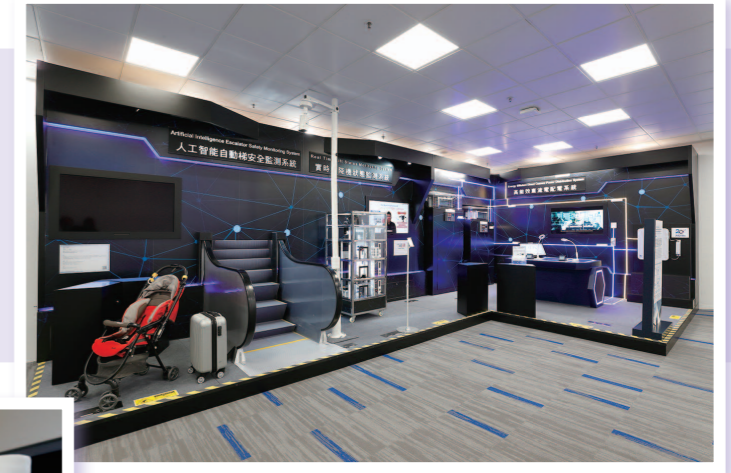
In June 2019, a strategic partnership with five local universities and seven research institutions was formed to support the application of I&T in government departments and the use of our E&M InnoPortal, with a view to enhancing services and work efficiency. In August 2019, we signed MoC with three entities, namely the Guangdong Provincial Association for Science and Technology, the Guangdong Productivity Centre and the Guangdong Academy of Sciences, to enhance I&T co-operation in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). Our E&M InnoPortal was also connected to the website of the South China Technology Commercialization Center in mid-2019 so that the I&T wishes listed on the portal by clients and other public organisations are now accessible to GBA start-ups and research institutions, and I&T solutions from the Mainland of China (Mainland) are searchable by E&M InnoPortal users, thereby facilitating cross-border collaboration.

「機電創科專區」增添了更多由機電署與本地大學及科研機構合作的創科方案示範，涵蓋物聯網、自動化、人工智能等科技應用。

The enriched E&M InnoZone showcases our I&T collaborations with local universities and research institutions, covering the application of Internet of Things, automation, artificial intelligence and other technologies.



http://bit.ly/emsd_innozone



機電署已展開多項智能項目的試驗，當中包括智能人臉識別系統、智能停車場及智能洗手間管理系統。

We have launched several smart trial projects, including smart facial recognition system, smart carpark, and smart washroom management system.

我們的創新辦公室在2019/20年度的工作依然十分繁重，除了負責管理「網上平台」外，也要兼顧其他職責。我們透過「網上平台」，幫助客戶物色最合適的創科方案，並協助初創企業進行概念驗證和產品原型測試，讓客戶盡快把有關方案應用於部門營運工作。在機電署總部大樓成功測試的方案，包括智能洗手間、智能停車場及智能會議室等，另外也有其他方案在客戶場地進行測試。

自2018年推出以來，至2020年3月底，「網上平台」資料庫已經載列了政府部門和公營機構的230個創科願望，並吸引初創企業及大學提交了470個創科方案，以及成功配對多達60個項目。事實證明，「網上平台」對許多政府部門來說非常常用，這個便捷工具讓客戶初步了解市場的創科方案概況。此外，我們在「網上平台」設立了抗疫主題專頁，反應熱烈，截至2020年4月中，客戶就抗疫方案上載的八個「願望」，共獲得240多個回應，包括多個來自大灣區機構的方案。

創新辦公室豐富並更新了機電署總部「機電創科專區」的展品，在專區展出我們與政府部門、初創企業和大學合作的最新創科項目。另外，為培養部門的創科文化，我們於2019年12月舉行第二屆「Inno@E&M創新科技挑戰賽」。這項內部比賽分兩個組別邀請提交建議書，包括「客戶服務」組別及「內部支援」組別。

Our Inno-Office, which manages the E&M InnoPortal among its various duties, had another busy year in 2019/20. Through the portal, we have helped clients identify the most appropriate I&T proposals and facilitate start-ups' proof-of-concept and prototype testing to enable clients to apply the solutions to their departmental operations as quickly as possible. Solutions successfully trialled at our headquarters include a smart washroom, a smart carpark and a smart meeting room, with others also tested at client venues.

Launched in 2018, the E&M InnoPortal, with a database of 230 I&T wishes from government departments and public organisations, attracted 470 I&T solutions from start-ups and universities, and made 60 successful project matches as of end-March 2020. The E&M InnoPortal has also proved valuable to many departments, as it is a handy tool to initially canvass I&T solutions available in the market. Furthermore, a special anti-epidemic thematic page we set up under the E&M InnoPortal for the COVID-19 challenge has met with enthusiastic response, with eight "wishes" from clients garnering over 240 coronavirus-fighting solutions, including solutions from GBA entities, as of mid-April 2020.

The Inno-Office has also enriched and updated the E&M InnoZone at our headquarters with the latest I&T project collaborations from government departments, start-ups and universities. To foster a culture of I&T, we kicked off the second Inno@E&M Challenge in December 2019. This internal competition now invites proposals under two categories — "enhancing client services" and "internal support".

營運服務 Trading Services

環境局與機電署於2019年8月合辦「綠色創科日」，展示香港在節約能源及可再生能源方面的創新及科技成果，藉此向各界推動綠色新科技的應用。

The Environment Bureau and the EMSD jointly organised the Green I&T Day in August 2019 to showcase Hong Kong's innovation and technology achievements in relation to energy conservation and renewable energy. The event aimed to promote the application of new green technologies to various sectors in the community.



年內另一創科活動，是機電署與環境局於2019年8月在香港科學園合辦首個「綠色創科日」，展示本港在節能及可再生能源方面的創科成果。活動吸引了600多名參加者和30多個本地及內地參展商參與。事實上，自2019年4月以來，我們一直透過「網上平台」推廣有關能源效益的綠色創科項目，並計劃每年落實十個有關項目。

我們為懲教署推行的各項創科試驗計劃在年內均取得良好進展。透過雙方共同研發的一系列「智慧監獄」方案，包括智慧手帶、維生指標監察和移動及位置監察系統、為在囚人士提供的綜合智能通訊系統，以及利用機械人進行常規巡邏和違禁品搜索工作等研發項目，正在不同的懲教所進行測試。這些系統運用影像分析、物聯網及其他技術，旨在改善在囚人士的福祉，同時紓減客戶的人手壓力。

我們的團隊一直與醫院管理局合作推行「智能醫院」計劃。年內，東區尤德夫人那打素醫院和威爾斯親王醫院展開試驗項目，調派機械人運送牀單和衣物。由於機械人須在醫院內進行垂直和水平導航移動，我們作為院內機電設施操作及維修保養的負責人，必須確保不同的通道門和升降機都能與機械人溝通，令機械人可自行乘坐升降機到達正確的樓層，並按需要進出不同的走廊通道和房間。



A related development was the first Green I&T Day co-organised with the Environment Bureau at the Hong Kong Science Park in August 2019 to showcase Hong Kong's I&T achievements in energy conservation and renewable energy. The event attracted over 600 participants and more than 30 local and Mainland exhibitors. Indeed, we have been promoting green I&T projects on energy efficiency via the E&M InnoPortal since April 2019. The plan is to implement ten green I&T projects each year.

Good progress was made during the year in our various I&T trial projects for the Correctional Services Department (CSD). The Smart Prison solutions jointly developed with the CSD and being tested at different correctional institutions include a Smart Wristband, a Health Signs Monitoring and Passage Surveillance System, an integrated intelligent communication system for persons in custody (PICs), and several projects exploring the use of robots for routine patrols and contraband searches. Using video analytics, Internet of Things (IoT) and other technologies, the systems aim to better serve the well-being of PICs and reduce manpower pressure on the client.

Meanwhile, our team has been working with the Hospital Authority on her "Smart Hospital" Project. One trial project is the deployment of robots to transport bed linen and clothing items at the Pamela Youde Nethersole Eastern Hospital and Prince of Wales Hospital. As the robot must be able to navigate vertically and horizontally in the hospital, our role as the O&M agent of the hospitals' E&M facilities is to enable the lifts and various doors to communicate with the robot so that it can automatically take the lift to the right floor and enter and exit corridors and rooms as required.

機電署為東區尤德夫人那打素醫院的升降機及通道門設置與運輸機械人溝通的介面，確保運輸機械人在運送物資的過程中順利自動乘搭升降機和開門。圖中在該醫院服務的機械人能按預設路徑，將物品（例如牀單）運送至指定地點，從而減輕人力需求。

We set up communication interface between the lifts and passage doors at the Pamela Youde Nethersole Eastern Hospital and its delivery robot, thereby ensuring the robot's delivery by allowing the robot to ride lifts and open doors automatically and smoothly. The robot shown in the photos can deliver objects such as bed linens to a designated area via a pre-set route so as to reduce the manpower demand.



機電署總部大樓的首個區域數碼監控中心提供多項服務，包括遙距設備監控、故障系統警示和能源管理等，以協助客戶提升機電資產的運作效率和能源效益。

The first Regional Digital Control Centre at the EMSD Headquarters offers various services, such as remote equipment monitoring, fault alert, energy management, etc., to enhance operational efficiency and energy efficiency of our clients' E&M assets.

營運基金是開發和推廣「建築信息模擬－資產管理」技術的先驅。繼2017年出版第一份《建築信息模擬－資產管理標準及指引》後，我們於2019年推出第二版，當中採納了業界提供的意見。隨着愈來愈多用戶應用這項技術，我們會不斷優化和更新有關標準及指引。

機電署在建築信息模擬技術上佔有領導地位，在Autodesk香港建築信息模擬設計大獎2019中贏得多個獎項，包括憑建造業零碳天地的智能操作及維修保養項目勇奪「設計大獎」，以及憑機電署總部客戶服務中心翻新工程而獲頒發「榮譽獎」，更有一位同事榮膺「Young BIMer of the Year」獎項。此外，機電署為香港兒童醫院及天水圍醫院設計的「建築信息模擬－資產管理」項目，也獲「型建香港」頒發「最佳BIM政府部門大獎」。

年內另一項令人鼓舞的發展，是我們運用「政府物聯網」加強建築信息模擬技術的應用。「政府物聯網」是全港政府部門通用的物聯網平台，用作中央數據監察和分析及物聯網應用開發。我們於2019年年初進行試驗計劃，透過「建築信息模擬－資產管理」平台，成功整合物聯網技術與建築信息模擬的介面。我們與相關政府部門磋商後，認為「建築信息模擬－資產管理」與「政府物聯網」進一步整合後，將有龐大發展潛力，預計日後會獲廣泛採用，有助我們優化政府建築物的表現和改善公共服務。

The EMSTF has also been a pioneer in the development and promotion of Building Information Modelling – Asset Management (BIM-AM) technology. Further to our publication of the first BIM-AM Standards and Guidelines in 2017, we published a second edition in 2019, incorporating input from the industry. Our aim is to continuously refine and update the Standards and Guidelines as more users deploy the technology.

In recognition of our BIM leadership, we won multiple accolades in the Autodesk Hong Kong BIM Awards 2019, including a "BIM Award" for our work in BIM-AM for smart O&M at the CIC-Zero Carbon Building and an "Honourable Mention" for the renovation of the EMSD Headquarters' Customer Service Centre. And what's more, one of our colleagues took home the "Young BIMer of the Year" title. The EMSD also received the "Best BIM Government Department Award" from buildingSMART Hong Kong for its BIM-AM projects for the Hong Kong Children's Hospital and the Tin Shui Wai Hospital.

This year, we also saw an exciting development which related to leveraging the Government-Wide IoT Network (GWIN), a territory-wide government IoT platform for centralised data monitoring and analysis and IoT application development, to enhance BIM applications. We successfully integrated our BIM interface with IoT technology through the BIM-AM platform in a trial in early 2019. After further discussion with relevant government departments, we have recognised the potential for further integrating BIM-AM with the GWIN, which will be widely deployed in due course. This integration can help us optimise the performance of government buildings and improve public services.

營運服務 Trading Services



我們的同事於西九龍政府合署展示一套以地理資訊系統為基礎的「數碼文檔記錄系統」。該系統有助機電人員透過定位技術，快速而準確地檢索建築物內的技術資訊，提升維修保養工作的效率。

Our colleagues are demonstrating the use of a Geographic Information System-based Digital Documentation System at the West Kowloon Government Offices. With the use of positioning technology, the system enables prompt and accurate retrieval of technical information in a building, thereby enhancing the efficiency of maintenance work.

舉例來說，機電署的區域數碼監控中心可監察政府大樓內空調系統的實時數據，讓我們更有效地進行預測性保養、處理故障和維修，甚至可實時找出大樓物業設施管理的問題。我們的「建築信息模擬—資產管理」平台日後與「政府物聯通」整合後，不僅有助機電設備的維修保養，更可透過各種流動應用程式的功能，加強物業設施管理。就以智能洗手間為例，應用程式可提醒前線物業管理人員適時補充消耗品，並為使用者指示空置廁格的位置。

另一相關發展是在2019年第三季推出以地理資訊系統為基礎的「數碼文檔記錄系統」。前線員工現可使用流動電話或平板電腦，輕易檢索指定地點的所有機電設施的技術資訊，包括圖則、維修保養手冊及記錄，大大提升了在操作及維修保養方面的工作效率。營運基金的策略業務單位會根據各自的業務情況，繼續規劃如何採用這個數碼文檔系統，以滿足客戶的個別需求。

我們與渠務署開發「智慧渠務—洪水監察系統」先導計劃，透過物聯網技術和新式傳感器，實時監測不同風暴潮點及越堤浪點的水位情況。

We develop the pilot project, Smart Drainage—Flood Monitoring System, which uses the technology of IoT and new type of sensors, with the Drainage Services Department to monitor real-time water level status at different storm surge spots and overtopping wave spots.



For example, real-time data from an air-conditioning system in a government building can be monitored at our Regional Digital Control Centre for more efficient predictive maintenance, troubleshooting and repairs, and even real-time identification of facility management issues. When integrated with the GWIN, the BIM-AM platform will facilitate not only E&M maintenance but also facility management through such features of mobile applications as alerting frontline building management staff to replenish consumables in a smart washroom and directing users to vacant cubicles.

A related development was the launch of our Geographic Information System-based Digital Documentation System (DDS) in the third quarter of 2019. Using mobile phones or tablets, frontline staff can now easily retrieve technical information on all E&M facilities in a specific location, such as drawings, maintenance manuals and records. This is a major boost to the efficiency of our O&M work. Our Strategic Business Units will continue to work on the deployment of the DDS in their own context to suit their clients' unique needs.

物聯網可應用於戶外環境，發展潛力無限。在2019年7月至8月的短短數星期內，我們為渠務署在七個較易受風暴潮影響及三個較易受越堤浪影響的地點安裝了物聯網傳感器，試驗結果證明系統能有效幫助渠務署實時監察風暴潮情況，即使地勢險要也不受影響。隨著「政府物聯通」建設工作日臻完善，各種創新應用方案也會應運而生，我們期待積極參與其中。

創新科技現正融入我們的日常客戶工作。就以香港國際機場的三跑道系統項目而言，營運基金團隊一直協助香港海關、入境事務處和香港警務處，為其機電及電子系統的設計、建造及未來的調校工作進行監控，並藉此機會協助有關部門為各種新設施注入創科元素，例如在X光行李掃描系統加入人工智能技術，從而更快和更準確地識別可疑物件。

The potential of IoT, which includes outdoor applications, is indeed limitless. In just a few weeks from July to August 2019, we successfully installed IoT sensors at seven storm surge spots and three overtopping wave spots for the Drainage Services Department (DSD). The trial results have proved effective in helping the DSD monitor storm surge levels in real time, even where the terrain is difficult. As the construction of the GWIN progresses, more innovative applications will follow, and we look forward to playing an active role.

I&T permeate our day-to-day client work too. Working on the Three-runway System (3RS) at the Hong Kong International Airport, the EMSTF team has been helping the Customs and Excise Department, the Immigration Department and the Hong Kong Police Force monitor the design, construction and future commissioning of the various E&M and electronic systems to be installed at the 3RS. We have also taken the opportunity to help them add I&T elements like artificial intelligence into the new facilities, such as the X-ray baggage scanning system, for faster and more accurate identification of suspicious objects.

建基於物聯網的跨境渡輪航班資料顯示系統透過應用物聯網技術，更新航班的出發時間及目的地，並顯示中港城碼頭的特定資料(例如天氣情況)。該系統同時收集有關附近機電設備運作情況的資料，以作遠程監測。

The IoT-based Sailing Information Display System leverages IoT technologies to update passengers on the departure time and destination, and display specific information of the China Ferry Terminal such as the weather conditions. It also collects information about the operating status of the nearby E&M equipment for remote monitoring.



位於將軍澳的新入境事務處總部是另一例子。該大樓預計於2023年落成，我們就大樓的各項機電系統設計及設施數碼化的工作，向客戶提供意見，期望新總部大樓成為一幢能惠及用戶與大眾的智能建築物。

展望未來，我們將充分利用「政府物聯通」，甚或市場已推出的第五代流動網絡技術，加強創科工作，並履行機電署作為政府「創新促成者」的職責。

Another example is the new Immigration Headquarters in Tseung Kwan O, scheduled for completion in 2023. We provided input to the client on the design of the various E&M systems and ways to digitise its facilities so that the new headquarters will be an intelligent building that creates value for users and the public.

Looking ahead, we will make good use of the GWIN, and perhaps also 5G technology already available in the market, to enhance our I&T work and discharge our duty as the Government's Innovation Facilitator.

營運服務 Trading Services



區域數碼監控中心：願景成真 Regional Digital Control Centre: Vision Comes to Life

蘇博文先生及其團隊負責設計及落實機電署首個區域數碼監控中心計劃，致力實踐機電數碼化的工作，積極為建構智慧城市奠定基礎。

Mr So Pok-man, Patrick, and his team are responsible for the design and implementation of the EMSD's first Regional Digital Control Centre with an aim to achieve E&M digitisation and lay the foundation for building a smart city.

站在機電署首個區域數碼監控中心的大型發光二極管儀表板前，彷彿置身科幻電影。儀表板顯示各種機電系統操作數據，可追蹤空調系統能源效益表現和升降機及自動梯狀態，並化成生動的視像圖表，更能隨時擷取及分析多種數據，方便作出搶修設施決定，也有助進行預測性維修保養及實踐實時設施管理。

監督及落實區域數碼監控中心這個先導項目的是綜合工程部工程師蘇博文先生。按照計劃，400幢由綜合工程部維修保養、每幢每年耗電50萬度電以上的主要政府大樓，未來都會陸續接駁至這個區域數碼監控中心，以監察和優化各幢大樓的能源效益表現和機電系統操作效率。

蘇先生說：「區域數碼監控中心是機電工程營運基金第二個五年策略計劃的措施之一。」2018年，他和團隊獲委派任務，把區域數碼監控中心這個新願景變為事實。由於項目概念嶄新，市場並沒有現成的技術方案，團隊於是與初創企業合作，進行設計和建造工程。區域數碼監控中心已於2020年2月開始運作。

蘇先生指出：「長遠而言，區域數碼監控中心是管理智慧型建築物的未來方向。」過去五至七年落成的較新政府大樓，都已安裝了綜合樓宇管理系統，通過該系統，營運基金具有獨特優勢可存取這些政府大樓機電設施的數據庫。當數據庫與機器學習及人工智能等功能結合，數據庫便能產生各種有用的數據工具，將建築物變得更具智慧、更環保。首個區域數碼監控中心的硬件和軟件設計，能讓它們在開放平台上運作，方便機電署日後的其他區域數碼監控中心互相溝通。

Standing in front of the huge light-emitting diode dashboard in the EMSD's first Regional Digital Control Centre (RDCC) is like being in a sci-fi movie. Graphical visualisations of operational data, tracking everything from the energy efficiency performance of air-conditioning systems to the status of lifts and escalators, can be called up and analysed to enable rapid troubleshooting, more effective predictive maintenance and even real-time facility management.

Overseeing the implementation of this pilot RDCC is Mr So Pok-man, Patrick, an engineer of the General Engineering Services Division (GESD). This RDCC will eventually be connected to 400 major government buildings maintained by the GESD, each with annual electricity consumption of over 500 000 kWh, to monitor and optimise their E&M systems' energy efficiency and operational performance.

"RDCC is one of the initiatives under the second EMSTF Five-year Strategic Plan," Mr So noted. In 2018, he and his team were tasked with turning the RDCC vision into reality. As the concept was new and no off-the-shelf solution was available, the team partnered with a start-up to work on design and implementation. The RDCC began operations in February 2020.

"In the long run, RDCC is the way forward for the management of smart buildings," Mr So said. The EMSTF also has the unique advantage of having access to a rich database of government building E&M facilities, especially from newer buildings that have deployed integrated Building Management Systems in the past five to seven years. Once integrated with machine learning and artificial intelligence, the database will generate useful digital tools to help make buildings smarter and greener. Both the hardware and software have been designed to run on an open platform so that all future EMSD RDCCs can communicate with each other.



香港年青公務人員 以中國人員身分赴聯合國任職 Hong Kong Young Public Officers to Work at the United Nations as Chinese Personnel

自2014年開始一直參與BIM-AM項目研發的工程師袁彪洪先生，於2019年勇奪「Young BIMer of the Year」獎項，可見他在BIM-AM發展方面的貢獻備受業界肯定。

Mr Yuen Piu-hung, Francis, an engineer who has been involved in the development of BIM-AM projects since 2014, was awarded the "Young BIMer of the Year" in 2019, a recognition of his contribution in the development of BIM-AM in the trade.

2018年12月，數碼科技部工程師袁彪洪先生經他的職系首長，收到公務員事務局電郵通告，內容是政府招募年青公務人員，參與聯合國初級專業人員計劃。獲成功取錄的申請人將獲派往美國或歐洲的聯合國機構，以中國人員身分成為初級專業人員於當地工作，為期兩年。袁先生跟太太商量後，她也十分支持，於是決定申請。

「競爭相當激烈。」他說。經過香港一連串面試後，初步入選的候選人獲邀於2019年7月往北京，參加為期一周培訓，內容涵蓋國家政策、外交事務及管治策略等。候選人在培訓期間的表現，也是評審一部分。

政府最終選定五位年青公務人員，並由中國外交部推薦，參與今次的聯合國初級專業人員計劃，其中包括袁先生和機電署另一位工程師。袁先生將前往日內瓦的聯合國辦事處工作兩年。他說：「這是個很獨特的機會，讓我們能在多元文化的環境下，接觸不同的處事角度和考量因素。我非常期待。」

It all began in December 2018, when Mr Yuen Piu-hung, Francis, an engineer of the Digitalisation and Technology Division, received an email notice from the Civil Service Bureau via his head of grade. It was a call from the Government for young public officers to take part in the United Nations (UN) Junior Professional Officer (JPO) Programme. Successful candidates would be posted to UN agencies in the US or Europe to work as JPOs for two years as Chinese personnel. After talking to his wife, who was very supportive, Mr Yuen put in his application.

"Competition was keen," he said. After going through a series of interviews in Hong Kong, shortlisted candidates were invited to Beijing in July 2019 for a one-week training on China's national policies, foreign affairs and governance strategies. Candidates' performance in the training formed part of the assessment.

Mr Yuen and another EMSD engineer were two of five young public officers from the Government eventually recommended by the Ministry of Foreign Affairs of the People's Republic of China (PRC) to participate in the UN's JPO Programme. Mr Yuen will be working in the UN office in Geneva for two years. "I am really looking forward to this unique opportunity to gain more experience in a multi-cultural environment with diverse perspectives and considerations," he said.



行政長官林鄭月娥女士(前排左四)於2019年12月出席首批由國家推送的中華人民共和國香港特別行政區青年赴聯合國任職發布儀式。機電署袁彪洪先生(後排左二)及陳莉婷女士(後排右二)為五位參與聯合國初級專業人員計劃的公務人員之一。

Mrs Carrie Lam (4th left, front row), the Chief Executive, attended the Launch Ceremony of the First Batch of the Hong Kong Special Administrative Region of the PRC JPOs Recommended by the Central Government of the PRC to the UN in December 2019. Mr Yuen Piu-hung, Francis (2nd left, back row) and Ms Chan Lee-ting, Joe (2nd right, back row) from the EMSD were two of five public officers to participate in the UN JPO Programme.

營運服務 Trading Services

實踐綠化 動感之都

香港是個人口逾700萬的大都會，這個活力之都不僅以勤奮和效率見稱，更不斷追求快人一步、着着領先。營運基金負責為多個政府部門及公營機構的機電設施提供操作及維修保養服務，擔當重要角色，更積極支援所有客戶不斷改善公共服務。

政府承諾在2015至2020年的五年間，以2013/14年度為基準，把政府建築物的耗電量減少5%，並採取更廣泛措施以應對氣候變化。為了支持政府的舉措，我們協助客戶落實了不少能源效益項目，例如更換老化的製冷機和照明系統，為客戶大大減少了耗電量。由於勢頭良好和成績理想，政府在2019年《施政報告》中提出更進取的「綠色能源目標」，就是以2018/19年度為基準，在2024/25年度或之前把政府整體的能源使用量進一步減少6%。新措施的重點是推動政府建築物使用可再生能源，當中涵蓋電力、氣體及其他能源。



我們為金鐘道政府合署安裝高效能海水冷卻製冷機組，利用較低的全球暖化潛值的製冷劑，提升空調供應的可靠性和能源效益表現，並減低溫室氣體排放。

We installed high efficiency seawater-cooled chillers, using refrigerant with low global warming potential, in the Queensway Government Offices to enhance the reliability of air-conditioning supply and energy efficiency performance, and reduce greenhouse gas emission.



SUPPORTING A VIBRANT AND GREEN CITY

Hong Kong, a metropolis with over seven million people, enjoys a vibrancy that is not only due to its hard work and efficiency, but also to its drive to always stay one step ahead. The EMSTF plays a key role in operating and maintaining the E&M facilities of many government departments and public organisations, and we enthusiastically support all our clients in their continuous improvement of public services.

In support of the Government's pledge to reduce electricity consumption in government buildings by 5% over the five years from 2015 to 2020 with 2013/14 as the baseline, and its wider efforts to combat climate change, we have helped clients implement many energy efficiency projects, such as replacement of ageing chillers and lighting systems. These projects have significantly reduced electricity consumption. Building on the momentum and good results, the Government has pledged a more progressive "Green Energy Target" in the 2019 Policy Address, i.e. a further reduction of the use of energy within the whole government by 6% by 2024/25 using 2018/19 as the baseline. With a focus on promoting the use of renewable energy (RE) in government buildings, the new initiative will cover electricity, gas and other energy sources.

我們為沙田心警署安裝太陽能發電系統，並提供工程設計及管理工作。該系統產生的可再生能源可供作警署日常電力所需。

We carried out design, management and installation work for the solar PV system on the rooftop of Tin Sum Police Station, Shatin. The PV system provides renewable power to meet the electricity needs of the venue.



我們為啟德跑道公園安裝太陽能燈柱。太陽能燈柱利用陽光發電，供晚上照明之用，大大優化能源使用。

We installed the solar lamp poles at Kai Tak Runway Park. Powered by solar energy for lighting at night, the solar lamp poles largely optimise energy use.

我們已開始為這新一輪的節能計劃進行準備工作。營運基金團隊已就多幢政府建築物展開廣泛調查（特別是建築物天台），以找出在安裝太陽能板方面是否有任何結構限制。在未來幾年，我們會致力為政府建築物及設施安裝太陽能板及其他可再生能源系統。

為了配合政府推出可貫通全港政府部門的「政府物聯網」物聯網平台，用作中央數據監察和分析及物聯網應用開發，我們會藉此機會在政府建築物的天台安裝傳感器，把機電設施（例如製冷機和太陽能發電系統）的實時數據，透過「政府物聯網」傳送至客戶場地的綜合樓宇管理系統，以進行資產監控、故障報告和預測性維修保養。收集所得的大數據將有助作出更佳分析，用以優化建築物的運作表現，達致節能效果。

營運基金現行五年策略計劃的重點措施之一，是採用綜合樓宇管理系統方案，為400多幢政府建築物（當中約180幢為市政設施）的機電設備進行數碼化。設於機電署總部的首個區域數碼監控中心已按計劃於2019年年底落成，初步連接了約20個政府場地，這數目日後會逐漸增加。

除了採用可再生能源和物聯網方案之外，我們也開始使用重新校驗，以提升現有建築物（例如法院大樓和政府辦公室大樓）的運作表現。隨着科技進步，重新校驗已成了為現有建築物進行「健康檢查」的有效方法，並可優化建築物的能源效益及整體表現。我們會鼓勵更多客戶採用重新校驗。

We have already begun to lay the groundwork for this new round of energy-saving projects. Our team has conducted extensive surveys on many government buildings, particularly their rooftops, to identify any structural constraints for photovoltaic (PV) panel installation. Over the next few years, we will be busy installing PV and other RE systems at government buildings and facilities.

In line with the rollout of the Government-Wide Internet of Things (IoT) Network (GWIN), a territory-wide government IoT platform for centralised data monitoring and analysis and IoT application development, we will take the opportunity to also install sensors on rooftops of government buildings so that real-time data from E&M facilities (e.g. chillers and PV systems) can be transmitted via the GWIN to our integrated Building Management System (iBMS) at client venues for asset monitoring, fault reporting and predictive maintenance. The big data collected will enable more intelligent analysis for optimisation of building performance, thus saving energy.

One of the key initiatives of the EMSTF's current Five-year Strategic Plan is to digitalise the E&M equipment of more than 400 government buildings, of which some 180 are municipal facilities, with the deployment of iBMS solutions. As planned, our first Regional Digital Control Centre was set up in late 2019 at the EMSD Headquarters, initially connecting about 20 government venues. That number will increase over time.

In addition to deploying RE and IoT solutions, we have also started using retro-commissioning to enhance the performance of existing venues, e.g. law courts and various government offices buildings. Advancements in technology have made retro-commissioning an effective way to conduct "health checks" on existing buildings and optimise their energy efficiency as well as overall performance. We will encourage more clients to adopt the practice.

營運服務 Trading Services

我們協助食環署在轄下的熟食中心應用可移動式浸洗缸。同事把積聚油脂的濾油隔放入連接超聲波儀器的浸洗缸中，透過超高频超聲波震動徹底清潔濾油隔。

We assisted the FEHD in using mobile soak tanks in their cooked food centres. Our colleagues put the greasy oil filter into the tank, which is connected to an ultrasound generator. The filter is then cleaned thoroughly through super-high-frequency ultrasonic scrubbing.



就市政設施而言，我們去年為食物環境衛生署（食環署）轄下街市的熟食中心引進的紫外光C及臭氧廚房排煙系統，已證明能有效防止排煙管道內的油脂積聚，從而減低這些設施的火警風險。我們現正為大埔墟街市及田灣街市的熟食中心安裝有關系統。此外，我們早前也引入了浸洗缸，利用超聲波為熟食攤檔清洗抽油煙機濾油隔，同樣反應理想，並會在大埔墟街市及田灣街市的熟食中心安裝。我們會把這些新技術推廣至其他熟食中心。

As to municipal facilities, the ultraviolet-C (UV-C) ozone kitchen exhaust treatment system that we introduced last year to cooked food centres in markets under the Food and Environmental Hygiene Department (FEHD) has proved highly effective in preventing grease build-up in exhaust air ducts and, hence, reducing fire risk at these facilities. Installation is now in progress at the cooked food centres in Tai Po Hui Market and Tin Wan Market. Likewise, a soak tank that uses ultrasound to clean oil filters installed in exhaust hoods at cooked food stalls, which we introduced earlier, has met with a good response and will also be installed at the cooked food centres in Tai Po Hui Market and Tin Wan Market. We will promote these new technologies to other cooked food centres.

年內，我們利用人工智能和影像分析技術優化火化效率，預計於2020年完成來自三家不同公司的技術測試。有關團隊的工作亦獲得認同，一位前線員工獲頒2019年公務員事務局局長嘉許狀，以表揚他多年來為火葬場提供專業及傑出的服務。

During the year, we have been using artificial intelligence (AI) and video analytics technologies to optimise the performance of cremators, and expect to complete the testing of technologies from three different companies in 2020. Indeed, our team's work received public recognition as one of our frontline colleagues was honoured with the Secretary for the Civil Service's Commendation Award 2019 for his professional and outstanding work in crematorium service over the years.

我們現正研發一套應用影像分析及人工智能技術的火化系統，以優化火化過程、減少燃料消耗和空氣污染物排放量，以及提升火化效能。

We are developing an AI-based video analytics technology for cremation system in order to optimise the cremation process, reduce fuel consumption and air pollutant emission, and enhance cremation efficiency.



機電署在蓮塘/香園圍口岸安裝、測試及校驗車輛自動清關支援系統，為口岸啟用作好準備。

We conduct installation, testing and commissioning for the Automatic Vehicle Clearance Support System at the Liantang/Heung Yuen Wai Boundary Control Point to prepare for its commissioning.

營運基金在運輸基建和城市設施的操作及維修保養和項目工程方面，在年內均取得良好進展。舉例來說，我們為香港海關和入境事務處在新建的蓮塘/香園圍口岸安裝各類機電及電子系統，口岸項目將於2020年8月投入運作。至於我們一直與運輸署合作引入的「不停車繳費系統」，我們已成立專責團隊，準備把新系統推展至全港所有政府收費隧道，而第一個「不停車繳費系統」將於2022年年中全面投入服務。此外，我們為屯門至赤鱗角連接路的北面連接路的新隧道及中九龍幹線提供顧問及技術諮詢服務，以確保項目的機電設計具成本效益，以及可配合政府相關的公共工程設計和符合相關技術標準。

The EMSTF made good progress during the year in its O&M and project work in transport infrastructure and city facilities. For instance, the new boundary control point at Liantang/Heung Yuen Wai, for which we installed various E&M and electronic systems for the Customs and Excise Department and the Immigration Department, will be put into operation in August 2020. As to the free-flow tolling system (FFTS) that we have been working on for the Transport Department (TD), we have formed a dedicated team to implement the new system at all government tolled-tunnels. The first FFTS will be fully implemented by mid-2022. Besides, we provided consultancy and technical advisory services for the new Northern Connection Tunnel of the Tuen Mun-Chek Lap Kok Link and the Central Kowloon Route to ensure that the E&M design is cost-effective and compatible with the design of the Government's associated public works as well as the relevant technical standards.

數碼時代為我們帶來不少機遇和挑戰。營運基金現正朝着「機電2.0」的願景進發，並已着手推行一系列機電數碼化策略，以協助客戶與時並進，緊貼數碼時代的公共服務需要。我們本着這個精神，在年內加緊協助客戶落實多項資產管理系統數碼化項目，提升我們的「建築信息模擬－資產管理」平台及「政府物聯通」的相關工作，以及持續推展綜合樓宇管理系統。

The digital age presents many opportunities and challenges. In keeping with our "E&M 2.0" vision, we have embarked on a number of E&M digitisation strategies to help our clients keep abreast of public service needs in the digital age. It is with this spirit that we have stepped up our work in helping clients implement their various Asset Management System digitisation projects, our Building Information Modelling – Asset Management platform and related efforts with regard to the GWIN, as well as ongoing iBMS implementation.

展望未來，我們會繼續協助客戶更換老化的機電系統，特別是空調系統。我們會為新的青衣驗車中心提供機電維修保養服務，該中心預計於2021年啟用。

Going forward, we will continue to help clients replace their ageing E&M systems, in particular air-conditioning systems. The EMSTF will also provide E&M maintenance services to the new Tsing Yi Vehicle Examination Centre, scheduled to open in 2021.

營運服務 Trading Services



機電署協助運輸署安裝並試驗新一代停車收費錶系統。該系統為《香港智慧城市藍圖》的項目之一，可支援多種付費方式，包括以流動應用程式遙距繳費，並配備佔用傳感器以提供實時空置泊車位資訊。

We assist the TD to install and test the new generation parking meter system, one of the initiatives set out in the Smart City Blueprint for Hong Kong. The system supports multiple payment means, including remote payment through mobile applications, and is equipped with occupancy sensors to provide real-time information about parking space availability.

運輸服務方面，新一代停車收費錶系統的開發快將完成，初步預計安裝工程會在2020年年底前陸續展開，並於2022年上半年全面完成。新系統正計劃引入多項創新功能，可支援多種電子繳費模式，包括以非接觸式信用卡、快速支付系統（「轉數快」）、二維碼及流動應用程式繳費。新系統亦會配備佔用傳感器，以偵測相關的路旁停車位是否已被佔用，而有關的實時資訊會經運輸署的流動應用程式及網站發放予駕駛者參考，利便他們尋找泊車位，亦有助減少車輛在路上徘徊尋找空置停車位所產生的交通流量。

As for transport services, the development of new generation of parking meter system will soon be completed and the installation of new parking meters is planned to commence by phases from end of 2020 for completion in the first half of 2022. New innovative features planned to be introduced to the new system, including support for various electronic payment means using contactless credit cards, Faster Payment System (FPS), QR code and mobile applications. New parking meters will each be fitted with an occupancy sensor to detect whether the relevant on-street parking space is occupied or not. The real-time data will be disseminated to motorists for reference through the TD's mobile application and website. This information will assist the motorists in finding parking spaces and reduce the traffic generated by vehicles circulating in search of vacant parking spaces.

為改善交通環境和善用土地，我們一直為起動九龍東辦事處提供項目服務，就新蒲崗四美街的體育館設施及公眾停車場設計和推行「地下垂直升降式和橫向移動式」自動泊車系統。有關系統配備智能物流及控制系統，將可節省建築成本，以及提高停車場的營運效率和流量。事實上，自動泊車系統是智慧城市計劃的一部分，未來幾年將有更多不同類型的自動泊車系統在政府場地展開先導計劃。

To improve traffic environment and land utilisation, we have been providing project services to the Energizing Kowloon East Office for the design and implementation of an underground vertical lifting and horizontal sliding (VLHS) automated car parking system for the Sports Centre Facilities cum Public Vehicle Park at Sze Mei Street in San Po Kong. The VLHS system will save building cost and also improve the operational efficiency and throughput of the carpark with its intelligent logistic and control system. Indeed, as part of the smart city initiatives, many more pilot projects on different types of automatic parking systems will be implemented in government venues in the coming years.

就東九文化中心而言，我們新的駐場團隊已準備就緒，在2020/21年度啟用時負責場地的機電設施操作及維修保養工作。東九文化中心是個令人期待的新場地，設有多項嶄新設施，其中由電腦控制的先進舞台燈光系統，正是我們將負責操作和維修保養的設施之一，團隊現正積極準備，隨時候命。

As to the East Kowloon Cultural Centre (EKCC), our new resident team stands ready to take up the O&M work of its E&M facilities when it opens in 2020/21. Among the EKCC's new features is a state-of-the-art computerised stage lighting system that our team is getting ready for, as part of our O&M services for this exciting new venue.



火化爐維修保養 技藝爐火純青 Perfecting the Art of Cremator Maintenance

傅景威先生已從事火化爐磚維修工作近40年。他表示爐內空間狹小，在進行修補爐磚裂縫、檢查爐磚狀況等工作時，可謂考驗耐力。

Mr Fu King-wai, who has been handling brick-repairing work for cremators for almost 40 years, considers his duty to be a test of endurance. He has to repair cracked bricks and conduct condition checking of bricks inside the cremator with limited space.

市政工程部一級監工傅景威先生，近四十年來一直鑽研火化爐的維修保養，鍊成爐火純青的高超技藝。他於1982年加入機電署，曾在本港大部分政府火葬場工作，去年更榮獲2019年公務員事務局局長嘉許狀，表揚他多年來在這方面的貢獻，確是實至名歸。

Mr Fu King-wai has spent almost 40 years perfecting the art of cremator maintenance. Now a works supervisor I of our Municipal Sector Division, he has served at most government crematoria in Hong Kong since joining the EMSD in 1982. The Secretary for the Civil Service's Commendation Award 2019 that he received last year was a well-earned recognition of his outstanding contribution.

傅先生說：「早年的海外火化爐製造商不肯向我們提供爐的設計圖則，我唯有站在火化爐門口，默默觀察製造商派來的人員怎樣砌爐磚，用鉛筆畫下來做參考。」當年那火化爐足有三層樓高，沿鋼框內圍需要鋪砌五層爐磚，製造商花了一個多月才把爐磚砌好。經過一個月細心觀察和親手繪圖記錄，傅先生開始對爐磚和火化爐產生興趣，後來更發展成終身事業。

"In the old days, the overseas cremator manufacturer would not release the design drawings to us. I had no choice but to stand at the cremator door and quietly observe how the manufacturer's people laid the firebricks, making a pencil drawing as a guide," Mr Fu explained. It took a full month for the manufacturer's people to lay all five layers of firebricks against the cremator's metal frame, which was as tall as a three-storey building. This month of careful observation and drawing sparked Mr Fu's interest in firebricks and cremators, leading to a life-long vocation.

他說：「有時一塊破損了的爐磚，可能深埋在幾層『健康』的爐磚之間，因此在更換破損了的爐磚後，我們必須懂得怎樣把『健康』的爐磚重新正確鋪砌，不然整個結構或會有倒塌危險。」傅先生擁有豐富的火化爐系統知識，堪稱一部活字典，也是火化爐操作及維修保養和解難的專家。他的團隊也察覺到，科技對改善火化爐監察和系統表現、以至加強同事的職業安全都大有幫助，因此近年已率先引進各種科技方案和儀器，幫助工作。此外，他也領導團隊致力執行火化爐嚴格的定期維修保養工作，包括每兩天至六天一次的定期維修保養，還有每年一次的大維修，拆開火化爐所有部件，徹底清潔和修理。

"Since a damaged brick may be buried between layers of 'healthy' bricks, it is important that we can correctly re-lay the 'healthy' bricks after replacing the damaged one, otherwise the whole structure may collapse," he said. He is also a walking encyclopaedia of cremator systems and an expert in O&M and troubleshooting. Recognising the great potential of technology in improving cremator system monitoring and performance as well as occupational safety, his team has piloted many technological solutions and devices in recent years. This was on top of carrying out rigorous scheduled maintenance of cremators every two to six days, plus an annual overhaul that sees all parts dismantled, cleaned and repaired.

傅先生現於葵涌火葬場工作，時刻銘記團隊的使命，就是提供優質的火化爐系統操作及維修保養服務，讓逝者有尊嚴地走完最後一程，並將骨灰於火化翌日即交回家屬。離退休只有兩年，傅先生期望交棒給新一代，並寄語年青人必須「有耐性、重經驗」。

Now working at Kwai Chung Crematorium, Mr Fu never forgets that the team's mission is to provide quality O&M service so that the deceased can complete their last journey with dignity and the family can receive the ashes promptly, on the day after cremation. Two years to retirement, Mr Fu looks forward to passing the baton to the younger generation, for whom he advises "patience and experience".

企業管理 CORPORATE STEWARDSHIP

香港年內發生多次公眾活動，兼受2019冠狀病毒病全球大流行影響，令營運基金第二個五年策略計劃的第二年推展工作遇上前所未有的挑戰。本年報的前幾章已詳述我們各策略業務單位的工作，而我們的支援單位也努力尋求各種創新方法，務求盡量減少公眾活動和疫情對營運基金正常運作的影響，同時繼續落實第二個五年策略計劃中的三大策略，即「機電數碼化」、「培育團隊」和「科技·創新」。

營運基金同寅羣策羣力，致力落實這些策略，逐步實現「透過與不同持份者的伙伴關係，創造公眾價值及改善社會」的企業目標，並朝着「機電2.0」的願景邁進。過去一年，我們實現了策略計劃中幾個里程碑，例如實施了多項機電數碼化工作並獲得獎項、深化我們與本地、國家及外國的技術交流和擴展培訓領域，以及支援政府的創新採購政策。機電署十分重視作為政府「創新促成者」的角色，致力為政府的創新採購政策訂下恰當的運作流程及利用「機電創科網上平台」為客戶部門物色創新的機電解決方案。我們會繼續努力履行「創新促成者」的職責，並全力落實營運基金的策略計劃。

以下是我們2019/20年度各支援單位的重點工作。為配合策略計劃，我們的工作主要集中在五方面，即建立團隊、優質服務、創新科技(創科)、關懷員工，以及創意文化。

The second year of the EMSTF's second Five-year Strategic Plan met with unprecedented challenges as public order events and the COVID-19 pandemic affected Hong Kong. In addition to our Strategic Business Units' (SBUs) efforts mentioned in previous chapters, our support units have sought innovative ways to minimise impacts on the EMSTF's normal operation while also continuing to implement the three main strategies of the second Five-year Strategic Plan, namely "E&M Digitisation", "Excellent Work Team" and "Technology · Innovation".

Through a concerted effort to implement these strategies, the EMSTF moved closer towards the corporate goal of "creating public value for community betterment through partnership with different stakeholders" and achieving our vision of "E&M 2.0". The past year saw several milestones in the Strategic Plan achieved, such as implementing multiple E&M digitisation works and winning awards; deepening technical collaborations and expanding training fields with local, national and international institutions; and supporting the pro-innovation government procurement policy. As an Innovation Facilitator for the Government, we take our role seriously and spare no effort in setting up appropriate operation procedure for the pro-innovation government procurement policy and seeking for suitable E&M solutions for client departments with the use of E&M InnoPortal. We will continue to discharge our duty as Innovation Facilitator and implement our Strategic Plan with full momentum.

The following are some highlights of our support units' works during 2019/20. Consistent with our Strategic Plan, they centre around five aspects: capacity building, quality service, innovation and technology (I&T), caring for staff, and a creative work culture.

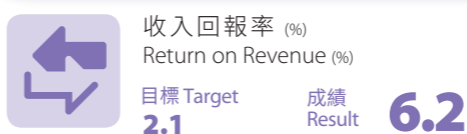
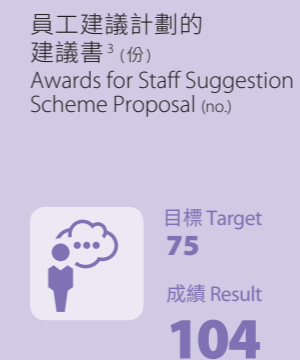
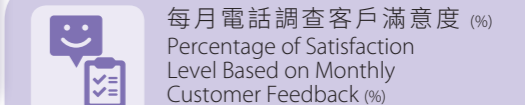
踏入第二個五年策略計劃的第二年，我們積極落實「機電數碼化」、「培育團隊」和「科技·創新」三大策略，為客戶提供優質的機電工程服務。圖為策略計劃的宣傳小冊子。

Stepping into the second year of the second Five-year Strategic Plan, we are actively implementing the three main strategies of "E&M Digitisation", "Excellent Work Team" and "Technology · Innovation", to deliver excellent E&M service to clients. Pictured is the promotional leaflet of the Strategic Plan.



2019/20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 FY 2019/20



¹ 數字為2018年的調查結果。下一次調查將於2020年第四季進行。
² 此為警戒水平，並非目標。
³ 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。
⁴ 目標耗電量以2013/14財政年度的耗電量(扣除客戶使用量)為基線，再節省5%用電量計算。
⁵ 2019/20財政年度經調整後的耗電量(扣除客戶使用量)。
⁶ 數字為2019年的調查結果，跟上一次的調查結果相同。

¹ Result from the survey conducted in 2018. The next survey will be conducted in the fourth quarter of 2020.
² This is an alert level, not a target.
³ This item applies to the EMSD as a whole. Other items apply to the EMSTF only.
⁴ The target is calculated using the electricity consumption (exclude client usage) in FY 2013/14 as the baseline with 5% energy saving.
⁵ Normalised electricity consumption (exclude client usage) as of FY 2019/20.
⁶ Result from the survey conducted in 2019, the same as in previous survey.

企業管理 Corporate Stewardship



技能發展中心於2020年2月正式投入服務，提供符合「世界技能大賽」標準的場地作為培訓基地，包括空調製冷培訓基地及電氣安裝培訓基地；另設有數碼訓練中心，配備先進的數碼科技培訓設施，以提升學員的技術水平。

The Skill Development Centre was put into operation in February 2020, providing the Refrigeration and Air-Conditioning Training Base and the Electrical Installations Training Base, which meet the standards required for venues of the WorldSkills Competition, as well as featuring a Digital Training Centre equipped with advanced digital technology training facilities to boost technical skills of trainees.

360°
view



http://bit.ly/emsd_sdc

投放資源 建立團隊

要進行數碼化，我們需要一支具有國際視野、專業知識及最佳作業方式的優秀工作團隊。此舉的目的，是要確保營運基金的團隊精通創科、目光遠大，並且具有競爭力及豐富國際經驗。

機電署於2018年就機電人才發展與廣州市人力資源和社會保障局（人社局）等中國內地（內地）對口單位簽訂多項合作備忘錄後，進一步深化與人社局的合作。年內，機電署安排了20多名在職員工及82名見習技術員到廣州參加各項技術培訓課程，涵蓋空調系統、電氣安裝、屋宇裝備及車輛維修。

與人社局的另一項合作計劃，是在廣州及香港設立六個培訓基地，以進行合作培訓、業界交流，以及為「世界技能大賽」作聯合集訓。2019年7月，我們在機電署總部大樓為穗港機電人才培訓基地舉行揭牌儀式，慶祝兩地合作。在有關安排下，機電署總部已設立兩個培訓基地，為國家隊及香港代表隊提供訓練，並獲內地和香港專家支持，務求選手達到「世界技能大賽」要求的國際水平。這兩個培訓基地分別是空調製冷培訓基地及電氣安裝培訓基地，設於機電署總部大樓新裝修的技能發展中心。新培訓基地將加強穗港聯合培訓計劃，並提升我們的技能水平。

INVESTING IN CAPACITY BUILDING

We need an excellent work team with global perspectives, professional expertise and best practices for digitisation. The aim is to ensure that the EMSTF is equipped with a highly competent and I&T-savvy team that has a broad outlook and good international exposure.

Following the EMSD's signing of several memoranda of co-operation with counterparts from the Mainland of China (Mainland), including the Guangzhou Municipal Human Resources and Social Security Bureau (HRSSGZ), on joint E&M talent development in 2018, we have stepped up co-operation with the HRSSGZ. During the year, more than 20 in-service EMSTF staff and 82 technician trainees participated in various technical training programmes in Guangzhou, covering air-conditioning systems, electrical installations, building services and vehicle maintenance.

Another joint initiative with the HRSSGZ was the establishment of six training bases in Guangzhou and Hong Kong for collaborative training, exchange with the trade, and joint training for the WorldSkills Competition. In July 2019, a plaque unveiling ceremony for the Guangzhou-Hong Kong E&M Talent Training Bases was held at the EMSTF Headquarters (HQs) to celebrate the collaboration. Under the arrangement, two training bases at our HQs were set up to jointly prepare the national teams and Hong Kong representatives to attain the international standards required at the WorldSkills Competition, with support from experts from the Mainland and Hong Kong. The two training bases, namely the Refrigeration and Air-conditioning Training Base and the Electrical Installations Training Base, are located in our newly refurbished Skill Development Centre (SDC). The new bases will enhance Guangzhou-Hong Kong joint training initiatives and uplift our technical skills.



隨著穗港機電人才培訓基地成立，兩地機電人才的培訓和交流得以加強，我們的見習技術員有機會向內地學員學習及互相切磋，累積多方面的經驗，更好地裝備自己。

After the setting up of Guangzhou-Hong Kong E&M Talent Training Bases, the training and exchange of E&M talents in both places can be strengthened. Our technician trainees have the opportunities to learn from and share views with their Mainland counterparts, and accumulate diversified experiences to better equip themselves.

2019年8月，兩名機電署技術員代表中國香港參加於俄羅斯舉行的第45屆「世界技能大賽」，並在「電氣安裝」和「空調製冷」項目中取得優異獎，為港爭光。

In August 2019, two EMSTF technicians represented Hong Kong, China to participate in the 45th WorldSkills Competition in Russia, and won Medallions for Excellence in the "Electrical Installations" trade and the "Refrigeration and Air-conditioning" trade, bringing glory to Hong Kong.



事實上，有兩名營運基金的技術員於2019年年初在廣州參加聯合集訓，繼而於2019年8月在俄羅斯喀山舉行的第45屆「世界技能大賽」中贏得優異獎。

機電署的技能發展中心還設有一個數碼訓練中心，配備先進的科技培訓設施，以提升學員的數碼技能。同時，機電署總部地下的技能評估中心已於年內落成啟用，為所有見習技術員提供基礎技能訓練及評估。

Indeed, two EMSTF technicians who took part in joint training in Guangzhou in early 2019 won Medallions for Excellence in the 45th WorldSkills Competition held in Kazan, Russia, in August 2019.

The SDC also features a Digital Training Centre equipped with advanced technology training facilities to boost trainees' digitisation skills. Meanwhile, a new Skill Assessment Centre on the ground floor of the EMSTF HQs was put into operation during the year to provide basic skill training and assessment to all our technician trainees.



機電署在2019年公務員優質服務獎勵計劃中榮獲多個獎項，包括「非一般創新訓練」項目奪得「隊伍獎（內部支援）」金獎及「特別嘉許獎（創科應用）」、「顧客為本電子平台」項目奪得「隊伍獎（內部支援）」優異獎等，成績斐然。

The EMSTF has achieved encouraging results in the Civil Service Outstanding Service Award Scheme 2019, and several awards received including a Gold Prize in Team Award (Internal Support) and a Special Citation Award (Application of Innovation and Technology) for the "Training Beyond Innovation" project, a Meritorious Award in Team Award (Internal Support) for the "Customer Centric e-Platform" project, etc.

企業管理 Corporate Stewardship

2019年12月，機電署獲香港工業專業評審局頒發「智慧學習型機構榮譽獎」，成為首個獲頒此獎項的政府部門。

In December 2019, the EMSD was awarded the Learning Organisation Honorary Award by the Professional Validation Council of Hong Kong Industries, making it the first government department to receive this award.



我們致力在培訓中引進創科元素，亦為部門帶來相關的好消息。在2019年公務員優質服務獎勵計劃中，機電署以題為「非一般創新訓練」的參賽項目獲得嘉許，勇奪「隊伍獎(內部支援)」金獎和「特別嘉許獎(創科應用)」。此外，香港工業專業評審局於2019年12月向機電署頒發「智慧學習型機構榮譽獎」，表揚我們在培訓、學習和管理文化，以及推動行業發展方面的努力。

我們在整體人才培訓發展方面的表現亦獲得僱員再培訓局(ERB)嘉許，該局於2020年的「ERB人才企業嘉許計劃」中向機電署頒授「人才企業」的資格。該計劃旨在推廣人才培訓及發展文化，共有458家來自30多個行業的機構獲嘉許為「人才企業」。

同時，我們繼續與機電業界合作，吸引年輕人才投身機電行業。機電署在香港機電業推廣工作小組再次擔任領導角色，並於9月舉辦「機電·啟航2019」迎新典禮，超過700名來自公私營機構的年輕機電學員出席，慶祝訓練課程開展。是次活動以「協作·同行」為主題，並邀得政務司司長擔任主禮嘉賓。出席者都盡情參與互動遊戲和欣賞YouTube網紅的精彩短片。

機電署與業界於9月舉辦了「機電·啟航2019」迎新典禮，活動主題為「協作·同行」，由政務司司長張建宗先生擔任主禮嘉賓，並邀請700多名機電業青年學員出席。

The "E&M GO! 2019" orientation ceremony organised by the EMSD and the trade in September, with the theme of "Engagement · Connect", was officiated by the Chief Secretary for Administration, Mr Matthew Cheung and attended by more than 700 young E&M trainees.



In a related piece of good news, our efforts in bringing I&T to training were recognised in the Civil Service Outstanding Service Award Scheme 2019, where we won the Gold Prize in the Team Award (Internal Support) and the Special Citation Award (Application of Innovation and Technology) for a submission titled "Training Beyond Innovation". Moreover, the EMSD was awarded the Learning Organisation Honorary Award by the Professional Validation Council of Hong Kong Industries in December 2019 in recognition of our efforts in training, learning and management culture, and industry development.

Our achievements in overall manpower development also gained recognition in 2020 in the ERB Manpower Developer Award Scheme, organised by the Employees Retraining Board (ERB), which accredited the EMSD with the status of a Manpower Developer (MD). The Scheme aims to cultivate a culture of manpower training and development, under which a total of 458 organisations from over 30 industries were accredited as MDs.

Meanwhile, we continued with our joint efforts with the E&M trade to attract young talent to the industry. We again took a leading role in the Hong Kong Electrical and Mechanical Trade Promotion Working Group and organised "E&M GO! 2019" orientation ceremony in September, with over 700 young E&M trainees from both public and private organisations attending to celebrate the start of their technician training. Officiated by the Chief Secretary for Administration, the event under the theme of "Engagement · Connect" allowed participants to enjoy interactive games and video clips by popular YouTubers.



2019年的「品質及安全日」主題為「非一般的創新訓練」，以推廣創新的訓練設施和模式，並表揚員工積極分享最佳個案，提升機電服務的品質及安全。

With the theme of "Innovative Training", the Quality and Safety Day 2019 aimed to promote innovative training facilities and methods, and recognise the efforts of staff in sharing of best practices so as to enhance the quality and safety of E&M services.

提升優質服務

品質及安全為員工培訓與發展不可或缺的一環。我們於2019年11月舉行的年度「品質及安全日」以「非一般創新訓練」為主題，吸引了超過250名參加者出席，一同聆聽「最佳改善個案獎」、「最佳職安健改善個案獎」及「最佳環保個案獎」的得獎隊伍分享最佳作業方法。此外，我們於2019年12月舉行承辦商研討會，重點討論工地安全習慣，以確保承辦商遵守良好的安全守則。由營運基金監督的承辦商工地，更於第25屆公德地盤嘉許計劃中贏得一項銅獎和兩項優異獎。

多年來，機電署為提高服務水平不斷求進，獲香港品質保證局嘉許為「多元體系管理機構」和「整全體系管理機構」。

ENHANCING QUALITY SERVICE

Quality and safety are an integral part of staff development. Our annual Quality and Safety Day, held in November 2019 with "Innovative Training" as the theme, attracted more than 250 participants to learn best practices from the winners of the Best Service Delivery Enhancement Award, the Best Occupational Health and Safety Enhancement Project Award and the Best Green Project Award. A Contractors Forum was also held in December 2019, with a focus on safety habits at work sites to ensure that contractors observe good safety practices. Contractor work sites under our supervision also won one Bronze Award and two Merit Awards in the 25th Considerate Contractors Site Award Scheme.

In recognition of our continuous efforts in enhancing service standards over the years, the Hong Kong Quality Assurance Agency has commended the EMSD as an Outstanding Organisation with Comprehensive Management Systems and an Outstanding Organisation with Holistic Management Systems.

機電署樂於嘗試各種管理工具，以提升服務質素，並於2019年獲香港品質保證局嘉許為「多元體系管理機構」和「整全體系管理機構」，可見我們的努力再次獲得肯定。

The EMSD was commended by the Hong Kong Quality Assurance Agency as an Outstanding Organisation with Comprehensive Management Systems and an Outstanding Organisation with Holistic Management Systems in 2019 in recognition of its efforts in adopting various management tools to improve service quality.



企業管理 Corporate Stewardship

機電署亦致力提供最高水平的服務，對賄賂和貪腐行為採取零容忍態度。基於這原則，我們已於2019年12月取得ISO 37001:2016防貪管理體系標準認證。

我們的客戶服務中心是不少客戶聯絡營運基金的首個接觸點。雖然2019冠狀病毒病於2020年1月開始爆發，客戶服務中心仍必須維持全天候24小時運作。維持客戶服務中心如常運作的同時，我們採取了多項預防措施以盡量減低感染風險，例如重新設計員工值勤時間表及座位編排、把客戶服務中心團隊分成不同小組。我們又加強後備方案，例如預留空間，一旦遇上必須撤離現場以進行徹底清潔的情況，可把客戶服務中心遷至其他地方，以維持服務。迄今，客戶服務中心為客戶提供的優質服務從無間斷，而員工的工作環境也一直保持衛生。

客戶服務中心更與我們的邊境及運輸工程部合作，把地理資訊系統結合資產管理系統，讓我們能夠採取主動，預早為交通燈系統進行維修保養。有關合作項目「治未病 化被動為主動」在2019年公務員優質服務獎勵計劃中獲得「隊伍獎（一般服務）」特別嘉許獎（創科應用）。

此外，值得注意的是我們的「顧客為本電子平台」項目也在2019年公務員優質服務獎勵計劃中的隊伍獎（內部支援）組別奪得優異獎。這個流動網上工作管理系統於2017/18年度推出，大大提高了我們的營運效率，有助匯報工作進度，加強與客戶的溝通。

另外，我們去年出版的《機電工程署二零一八至一九年年報》再次獲得美國通訊專業聯盟的肯定，在「2019 Vision Awards」中榮獲政府組別銀獎和50份最佳中文年報，並且在2020年第34屆ARC國際年報大獎的「非牟利機構（印刷版年報）：政府機構及辦公室」組別及「特定年報：合併年報及可持續發展報告」組別榮獲銅獎，成績令人鼓舞。

《機電工程署二零一八至一九年年報》於美國通訊專業聯盟舉辦的「2019 Vision Awards」中榮獲政府組別銀獎及50份最佳中文年報，並於2020年第34屆ARC國際年報大獎的「非牟利機構（印刷版年報）：政府機構及辦公室」組別及「特定年報：合併年報及可持續發展報告」組別榮獲銅獎。

The EMSD Annual Report 2018/19 won Silver Award – Government Industry and Top 50 Chinese Reports in the 2019 Vision Awards organised by the League of American Communications Professionals, and bronze award in both the Non-Profit Organisation (Print A.R.): Government Agencies & Offices category and the Specialised A.R.: Combined Annual and Sustainability Report category of the 34th International ARC Awards in 2020.



The EMSD is also committed to delivering the highest standards of service with zero tolerance for bribery and corruption. Accordingly, we were awarded the certification of ISO 37001:2016 Anti-Bribery Management System in December 2019.

As the first point of contact for many clients, our Customer Service Centre (CSC) had to continue 24 x 7 operation despite the COVID-19 outbreak that began in January 2020. To minimise the risk of infection while ensuring continuous CSC service, we implemented preventive measures such as re-designing the roster and seating arrangements, splitting our CSC team into different groups. We also enhanced back-up plans, making provision to relocate the CSC to ensure continuous operation if the premises had to be vacated for deep cleaning, for example. To date, the CSC has maintained uninterrupted, quality services to clients and a healthy environment for staff.

The CSC also worked together with our Boundary Crossing Facilities and Transport Services Division to integrate the Geographic Information System with an asset management system, which enables and supports proactive maintenance of traffic lights. Their joint "From Reactive to Proactive Maintenance" project won a Special Citation Award (Application of Innovation and Technology) in Team Award (General Service) in the Civil Service Outstanding Service Award Scheme 2019.

Also worth noting is a Meritorious Award in Team Award (Internal Support) in the Civil Service Outstanding Service Award Scheme 2019 for our "Customer Centric e-Platform" project launched in 2017/18, a mobile online job management system that has significantly enhanced our operational efficiency and communication with clients on project progress updates.

Moreover, the Electrical and Mechanical Services Department Annual Report 2018/19 published last year has been once again recognised by the League of American Communications Professionals. We won the Silver Award – Government Industry and Top 50 Chinese Reports in the 2019 Vision Awards. In addition, that annual report also won bronze award in both the Non-Profit Organisation (Print A.R.): Government Agencies & Offices category and the Specialised A.R.: Combined Annual and Sustainability Report category of the 34th International ARC Awards in 2020. The results were very encouraging.



機電署與五所本地大學及七家科研機構於2019年6月簽署《機電創科網上平台合作備忘錄》，建立策略合作伙伴關係。

The EMSD established strategic partnerships with five local universities and seven technological research institutions by signing the Memorandum of Co-operation for E&M InnoPortal in June 2019.

推動創新科技

我們熱衷於推動創新科技。首要任務之一，是配合智慧城市發展和應對氣候變化的政策，並提供創新的解決方案。

營運基金的創新辦公室於2018年推出「機電創科網上平台」。2019年6月，我們舉辦了創科研討會暨簽署儀式，與五所本地大學及七間科研機構簽署12份合作備忘錄，旨在加強與創科業界的合作伙伴關係，以支持營運基金在科技領域的工作。

我們在年內舉辦各種活動，協助客戶物色創科解決方案及合作伙伴，以助他們進行數碼化轉型。其中一項活動是我們於2019年8月與環境局合辦的首個「綠色創科日」，當日展示了參展機構在節能及可再生能源方面的創科成就，吸引了600多名參加者。

2020年1月，我們與香港科技园公司及政府資訊科技總監辦公室合作，在香港科學園舉辦「創新及科技日x傳感器測試平台工作坊」。工作坊提供了一個平台，讓政府部門及科學園園區公司共同分享物聯網技術的應用，以及配對潛在的合作伙伴，約有220名參加者出席。



「創新及科技日x傳感器測試平台工作坊」吸引了多位政府部門和機構代表出席，共同探討本港物聯網及相關技術的發展，同時為各個政府部門及香港科技园的園區公司提供配對平台，推動創科合作。

I&T Day x Sensor Hub Workshop attracted many participants from various government departments and institutions to discuss the development of IoT and related technologies in Hong Kong, and to provide a matching platform for government departments and companies from the HKSP, promoting co-operation on innovative technology.

DRIVING INNOVATION AND TECHNOLOGY

We are passionate about driving innovation and technology. One of our top priorities is to provide innovative solutions in tandem with smart city development and policies to tackle climate change.

Our Inno-Office launched the E&M InnoPortal in 2018. In June 2019, we organised an I&T Seminar cum Signing Ceremony for signing 12 memoranda of co-operation with five local universities and seven research institutions, under which we aim to foster partnership with the I&T sector to support the EMSTF's work in the technology area.

Various events were held during the year to help our clients identify I&T solutions and partners for their digital transformation. One such event was our first Green I&T Day, held jointly with the Environment Bureau in August 2019 attracting over 600 participants, to showcase I&T achievements in energy conservation and renewable energy.

In January 2020, we co-organised the Innovative Technology Day (I&T Day) x Sensor Hub Workshop at the Hong Kong Science Park (HKSP) with the Hong Kong Science and Technology Parks Corporation and the Office of the Government Chief Information Officer. The workshop, which attracted about 220 participants, served as a platform for government departments and companies from the HKSP to share the applications of Internet of Things (IoT) technology and match with potential partners.

企業管理 Corporate Stewardship

機電署流動應用程式E&M Connect及「機電行業通」已於2019年12月推出，不但為員工提供最新資訊，加強溝通，亦讓市民及業界能隨時隨地使用各項電子服務和獲取機電署最新資訊，便利生活。圖為機電署流動應用程式的宣傳海報。

The EMSD mobile apps E&M Connect and E&M Trade App were launched in December 2019, providing latest updates to EMSD staff and enhancing communications. Members of the public and the trade can also access various electronic services and obtain the EMSD news anytime and anywhere, bringing convenience to life. Pictured is the promotional poster of the EMSD mobile apps.



此外，機電署於2019年12月推出E&M Connect及「機電行業通」流動應用程式，是部門運用數碼科技為業界及市民提供更優質服務的好例子。

E&M Connect應用程式的「慳電計」功能，有助市民在選購節能的家用電器時作出更明智的選擇。用戶只需利用智能電話的內置相機掃描電器上的能源標籤，應用程式便可即時比較不同產品的能源效益表現，以及估算產品的每年耗電量。

應用程式還備有「機電地圖」，利用智能電話的全球定位功能，在地圖上顯示所在位置附近的註冊電業承辦商及瓶裝石油氣分銷商，只需輕按搜索結果，程式便會立即把用戶與服務供應商連繫起來。E&M Connect亦與「機電行業通」應用程式連結，方便註冊電業工程人員、註冊升降機/自動梯工程師及註冊升降機/自動梯工程人員獲得有關其行業的主要資訊，以及搜尋他們參與持續專業進修的情況和記錄，以資參考。此外，E&M Connect還提供機電署的最新重要資訊，而用戶亦可在點擊圖像後快速連接「機電創科網上平台」。

受2019冠狀病毒病疫情影響，機電署難以安排求職者親臨面試，因此我們利用科技進行網上面試。我們於2020年3月成立了跨部別專責小組，負責物色配備合適的保安措施和私隱保障功能，並且最適宜設置於機電署內的視像會議方案。截至2020年4月底，我們已透過網上系統，為將於8月展開的見習工程師訓練計劃的400多名求職者完成首階段面試。



Moreover, a good example of using digital technology to better serve the trade and the public is the EMSD mobile applications (apps) E&M Connect and E&M Trade App launched in December 2019.

The Energy Saver feature of E&M Connect facilitates the public in making smarter choices when purchasing energy-efficient household electrical appliances. The user only needs to scan the energy label on an electrical appliance with the built-in camera of a smartphone. The app will instantly compare the energy efficiency performance of different appliances and estimate their annual electricity consumption.

The app also features the E&M Finder, which uses the smartphone's GPS function to generate a map with locations of registered electrical contractors and LPG cylinder distributors in the vicinity. A tap on the search result will instantly connect the user with the service provider. The E&M Connect also links up to the E&M Trade App that can retrieve key information for registered electrical workers, registered lift/escalator engineers and registered lift/escalator workers pertaining to their trades, as well as their Continuing Professional Development participation and records for reference. Key EMSD updates and quick access by clicking an image to the E&M InnoPortal are available on E&M Connect, too.

Technology was deployed to enable online job interviews when COVID-19 made it difficult to interview candidates in person. A special cross-division taskforce was formed in March 2020 to identify the most appropriate on-premise video conferencing solution with applicable security measures and privacy protection arrangements to be put in place. By the end of April 2020, we had used the online system to complete first-round interviews for over 400 candidates for the Engineering Graduate Training Scheme that will commence this August.

2020年初機電署見習工程師訓練計劃的首階段選拔工作因疫情受阻，部門決定以遙距方式進行評核，引入資訊保安妥善的網上面試系統，最終於4月底成功為400多名求職者進行網上面試。

The first round of selection for the Engineering Graduate Training Scheme of the EMSD was affected by the epidemic in early 2020, the EMSD hence decided to conduct remote assessments by introducing an information-secured online interview system and more than 400 candidates were successfully interviewed online by the end of April.

關懷員工

除了必須保持我們工作團隊的技術專長，為客戶提供最佳的服務外，我們同樣關心員工的福祉。我們非常重視員工的滿意度，並定期進行滿意度調查。2019年員工滿意度調查收到2 000多份填妥的問卷，回應率為38%，滿意指數為6.8分(以10分為滿分計)，與上一次調查結果相同。我們在調查後舉行了20場小組討論會，以收集參加者的意見，從而制訂部門行動計劃。

年內，營運基金不遺餘力鼓勵員工保持工作與生活平衡。舉例來說，我們把2019年4月定為「員工攜手同行月」，舉辦一連串活動，包括「菓」然有愛水果日、榮休聯歡會、家人同行上班日，以及推出「署長感言」網誌。此外，我們於2019年6月推出「好人好事嘉許計劃」，提名熱心服務社區的員工參加，以表揚其動人好事。

CARING OUR STAFF

Beside upkeeping the technical expertise of our work teams to serve our clients better, we care for staff well-being too. We take staff satisfaction seriously and measure the satisfaction level regularly. The 2019 Staff Satisfaction Survey, which received more than 2 000 completed questionnaires representing a response rate of 38%, recorded a satisfaction level of 6.8 on a scale of 10, the same as in previous survey. Qualitative findings from the 20 post-survey focus groups were used to formulate a departmental action plan.

We spared no effort in enhancing staff's work-life balance during the year. For example, April 2019 was made the "Hand-in-Hand with Staff Month", with activities like fruit day, retirement parties and family member workplace visits, plus the launch of the Directors' Thoughts blog. Another new initiative was the "Good People, Good Deeds Commendation Scheme" introduced in June 2019 to nominate and award staff who have performed inspiring deeds to serve the community with heart.

我們在2019年4月舉辦了一連串活動，例如「菓」然有愛水果日(右)和家人同行上班日(下)，藉此推廣部門的關愛文化，並提升員工的歸屬感。

To promote a caring culture in the EMSD and boost staff's sense of belonging, we organised a series of engagement activities in April 2019, such as fruit day (right) and bring family to work day (bottom).



我們於2019年6月推出「好人好事嘉許計劃」，鼓勵同事提名好人好事的個案，以表揚他們竭誠服務社會的精神。最後，五個取得最高票數的個案獲獎。

The "Good People, Good Deeds Commendation Scheme" was launched in June 2019 to encourage nomination of staff who have performed good deeds, and recognise colleagues for their dedicated service to the community. Awards were finally presented to the five entries with the highest votes.

企業管理 Corporate Stewardship

為幫助同事紓緩壓力，部門舉辦了一系列「EM員工鬆一鬆」活動，包括「音樂茶座」（右上）、「電競體驗坊」（右下）和鬆一鬆拉筋活動（左下）等，吸引逾1 500名同事參與。

To help colleagues relieve stress, we held a series of "EM Staff Chill-out" activities, including Lunch Concerts (top right), VR video game experience session (bottom right) and stretching classes (bottom left), which attracted over 1 500 colleagues.



2019年下半年的公眾活動為員工帶來沉重壓力，於是我們在2019年9月中至11月中期間推出了一系列創意活動「EM員工鬆一鬆」，亮點包括大受歡迎的「音樂茶座」，由機電署自家樂隊RADII先後在總部大堂及員工食堂，為一眾熱情觀眾表演。此外，我們邀請了來自本地茶餐廳的「金茶王」親臨總部大堂，即場示範港式奶茶沖調技巧，並為在場人士炮製香滑奶茶。其他趣味活動包括「電競體驗坊」、鬆一鬆拉筋活動、「輕鬆跑一會」晚間緩步跑及「穴」按愈鬆中式穴位按摩工作坊等，共吸引了1 500多名同事參加，好評如潮。我們會繼續舉辦「EM員工鬆一鬆」系列活動，並會引進更多創新意念。

In view of the added pressure caused by public order events in the second half of 2019 on our staff, we launched from mid-September to mid-November 2019 an innovative series of "EM Staff Chill-out" activities, such as the highly popular Lunch Concerts, where the EMSD's own rock band RADII performed to an enthusiastic audience in the HQs lobby and staff canteen. Separately, an award-winning milk tea master from a local restaurant was invited to demonstrate his brewing skills in the HQs lobby and share the delicious beverage with attendees. Other fun activities included a Virtual Reality (VR) video game experience session, stretching classes, evening jogging, and Chinese massage workshops. The activities attracted more than 1 500 participants with excellent feedback. We will continue the series with ever more innovative ideas.

機電署十分重視員工的工作與生活平衡，因此特別舉辦了一系列有益身心的活動，例如「危機轉化 心靈解困」工作坊，讓參加者能放鬆繃緊的身體和情緒。The EMSD values a lot work-life balance among staff and therefore, a series of activities beneficial to mental and physical health were held, such as the workshop on stress management and psychotherapy, for participants to relieve their tension both physically and mentally.



我們繼續委託非政府機構為我們所有員工，包括借調的員工，提供輔導服務。該機構設有一條專用電話熱線，為員工提供不限次數的諮詢服務，而我們亦舉辦了多場以精神、情緒及身體健康為主題的工作坊。在有需要時，我們更會安排輔導員提供羣組危機介入輔導服務。機電署還簽署了由食物及衛生局推行的《精神健康職場約章》，承諾創造一個包容及精神健康友善的工作環境。

Meanwhile, our counselling services for all staff, including seconded staff, provided by non-governmental organisations, have continued. A designated hotline is available to staff for unlimited consultations, and we have held various workshops on mental, emotional and physical health topics. Counsellors for group crisis intervention are available when necessary. The EMSD also signed the Mental Health Workplace Charter organised by the Food and Health Bureau, which is a pledge to create an inclusive and mental health-friendly workplace.

大樓地下大堂的咖啡亭也於2020年1月重新開業，命名為E² CAFÉ，由新的營運商經營，為員工及訪客提供手調餐飲及小食。

The coffee kiosk in the lobby also re-opened in January 2020 under a new operator and has been named E² CAFÉ, where staff and visitors may purchase craft beverages and light refreshments.

另一方面，資訊保安妥善的網上系統已成功應用於部門的視像會議活動，包括在2019冠狀病毒病疫情期間與客戶及同事進行的視像會議，以及同事在家工作的安排。是次經驗相當寶貴，有助我們日後增加使用視像會議方案，甚至應用於培訓方面。同時，我們讓更多員工能使用部門的虛擬私人網絡，使同事於抗疫期間安心在家工作，釋除網絡保安疑慮。

In a separate development, an information-secured online system has been successfully applied to video conferencing activities with clients and colleagues as well as work-from-home arrangements during COVID-19. The experience gained is valuable to help us scale up the use of video conferencing and even in training in future. Concurrently, we have made our Virtual Private Network available to more staff to help them work from home securely.



E² CAFÉ於2020年1月正式開業，不但為機電署職員及訪客提供手調餐飲及小食，更為弱勢社群創造就業機會，實踐企業社會責任。

The E² CAFÉ, which was officially opened in January 2020, not only provides EMSD staff and visitors with craft beverages and light refreshments, but also creates employment opportunities for the disadvantaged, fulfilling corporate social responsibility.

企業管理 Corporate Stewardship

為配合防疫工作，機電署於總部大樓各主要出入口設置發燒偵測系統，由保安員監察紅外線熱成圖像，以檢查進入大樓人士的體溫。

To tie in with the anti-epidemic measures, the EMSD has installed fever screening systems at major entrances of the headquarters. The security personnel is monitoring and checking the body temperatures of people entering the building through the infrared thermal images.



培養具備創意的工作文化

營運基金的策略重點之一，是締造新的組織架構、文化、工作模式及環境，以及發展業界伙伴關係，把營運基金發展為樂於善用創新科技的機構。

2019冠狀病毒病及公眾活動帶來了前所未見的挑戰，我們採取了多項創新措施以作應對。在抗疫方面，我們除了加強對機電署總部大樓進行清潔外，還在大樓入口及員工食堂入口安裝體溫檢查站，並重新安排食堂座位以保持社交距離，以及在升降機機廂內引入二維碼功能，讓使用者無需觸碰升降機按鈕也可選擇樓層。為了進一步加快科技應用，我們正計劃進行試驗，利用機械人在物料倉內自動運送零部件和其他庫存物料。

儘管2019冠狀病毒病疫情對正常招標及提供服務造成嚴重影響，但我們依然為我們的策略業務單位作出一切招標上的必要支援，讓他們在這艱難時刻仍可繼續提供服務。此外，為配合發展局的中期紓困措施，我們協調落實向營運基金的承辦商派發一次過的特別預付款項，幫助建造業渡過疫情難關。

為了營造新的工作文化，我們繼續採用創新設計元素，年內陸續為辦公室進行翻新工程。以機電署總部6樓的數碼科技部為例，現代化的辦公室設計為員工提供舒適的工作環境和不少共融空間，有助提升工作效率。

CULTIVATING A CREATIVE WORK CULTURE

One strategic focus of the EMSTF is to create new organisational structures, cultures, working modes and environments as well as trade partnerships, thereby developing the organisation into one that is willing to leverage innovative technology.

Various innovative measures were taken to tackle unprecedented challenges arising from COVID-19 and the public order events. To beat the virus, besides stepping up cleaning of the EMSD HQs, we supported the installation of body temperature check points at the building entrances and staff canteen entrance, re-arranged the staff canteen setting for social distancing, and introduced a QR code feature inside lift cars so that users could select the floor without touching the lift buttons. To further expedite the adoption of technology, we are planning a trial of robots for automatic delivery of parts and other inventory inside our storehouse.

Despite the fact that COVID-19 caused major disruptions to normal tendering and service delivery, we provided all necessary tendering support to SBUs to enable their continuous service delivery during this difficult time. In addition, echoing the interim relief measures by the Development Bureau, we co-ordinated the implementation of a one-off "special advance payment" to our contractors to support the construction industry in the epidemic.

To foster a new work culture, we continued to renovate our offices with pro-innovation design features during the year. For example, the modern office design of the Digitalisation and Technology Division on the 6/F of the EMSD HQs offers staff a comfortable working environment and provides more connecting space to boost work efficiency.

我們與不同的項目團隊協調，開展機電署總部大樓的改造工程，包括翻新大樓的露天廣場等多項優化工程。露天廣場優化工程於2019年11月展開，增添不少特色設計，例如優化園藝設計、新增人工水景、建造水耕種植花園，以及擴建和安裝嵌有太陽能發電系統的天篷，以擴闊遮蓋範圍，並同時生產可再生能源。其他改善工程還包括重鋪設有紋路的壓模混凝土行車路，以及安裝設計極富創意的太陽能樹等。

露天廣場翻新工程大致於2021年年初完成，屆時將為同事和市民提供一個優美舒適的綠化環境及共用空間，可作休憩、聚會和教育用途。

We co-ordinated with various project teams in implementing the EMSD HQs modification project, which comprises various improvement works including the renovation of the piazza. The piazza improvement works began in November 2019 and consist of numerous features, such as enhancing the landscape design, adding water features, creating a hydroponic garden, and enlarging the canopy sheltering space by expanding the canopy as well as embedding building integrated photovoltaic system into the canopy to generate renewable energy. Other improvements include repaving the carriageway with stamped concrete and installing solar trees with innovative design, etc.

Scheduled for completion in the beginning of 2021, the refurbished piazza will provide a relaxing and pleasant green environment with communal, gathering and educational space for our colleagues and the public.



2019年11月，機電署總部大樓露天廣場展開了翻新工程，優化園藝設計，綠化外牆，並安裝可再生能源設施。露天廣場會以全新面貌登場，將社區與大自然融為一體。

In November 2019, a renovation project was launched at the piazza of EMSD Headquarters Building, featuring enhancement of landscape design, greening of external walls and installation of renewable energy facilities. The new look of piazza will integrate the community with nature.





社會及環保報告
SOCIAL AND
ENVIRONMENTAL
REPORT

關於本報告 ABOUT THIS REPORT

匯報原則

本報告是機電工程署(機電署)¹的年度²社會及環保報告(本報告)。本報告概述我們於2019/20財政年度在環境、社會及經濟方面的表現和成果。

本報告參照環境保護署的《環保報告指引 — 管制人員適用》及聯合國可持續發展目標，並依照全球報告倡議組織標準的核心選項³編寫。相關的全球報告倡議組織及可持續發展目標的披露和對照的報告章節已載於**全球報告倡議組織內容索引**。為了確保報告質素，本報告已應用全球報告倡議組織定義報告內容⁴和質素⁵的報告原則。我們已委託獨立第三方核實報告的準確性、可靠性及公信力，確保符合全球報告倡議組織標準核心選項的要求。**獨立保證意見聲明書**已載於第201頁⁶。

本報告已通過全球報告倡議組織的「實質性議題審核」，經審議後認為全球報告倡議組織內容索引闡述清晰，102-40至102-49披露議題的參照索引與報告內文的相應章節相符。

報告範圍

本報告載述機電署由2019年4月1日至2020年3月31日⁷期間的主要可持續發展成果和措施。除另外說明，報告中截至2020年3月31日止的所有數據均為部門於知悉範圍內所整合的標準化實際數字。報告披露截至2020年3月31日止財政年度的財務數據，所有金額均以港元為單位⁸。

機電署轄下設有規管服務及營運服務兩大服務範疇，後者亦稱為機電工程營運基金(營運基金)。於匯報年度，規管服務轄下專責規管和監察香港鐵路安全的鐵路科擴大規模，部別由兩個增至四個，員工人數亦倍增，但對整個機構的總人數增幅影響不大。此外，於匯報期內權責關係、規模、架構及供應鏈均無重大改變⁹。

¹ GRI 102-1 ² GRI 102-52 ³ GRI 102-54

⁴ 全球報告倡議組織定義報告內容為利益相關方包容性、可持續發展背景、實質性、完整性。

⁵ 全球報告倡議組織定義報告質素為準確性、平衡性、清晰性、可比性、可靠性、時效性。

⁶ GRI 102-56 ⁷ GRI 102-50 ⁸ GRI 102-45 ⁹ GRI 102-10

REPORTING PRINCIPLES

This is the annual² Social and Environmental Report (hereinafter "the Report") of the Electrical and Mechanical Services Department (EMSD)¹. The Report presents and summarises our major performance and achievements in environmental, social and economic aspects during the fiscal year 2019/20.

In addition to following the Environmental Protection Department's A Guide to Environmental Reporting for Controlling Officers, this Report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards: Core option³ with reference to the United Nations Sustainable Development Goals (SDGs). Please refer to the **GRI Content Index** for cross-referencing GRI and SDGs disclosures to corresponding sections of the Report. To ensure reporting quality, GRI Reporting Principles for defining report content⁴ and quality⁵ have been applied in this Report. An independent third party has verified the accuracy, reliability and credibility of the Report to ensure compliance with the Core option of the GRI Standards. The **Independent Assurance Opinion Statement** can be found on page 201⁶.

The Report has successfully completed the GRI Materiality Disclosures Service. GRI reviewed that the GRI Content Index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the Report.

REPORTING SCOPE

The Report highlights our key sustainability achievements and initiatives from 1 April 2019 to 31 March 2020⁷. Unless otherwise stated in this Report, all data are normalised and presented as absolute figures as at 31 March 2020, to the best of our knowledge. Financial data in the Report are disclosed for the financial year which ended on 31 March 2020. All monetary values are expressed in Hong Kong Dollars⁸.

The EMSD consists of two functional units, namely, Regulatory Services (RS) and Trading Services (TS), or better known as the Electrical and Mechanical Services Trading Fund (EMSTF). During the reporting year, the Railways Branch under RS responsible for regulating and monitoring railway safety in Hong Kong, expanded its divisions from two to four and approximately doubled its staff headcount, which contributed a minor increase in total staff number of the whole organisation. There were no significant changes with regard to departmental ownership, size, structure, or its supply chain during the reporting period⁹.

¹ GRI 102-1 ² GRI 102-52 ³ GRI 102-54

⁴ GRI Reporting Principles for defining report content are Stakeholder Inclusiveness, Sustainability Context, Materiality, Completeness.

⁵ GRI Reporting Principles for defining report quality are Accuracy, Balance, Clarity, Comparability, Reliability, Timeliness.

⁶ GRI 102-56 ⁷ GRI 102-50 ⁸ GRI 102-45 ⁹ GRI 102-10

重要議題及邊界

本報告參照全球報告倡議組織標準的原則及規定，透過諮詢主要持份者組別擬定報告內容。我們界定與機電署運作最相關的主要持份者組別¹⁰，並已載於**可持續發展管理方針**內第151至152頁。

今年，我們聘請獨立外界顧問進行問卷調查¹¹，對象為機電署員工及新參與諮詢的業界。我們歸納是次調查與其他主要持份者組別如學術團體、客戶和供應商/承辦商¹²自2014/15財政年度至今的重要議題及邊界評估結果，從而界定與機電署運作最相關和持份者共同關注的環境、社會及經濟議題。

為確保本報告完整及持平地表述機電署的可持續發展表現和影響，我們進一步核實及評估經界定的重要議題及邊界，從22項議題中最終歸納出18項重要議題並按優先次序排列¹³，其中合規和反歧視為新界定的重要議題。

MATERIAL TOPICS AND BOUNDARIES

With reference to the principles and requirements stipulated in the GRI Standards, the content of the Report is defined through an engagement process with key stakeholder groups. The groups¹⁰ are identified and engaged with reference to their relevance to the EMSD's operations, which are listed in **Sustainability Management Approach** on page 151–152.

A questionnaire survey¹¹ targeting at employees and a newly engaged stakeholder group, trades, was conducted by an independent external consultant this year. Combining the results of materiality and boundaries assessments from other key stakeholder groups, i.e. academia, clients and suppliers/contractors¹² since fiscal year 2014/15, environmental, social and economic topics that are most relevant to the EMSD's operations and the shared interests of our stakeholders were identified.

The list of material topics and boundaries was further validated and reviewed to ensure completeness and balanced representation of the EMSD's sustainability performance and impacts. From 22 topics, a total of 18 material topics were consolidated and prioritised¹³, of which compliance and non-discrimination were newly identified material topics.



¹⁰ GRI 102-42 ¹¹ GRI 102-43 ¹² GRI 102-40 ¹³ GRI 102-46

¹⁰ GRI 102-42 ¹¹ GRI 102-43 ¹² GRI 102-40 ¹³ GRI 102-46

關於本報告 About this Report

按優先順序的重要議題¹⁴及涵蓋邊界¹⁵ Prioritised Material Topics¹⁴ and Corresponding Boundaries¹⁵



本報告載於網上發布。歡迎讀者直接與我們聯繫 (電郵: ccsd@emsd.gov.hk)²⁰, 就我們的運作、可持續發展方面的成效、報告內容和方式提出寶貴意見, 讓我們持續改進。

The Report is available online. We welcome readers' suggestions on our operations, sustainability performance, report content as well as reporting approach for our continuous improvement. For comments, please contact us directly at ccsd@emsd.gov.hk²⁰.

¹⁴ GRI 102-44, GRI 102-47 ¹⁵ GRI 102-46

¹⁶ 五個主要持份者組別均識別所有環境議題為重要議題。

¹⁷ 五個主要持份者組別均識別部門的採購政策和四個主要持份者組別識別另外三項議題為重要議題, 包括財務表現、間接經濟影響和遵守市場行為法規。

¹⁸ 三個主要持份者組別識別客戶健康及安全, 兩個主要持份者組別識別員工培訓及教育、多元化及平等機會、合規及反歧視為重要議題。員工政策及相關統計數據和職業健康及安全於過往報告曾披露為重要議題, 我們視之為重要議題以保持一致性。

¹⁹ GRI 102-49

²⁰ GRI 102-53

¹⁴ GRI 102-44, GRI 102-47 ¹⁵ GRI 102-46

¹⁶ There were five key stakeholder groups identified all environmental topics as material topics.

¹⁷ There were five key stakeholder groups identified departmental procurement practices and four key stakeholder groups identified other three topics as material topics, including financial performance, indirect economic impact and market behaviour compliance.

¹⁸ There were three key stakeholder groups identified customer health and safety, two key stakeholder groups identified employee training and education, diversity and equal opportunity, compliance and non-discrimination as material topics. Employment policy and statistics, and occupational health and safety were disclosed as material topics in the past reports, therefore we identified them as material topics to keep coherence.

¹⁹ GRI 102-49

²⁰ GRI 102-53

可持續發展管理方針 SUSTAINABILITY MANAGEMENT APPROACH

管理方針

機電署致力於日常營運和決策中實踐可持續發展理念, 以全面涵蓋環境、社會及職業健康與安全等各個層面。在我們的環境、安全及健康政策和企業策略及計劃中, 便可見我們的可持續發展方針得到各方大力支持。本署恪盡職守, 積極識別與可持續發展相關的風險及管控潛在影響, 在可行的情況下發掘更多機遇, 同時廣開溝通渠道, 務求與持份者保持緊密對話。

規管服務的可持續發展方針

政府一直積極應對氣候變化帶來的影響, 並承諾於2030年前把本港的碳強度從2005年水平大幅降低65-70%, 並以2013/14年度水平為基準, 於2019/20年度前將政府內部的能源耗用量減低5%。機電署持續鞏固能源管理的規管架構, 同時協助香港實現相關的碳排放及節能目標。

機電署擔當監管角色, 頒布、實施和檢討因應公眾利益而與機電安全和能源效益有關的主要法例及標準。我們專注提供專業諮詢方案及技術支援, 透過立法和各類指引提升能源應用的效益和安全, 例如推行《建築物能源效益條例》及「強制性能源效益標籤計劃」。本署繼2018年根據《建築物能源效益條例》發布《建築物能源效益守則》2018年版和《能源審核守則》2018年版後, 於匯報年度推出相關的技術指引。在支援業界方面, 機電署不時籌辦技術論壇及行業教育活動, 向從業員推廣良好作業。有關詳情請參閱**環保成效和社會成效**章節。

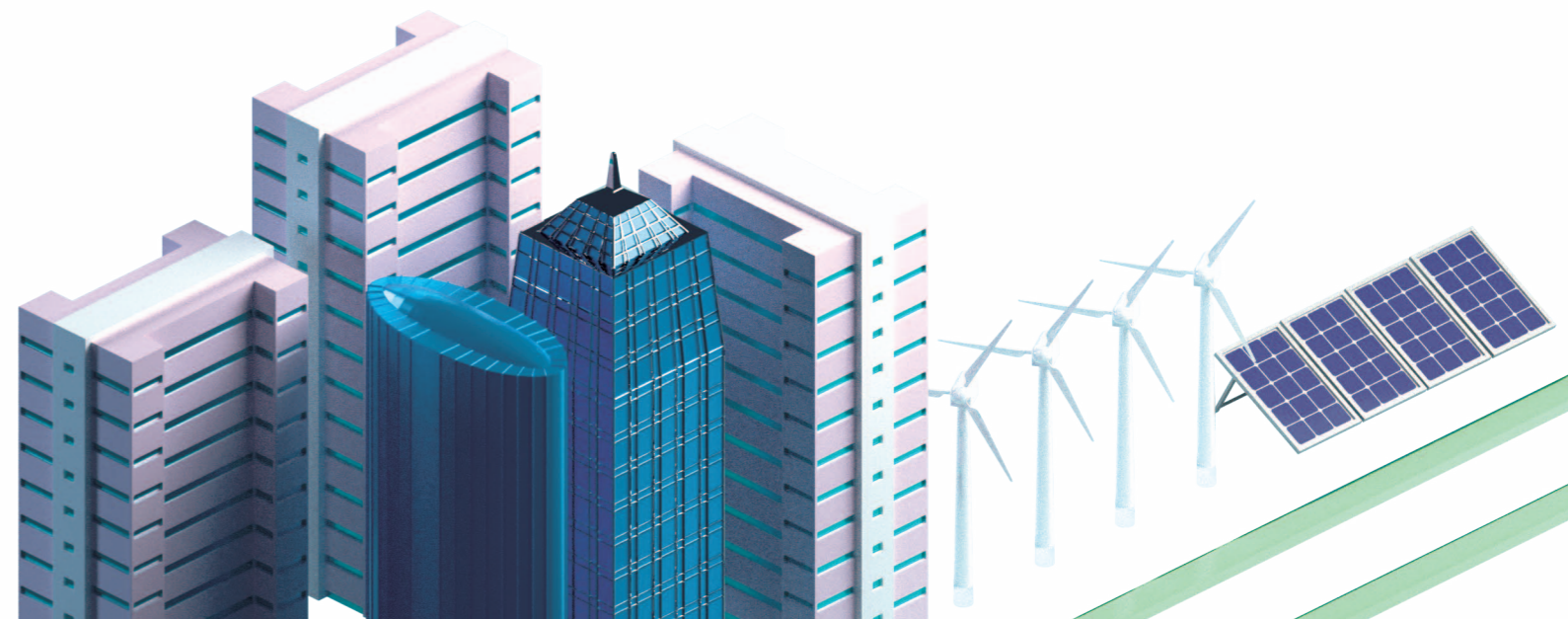
MANAGEMENT APPROACH

The EMSD is committed to operating in a sustainable manner on environmental, social as well as occupational health and safety fronts across our operations and decision-making process. Our approach to sustainability is well supported and reflected in the environmental, safety and health policies, corporate strategies and plans. We uphold our responsibility in identifying sustainability-related risks, managing potential impacts and exploring new opportunities when feasible, as well as maintaining a close dialogue with our stakeholders through a wide range of communication channels.

Sustainability Approach for our Regulatory Services

Committed to combating climate change, the Government has pledged to reduce 65-70% of the city's carbon intensity by 2030 from the 2005 level, as well as reduce the energy consumption of the Government by 5% by 2019/20 from the 2013/14 level. The EMSD continues to enhance the regulatory framework for energy management while supporting the city to achieve associated carbon emission and energy-saving goals.

The EMSD uptakes the regulatory role to enact, implement and review key legislation and standards relating to electrical and mechanical safety and energy efficiency in the public interest. In providing professional advisory solutions and technical support, we introduce legislation and guidelines on the efficiency and safety of energy utilisation, for examples, the Buildings Energy Efficiency Ordinance (BEEO) and the Mandatory Energy Efficiency Labelling Scheme (MEELS). Further to issuing the Building Energy Code (BEC) 2018 and the Energy Audit Code (EAC) 2018 under the BEEO, respective technical guidelines were released during the reporting year. With regard to supporting the trade, we regularly organise technical forums and educational sessions to promote best practices. Please refer to the **Environmental Performance** and **Social Performance** chapters for more details.



可持續發展管理方針 Sustainability Management Approach

營運服務的可持續發展方針

機電工程營運基金致力與客戶和業界建立長遠的伙伴關係，並秉持以客為本的宗旨提供專業機電服務，積極推動香港的可持續發展。我們將繼續引入適切的先進技術，以助提高客戶場所的能源效益。

我們嚴格遵守相關的環境及社會法規，並執行本署的環保及工作安全與健康政策。我們採用結合 ISO 9001:2015、ISO 14001:2015、OHSAS 18001:2007、ISO 45001:2018和ISO 37001:2016認證的綜合管理系統，識別與可持續發展相關的風險和機遇，與此同時不斷改進品質、環境及職業安全健康各範疇的表現。

管理可持續發展相關風險

奏效的風險管理對可持續發展至為重要，同時亦有助我們順應環境及社會的變化，時刻保持卓越的服務水準。為確保機電作業的安全和品質，我們定期為客戶的機電系統及設備安排預防性維修保養，並在日常營運和供應鏈中廣泛採取風險預防措施。本署同時努力尋找改善空間，務求妥善管理已識別的風險，並將之納入企業及業務計劃，作日後指引之用。

持份者的參與

我們的持份者包括有直接受機電署的營運、資源、產品及服務影響或參與其中的內部和外界持份者組別。我們透過多種渠道定期與各持份者溝通，了解他們關注的議題，竭力達致他們的期望。大部分參與渠道每年最少舉行一次活動。本署的主要持份者及相關的參與渠道載列於右頁：

Sustainability Approach for our Trading Services

The EMSTF strives to establish long-term partnerships with clients and the trade, as well as providing professional electrical and mechanical (E&M) services with a customer-oriented principle to build a sustainable society. We continue to adopt state-of-the-art technologies, where appropriate, to improve energy efficiency performance at clients' premises.

We strictly comply with relevant environmental and social regulations and adhere to our Environmental & Occupational Health and Safety Policies. We have an Integrated Management System (IMS) in place that incorporates requirements of ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007, ISO 45001:2018 and ISO 37001:2016. The IMS helps identify sustainability-related risks and opportunities, and at the same time drives continuous improvement in quality, environmental, occupational health and safety performance.

Managing Sustainability-related Risks

Effective risk management is important for sustainable development. It is also a key to maintaining quality service in tune with environmental and social changes. To ensure E&M operational safety and quality, we schedule preventive maintenance for our clients' E&M facilities and equipment. In addition, a risk-based precautionary approach is widely adopted across our operations and along the supply chain. To manage the identified risks, potential opportunities for improvement are set out in our Corporate and Business Plan to steer future development.

STAKEHOLDER ENGAGEMENT

Our stakeholders include both internal and external stakeholder groups who are directly affected by or involved in the EMSD's operations, resources, products and services. We regularly engage with our stakeholders to address their concerns and expectations through different channels. The majority of these engagement channels take place at least once every year. The following table on the right page lists our key stakeholders and their respective engagement channels:

主要持份者 Key Stakeholders



客戶
CLIENTS



政府決策局及部門
GOVERNMENT BUREAUX
AND DEPARTMENTS



供應商及承辦商
SUPPLIERS AND
CONTRACTORS



員工
STAFF

主要參與渠道²¹ Key Engagement Channels²¹

客戶意見調查及訪問
Customer Opinion Surveys
and Interviews

客戶通訊
Customer Newsletters

電話調查
Telephone Surveys

會議
Meetings

合作項目
Joint-projects

報告實質性調查²²
Report Materiality Survey²²

研討會及座談會
Symposiums and Seminars

會議
Meetings

報告實質性調查²²
Report Materiality Survey²²

研討會及座談會
Symposiums and Seminars

員工滿意度調查
Staff Satisfaction Surveys

員工工會及員工協商委員會
Staff Unions and Departmental
Consultative Committees

焦點討論小組
Focus Groups

員工通訊
Staff Newsletters

高級管理層親善大使探訪
Ambassador Visits by
Senior Management

培訓課程
Training Sessions

比賽及團隊建立活動
Competitions and
Team-building Activities

會議
Meetings

報告實質性調查²²
Report Materiality Survey²²

²¹ GRI 102-43

²² 由獨立外界顧問在編製報告的過程中進行，藉以界定重要議題。

²¹ GRI 102-43

²² It was conducted by an independent external consultant as part of the report preparation process to identify material topics.



可持續發展管理方針 Sustainability Management Approach

主要持份者

Key Stakeholders

 專業團體及行業公會
PROFESSIONAL AND
TRADE ASSOCIATIONS

主要參與渠道²¹

Key Engagement Channels²¹

業界參與計劃
Trade Engagement Programme

工作小組
Working Groups

研討會及座談會
Symposiums and Seminars

報告實質性調查²²
Report Materiality Survey²²

會議
Meetings

機電安全及節能社區推廣活動
Community-wide Promotion of
E&M Safety and Energy Efficiency

研討會及座談會
Symposiums and Seminars

合作項目
Joint-projects

通訊
Newsletters

會議
Meetings

報告實質性調查²²
Report Materiality Survey²²

YouTube

傳媒聚會
Media Gatherings

就傳媒查詢回應及發表意見
Feedback and Responses to
Media Enquiries

傳媒
MEDIA

培訓機構
TRAINING INSTITUTES

非政府組織
NON-GOVERNMENTAL
ORGANISATIONS

學術團體
ACADEMIA

公眾人士
GENERAL PUBLIC

受規管行業
REGULATED TRADES

專業團體及行業公會
PROFESSIONAL AND
TRADE ASSOCIATIONS

聯繫我們的客戶

我們堅守以客為本的宗旨，加強與客戶聯繫，不斷提升轄下機電服務的標準和質素。

機電署的「顧客為本電子平台 — 工作管理」系統連接至我們的客戶服務中心、「維修外判合約表現監察系統」和企業電腦系統，全面推行環保無紙工作。這種互聯系統的運作方式有效促進我們與客戶及承辦商的溝通，確保能以高效率的電子方式安排維修保養工程。

本署每月均會收集客戶意見，並定期監察客戶服務的成效。2019/20年度，我們的客戶滿意度達到99.87%，成績令人鼓舞，推動我們繼續在機電服務及客戶服務上精益求精。此外，我們設有兩年一次的客戶意見調查，上一次調查在2018年進行，客戶滿意指數錄得6.61分（8分為滿分），創下歷史新高。下次客戶意見調查將於2020年年底展開，冀盼調查結果可協助我們提升客戶體驗。

機電署嚴格遵從《個人資料（私隱）條例》及我們的私隱政策，確保所有個人資料均妥善處理。匯報年度內並無接獲任何關於客戶私隱和客戶資料遺失的投訴或違規事件。

管理我們的供應鏈

我們與承辦商及供應商緊密合作，致力提供安全優質的機電服務，以及供應與機電安裝、操作及維修相關的零部件、設備和服務。與此同時，我們亦與供應商共同努力，確保產品和服務符合社會及環境範疇的監管規定，例如產品質素、職業健康與安全、商業操守和環境管理。

機電署規定所有承辦商及供應商須提供符合可持續發展原則的優質產品與服務。有見產品質素監控的要求日趨嚴格，市場亦通時達變，我們要求承辦商於適用招標項目中持有ISO 9001品質管理系統證書，並向其提供安全指引，全面提升供應鏈的職業健康與安全水平。我們希望透過彼此合作實現「零意外」的目標，以及經常檢討承辦商的安全表現，確保他們有穩健的安全管理系統。

Engaging our Clients

We uphold the customer-first principle and optimise the standard and quality of our E&M services by strengthening communication with clients.

Our paperless and environmental-friendly Customer Centric e-Platform – Job Management system is connected to our Customer Service Centre, the Performance Monitoring System for Maintenance Contracts and the Corporate Computer System. Such interconnection strengthens our communication with clients and contractors to ensure efficient and digitalised arrangement of maintenance work.

To monitor customer services on a regular basis, we conduct monthly customer feedback exercise. In 2019/20, we recorded a high satisfaction level of 99.87%, which was a great vote of confidence for us to continue raising the bar on our E&M services and client service quality. Notably, the result of the latest bi-annual Customer Opinion Survey conducted in 2018 hit a record high of 6.61 out of 8 in the Customer Satisfaction Index. The upcoming survey will take part at the end of 2020. We hope it will help us enhance the customer experience.

The EMSD strictly adheres to the Personal Data (Privacy) Ordinance and internal privacy policy to ensure that all personal data are properly handled. During the reporting year, we did not record any complaints or breaches regarding customer privacy and loss of customer data.

Managing our Supply Chain

Our contractors and suppliers work closely with us in delivering safe and quality E&M services as well as in the provision of parts or equipment and services related to E&M installation, operation and maintenance. Working together with our suppliers, we ensure that our products and services are in strict compliance with regulatory requirements relating to various social and environmental aspects, such as product quality, occupational health and safety, business conduct, and environmental management.

Contractors and suppliers are required to provide quality goods and services in a sustainable manner. In view of tightening product quality control and aligning with market development, the EMSD requires contractors to hold the ISO 9001 Quality Management Certification for applicable tenders. To uphold a high level of occupational health and safety along our supply chain, we provide contractors with safety guidelines. It is our aim to achieve a target of “Zero Accidents” in collaboration with these partners. We also review their safety performance frequently to ensure that they have a robust safety management system in place.

²¹ GRI 102-43

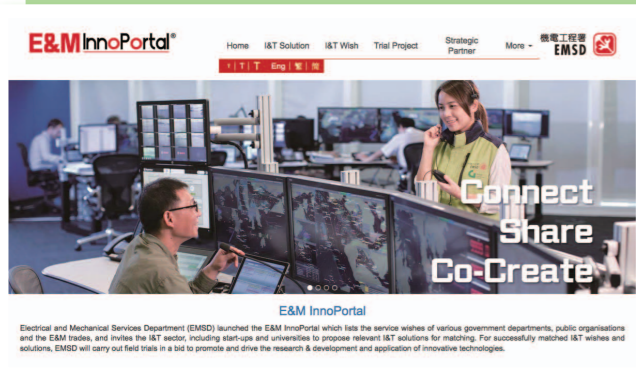
²² 由獨立外界顧問在編製報告的過程中進行，藉以界定重要議題。

²¹ GRI 102-43

²² It was conducted by an independent external consultant as part of the report preparation process to identify material topics.

可持續發展管理方針 Sustainability Management Approach

「機電創科網上平台」 E&M InnoPortal



「機電創科網上平台」按政府部門及公營機構的科技發展需要，與初創企業及學界等創新科技(創科)界成員提供的相關創科解決方案進行配對。截至2020年3月31日，該平台啟用至今共接獲逾470個創科解決方案，並成功配對超過60個項目。

E&M InnoPortal is an online platform that matches the technology development needs of government departments and public bodies with relevant innovation and technology (I&T) solutions offered by the I&T sector, including start-ups and academic institutions. As at 31 March 2020, the E&M InnoPortal has received more than 470 I&T solutions and successfully matched over 60 projects since its launch.

除此之外，我們亦要求承辦商及供應商肩負責任，盡量減低因處置廢物和能源、用水及其他物料消耗引致的環境影響。承辦商和供應商必須嚴格遵守機電署合約訂明的環保規定，例如他們的環境管理系統須符合ISO 14001認證標準。本署鼓勵供應商提供環保產品，也歡迎他們在本署的數據庫登記，以供日後採購之用。

我們依從公開及公平的程序甄選承辦商和供應商，並定期檢討他們的表現，同時歡迎新的承辦商及供應商登記納入機電署供應商名冊。我們鼓勵承辦商和供應商採用創新的解決方案，透過「機電創科網上平台」，他們可以向本署分享最新產品和技術。

In addition, our contractors and suppliers are requested to take responsibility to minimise environmental impacts arising from waste disposal, energy, water and other material consumption. They must stringently observe the environmental requirements stipulated in our contracts, for example, certifying their environmental management systems with the ISO 14001 standard. Moreover, we encourage suppliers to provide environmental-friendly products and keep their records in our database for procurement consideration.

The EMSD follows an open and fair process in selecting contractors and suppliers, and their performance is reviewed regularly. New contractors and suppliers are encouraged to register on the EMSD Suppliers List. We encourage innovative solutions from contractors and suppliers. In particular, the E&M InnoPortal provides a technical platform for suppliers to share their new products and technologies with us.

可持續發展的卓越成果

機電署在可持續發展路上昂首邁步。於匯報年度，我們付出的努力再次得到肯定，勇奪多項殊榮。我們感謝持份者的支持，欣然與他們分享重要的時刻。

獎項及嘉許

機電署善用先進科技推動香港成為綠色智慧城市，同時致力以專業知識服務社群，促進專業人才的培訓和發展。於匯報年度，我們榮獲以下多個專業團體和機構頒發的獎項，表揚本署對機電專業人才和行業的可持續發展作出的貢獻。

SUSTAINABILITY EXCELLENCE

Our commitment to sustainability continued to gain recognition and receive a number of accolades during the reporting year. We appreciate the support from our stakeholders and are glad to share the important moments with them.

Awards and Recognitions

In addition to help Hong Kong evolve into a green and smart city through advanced technologies, the EMSD strives to contribute our expertise to serve society by promoting professional training and development. During the reporting period, we were delighted to receive a number of awards from the following professional bodies and organisations in recognition of our efforts toward the sustainable development of the E&M professionals and industry.



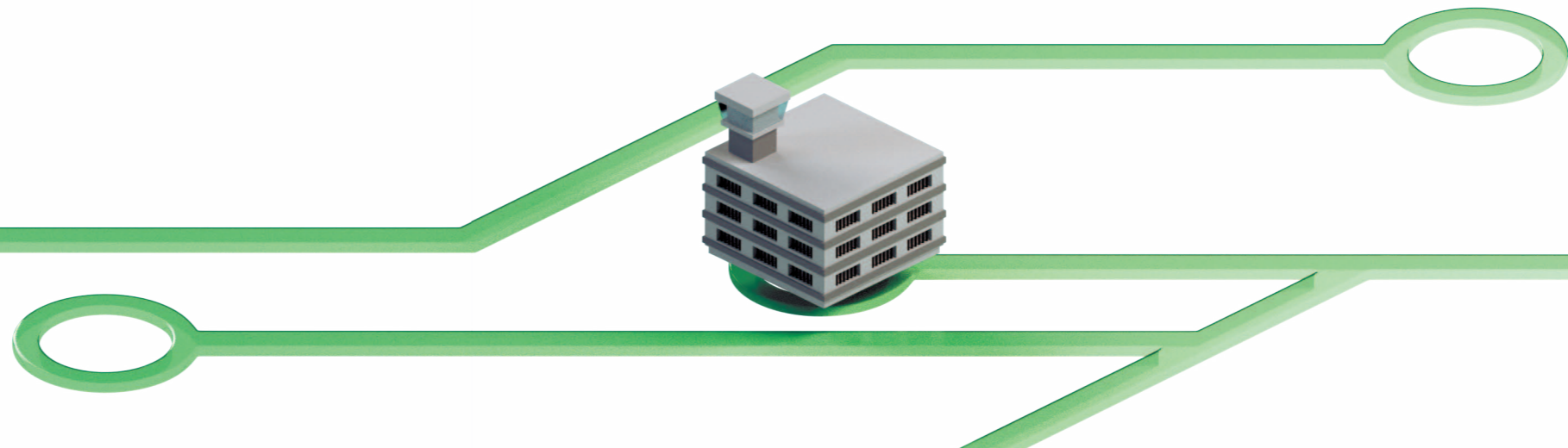
第47屆日內瓦國際發明展金獎

Gold Medal in the 47th International Exhibition of Inventions of Geneva



2019年4月，機電署與懲教署在「智慧監獄」創科方案中合作開發的維生指標監察和移動及位置監察系統在第47屆日內瓦國際發明展榮獲金獎，方案大大提升懲教院所的管理效率。

In April 2019, the EMSD's collaborative project with the Correctional Services Department (CSD) under the Smart Prison solution, namely the Health Signs Monitoring and Passage Surveillance System, won the Gold Medal at the 47th International Exhibition of Inventions of Geneva. This I&T project effectively enhances CSD's efficiency in management of correctional institutions.



可持續發展管理方針 Sustainability Management Approach



最佳小型項目/協作數碼獎

Digital Award for the Best Small Project/Collaboration



2019年5月，機電署榮獲英國屋宇裝備工程師學會頒發「最佳小型項目/協作數碼獎」，以表揚我們為屯門學童牙科診所加裝自行研發的數碼化空調、配電及能源管理系統設備，提升屋宇裝備的運作效率。

In May 2019, the EMSD received the Digital Award for the Best Small Project/Collaboration from the Chartered Institution of Building Services Engineers in the United Kingdom. This award was dedicated for the EMSD's self-developed digitised air-conditioning, electricity distribution and energy management system for improving the efficiency of building services at the Tuen Mun School Dental Clinic.

區域供冷系統入選《城市100》

District Cooling System Featured in Cities 100

2019年10月，機電署的香港區域供冷系統項目獲C40城市氣候領導聯盟(C40)表揚，成功入選C40刊物《城市100》的100個氣候行動方案，肯定我們在應對氣候變化危機的表現。區域供冷系統是大型中央空調系統，利用中央裝置的冷卻水製冷，用電量比傳統風冷式系統低35%。

In October 2019, the EMSD's District Cooling System (DCS) in Hong Kong project was recognised by the C40 Cities Climate Leadership Group (C40) and featured in Cities 100, a C40 publication, to highlight our efforts in combating climate change. DCS is a large-scale centralised air-conditioning system that uses chilled water from the central plants for cooling. It can save up to 35% of electricity as compared to traditional air-cooled systems.



型建香港第五屆國際BIM大獎賽及Autodesk香港建築信息模擬設計大獎2019

BuildingSMART Hong Kong's 5th International BIM Awards and Autodesk Hong Kong BIM Awards 2019



2019年12月，機電署於「型建香港第五屆國際BIM大獎賽」中奪得「最佳BIM政府部門大獎」，嘉許本署在香港兒童醫院及天水圍醫院引入「建築信息模擬—資產管理」技術，協助優化機電資產的管理，提升公共醫療服務質素。

In December 2019, the EMSD was presented the Best BIM Government Department Award by buildingSMART Hong Kong at the 5th International BIM Awards. The EMSD was commended for its application of Building Information Modelling – Asset Management (BIM-AM) technology at the Hong Kong Children's Hospital and the Tin Shui Wai Hospital to facilitate E&M asset management, which in turn helped enhance public healthcare services.

2020年1月，機電署在「建築信息模擬—資產管理」試點項目成功應用物聯網技術，並憑此佳績於Autodesk香港建築信息模擬設計大獎2019榮獲兩個獎項，得獎項目分別是建造業零碳天地和機電署客戶服務中心。此外，機電署電子工程師袁彪洪先生(右圖右五)更在Autodesk香港建築信息模擬設計大獎2019中奪得「Young BIMer of the Year」獎項，表揚他在促進行業數碼化方面的貢獻。

In January 2020, the EMSD clinched two awards at Autodesk Hong Kong BIM Awards 2019 for our successful application of Internet of Things technology in BIM-AM pilot projects. The award-winning projects are the CIC-Zero Carbon Building and the EMSD's Customer Service Centre. In addition, Mr Yuen Piu-hung, Francis (5th right, photo on the right), the EMSD Electronics Engineer, was named "Young BIMer of the Year" in the Autodesk Hong Kong BIM Awards 2019 as a recognition of his contribution in promoting digitisation of the trade.



可持續發展管理方針 Sustainability Management Approach



2019年傑出學徒獎勵計劃 2019 Outstanding Apprentices Award



機電署繼續推薦見習技術員參與職業訓練局的傑出學徒獎勵計劃，以促進學徒訓練及表彰本署學徒的不懈努力。獲得嘉許的學徒包括2019年傑出學徒郭曉峰先生（左圖右一），以及榮獲優異學徒的區嘉媛女士和楊迎風女士。

The EMSD continued to promote apprenticeship training and acknowledge the effort of our dedicated apprentices by nominating our technical trainees for the Outstanding Apprentices Award. Mr Kwok Hiu-fung (1st right, photo on the left) was named as one of the 2019 Outstanding Apprentices while Ms Au Ka-wun and Ms Yeung Ying-fung were selected as Apprentices of Excellent Performance by the Vocational Training Council.

傑出見習工程師獎2019 2019 HKIE Trainee of the Year Award



2020年1月，機電署見習機械工程師陳詠儀女士（左圖左七）於香港工程師學會舉辦的「傑出見習工程師獎2019」獲頒第一名殊榮，嘉許她對香港工程師學會及香港作出貢獻，以及表揚她在工程畢業生培訓計劃中表現出色。

In January 2020, Ms Chan Wing-ye (7th left, photo on the left), the EMSD Mechanical Engineering Graduate, won the first place in the 2019 HKIE Trainee of the Year Award organised by the Hong Kong Institution of Engineers (HKIE). It was a high recognition of her contribution to the HKIE and Hong Kong, and her excellent performance in the Scheme "A" Graduate Training.

年度重點 Highlights of the Year

6月
2019
JUN

與本地五間大學及七家科技研究機構簽署《機電創科網上平台合作備忘錄》，建立策略伙伴關係，加強各方在創科研發領域的合作。

Signed the memoranda of co-operation for E&M InnoPortal with five local universities and seven technological research institutions to establish strategic partnerships for strengthening collaboration on innovation and technology research and development.

技能評估中心投入服務，提供基礎技能培訓及利用先進設施評核見習技術員的技能水平。

Skill Assessment Centre commenced service to provide fundamental skills training and evaluate technician trainees' skill levels with advanced facilities.

推出《建築物能源效益守則2018年版技術指引》，讓持份者充分了解就《建築物能源效益條例》發布經修訂的《建築物能源效益守則》中的規定。

Issued the Technical Guidelines on Building Energy Code 2018 Edition to help stakeholders better understand the requirements in the revised Building Energy Code published under the Buildings Energy Efficiency Ordinance (BEEO).

7月
2019
JUL

穗港機電人才培訓基地舉行揭牌儀式，標誌着兩地將更緊密合作培訓機電人才。

Plaque Unveiling Ceremony of Guangzhou-Hong Kong Electrical and Mechanical Talent Training Base for strengthening the training and collaboration of E&M talents in Guangzhou and Hong Kong.

推出《能源審核守則2018年版技術指引》，讓持份者充分了解就《建築物能源效益條例》發布經修訂的《能源審核守則》中的規定。

Issued the Technical Guidelines on Energy Audit Code 2018 Edition to help stakeholders better understand the requirements in the revised Energy Audit Code published under the BEEO.

8月
2019
AUG

分別與廣東省科學技術協會、廣東省生產力促進中心及廣東省科學院簽訂合作備忘錄，開拓更多創科解決方案的可能性，促進香港與大灣區的知識與經驗交流。

Signed the memoranda of co-operation with the Guangdong Provincial Association for Science and Technology, the Guangdong Productivity Centre and the Guangdong Academy of Sciences, for broadening our source of I&T solutions and fostering knowledge and experience exchange with the Greater Bay Area.

12月
2019
DEC

推出兩個流動應用程式：E&M Connect及「機電行業通」，以便市民和業界從業員獲取有關節能的電子服務、機電服務供應商及機電署的最新資訊。

Launched two mobile applications, E&M Connect and E&M Trade App, for the public and the trade to access electronic services related to energy saving, E&M service providers and latest updates from the EMSD.

實行「強制性能源效益標籤計劃」第三階段，並擴大計劃範圍。

Implemented the third phase of the Mandatory Energy Efficiency Labelling Scheme with an expanded scope.

2月
2020
FEB

機電署總部大樓技能發展中心正式全面開幕，旨在提升技術員的技能至國際水平，支援數碼化進程。

Fully opened the Skill Development Centre at the EMSD Headquarters Building for developing technicians' technical skills to meet international standards and skills for digitisation.

環保成效 ENVIRONMENTAL PERFORMANCE



經濟適用的清潔能源

負責任消費和生產

氣候行動

機電署轄下所有服務和業務均周全考慮環境因素，積極推動降低香港的碳強度及能源強度，以應對全球氣候變化帶來的挑戰。我們深信締造綠色環境對實踐本署改善全民生活質素的抱負尤其重要，因此我們致力完善法例、政策、計劃及其他倡議，務求監管能源使用和加強公眾意識。我們亦於業務中推行可行措施，提高能源效益和確保資源用得其所。

締造節能香港

機電署肩負促進香港邁向可持續及智慧城市的重任，我們矢志提升香港的能源效益，以達到政府公布的《香港都市節能藍圖2015~2025+》中減少能源強度的目標。機電署不斷探索各類節能措施和創新科技，亦與持份者通力合作以全面提升能源效益。除發布守則及技術指引外，我們也持續研究有效的能源使用最佳作業方法，並樂於與業界和公眾分享寶貴知識。

能源效益標籤

機電署於2009年推出「強制性能源效益標籤計劃」，規定於香港供應的訂明產品須貼上能源標籤，讓消費者知悉相關產品的能源效益表現。為擴大計劃成效，我們於2019年12月全面實施「強制性能源效益標籤計劃」第三階段，涵蓋範圍新增三種電氣產品，包括電視機、儲水式電熱水器及電磁爐。目前計劃共涵蓋八類電氣產品，合共佔本地住宅每年用電量約70%。按照估計，整個計劃每年可節省約6億千瓦小時電力。

Facing the challenge of global climate change, the EMSD has exerted persistent effort to drive carbon and energy intensity reduction in Hong Kong by incorporating environmental considerations into our services and operations. We believe that a green environment is vital for realising our service vision of improving the quality of life for all. To this end, the EMSD is dedicated to refining legislations, policies, schemes and other initiatives to regulate energy use and enhance public awareness. We also take every possible measure in our operations to increase energy efficiency and ensure the wise use of resources.

MAKING OUR CITY ENERGY-EFFICIENT

Shouldering the responsibility of building a sustainable and smart city, the EMSD is committed to making our city more energy-efficient, so as to attain the energy intensity reduction targets set out in the Energy Saving Plan for Hong Kong's Built Environment 2015~2025+ issued by the Government. The EMSD continues to explore different energy-saving measures and innovative technologies. We also recognise the importance of joint efforts with stakeholders in enhancing energy efficiency. In addition to issuing codes and technical guidelines, the EMSD constantly studies best practices for efficient energy use and shares valuable knowledge with the trade and the public.

Energy Efficiency Labels

Introduced by the EMSD in 2009, the Mandatory Energy Efficiency Labelling Scheme (MEELS) requires displaying energy labels on prescribed products in Hong Kong to inform consumers of their energy performance. To amplify impact of the scheme, the third phase of MEELS has been fully implemented since December 2019, with the scope expanded to include three additional types of electrical products, namely, televisions, storage-type electric water heaters and induction cookers. To date, the scheme covers a total of eight types of prescribed products that account for approximately 70% of residential annual electricity consumption. It is estimated that in aggregate the scheme can save 600 million kWh of electricity every year.



「強制性能源效益標籤計劃」預計節能成效： Estimated Energy Effectiveness of MEELS:

每年節省約 **600** 百萬千瓦小時電力
Save about **600** million kWh of electricity every year

▶ 相等於 Equivalent to

Annual electricity consumption of about **約 125 000** 戶家庭每年用電量
households

減少排放約 **420 000** 公噸二氧化碳當量²³
About **420 000** tonnes of carbon dioxide (CO₂) equivalent emission reduction²³

建築物效能

《建築物能源效益條例》

建築物的用電量約佔全港總用電量九成，因此機電署積極倡議提高香港樓宇能源效益。我們於2012年頒布的《建築物能源效益條例》旨在規管指定屋宇裝備裝置的能源效益標準，隨着法例全面實施，預計至2025年，每年可節省約20億千瓦小時電力。

Building Efficiency

Buildings Energy Efficiency Ordinance

Buildings account for almost 90% of electricity consumption of the city. In this regard, the EMSD is devoted to promoting building energy efficiency in Hong Kong. The Buildings Energy Efficiency Ordinance (BEEO) has been effective since 2012 to regulate energy efficiency standards of designated building services installations. The implementation of BEEO is expected to save about 2 billion kWh of electricity annually by 2025.



《建築物能源效益條例》預計節能成效： Estimated Energy Effectiveness of BEEO:

至2025年，每年節省約 **2** 十億千瓦小時電力
Save about **2** billion kWh of electricity every year by 2025

▶ 相等於 Equivalent to

Annual electricity consumption of about **約 420 000** 戶家庭每年用電量
households

減少排放約 **1 400 000** 公噸二氧化碳當量²³
About **1 400 000** tonnes of CO₂ equivalent emission reduction²³

此外，我們就《建築物能源效益條例》發布《建築物能源效益守則》和《能源審核守則》，提供技術指引以遵守相關屋宇裝備裝置及能源審核規定。於本匯報年度，機電署透過與專業人士、業界、學界及其他政府部門合作，完成檢討並發布《建築物能源效益守則2018年版技術指引》及《能源審核守則2018年版技術指引》。新制訂的技術指引旨在讓持份者充分了解2018年底發布經修訂的《建築物能源效益守則》和《能源審核守則》中的規定。

Under the BEEO, the Building Energy Code (BEC) and Energy Audit Code (EAC) have been released to provide technical guidance on the compliance of the stipulated requirements regarding building services installations and energy audit. During the reporting year, the EMSD reviewed and issued the Technical Guidelines on Building Energy Code 2018 Edition and Technical Guidelines on Energy Audit Code 2018 Edition, in collaboration with professionals, the industry, academia and government departments. The new guidelines were developed in an aim to help stakeholders better understand the requirements in the revised BEC and EAC published in late 2018.

²³ 減碳量是按照全港性的排放系數預設值估算。

²³ Carbon reduction is estimated using the territory-wide default emission factor of Hong Kong.

環保成效 Environmental Performance

淡水冷卻塔

機電署一直提倡廣泛應用淡水冷卻塔的空調系統，因其能源效益較傳統氣冷式空調系統更高。我們鼓勵非住宅樓宇安裝淡水冷卻塔，自2000年開始管理淡水冷卻塔計劃，截至2020年3月，我們共接獲1 203宗申請並批准安裝2 762個淡水冷卻塔²⁴。水冷式空調系統估計比氣冷式空調系統用電量減少約20%，所有已落成的淡水冷卻塔每年可節省約5.74億千瓦小時電力，相等於減少約402 000公噸碳排放。

Fresh Water Cooling Towers

The wider adoption of fresh water cooling towers is advocated for air-conditioning system because of having higher energy efficiency than air-cooled air-conditioning systems. The EMSD has managed the Fresh Water Cooling Towers (FWCT) Scheme since 2000 to encourage the installation of FWCTs in non-domestic buildings. By the end of March 2020, a total of 1 203 applications had been received, while 2 762 FWCTs had been approved for installation²⁴. The water-cooled air-conditioning systems are estimated to consume about 20% less electricity than the air-cooled air-conditioning systems, the successful installation of these FWCTs can conserve approximately 574 million kWh electricity per year, equivalent to about 402 000 tonnes of carbon emission reduction.



淡水冷卻塔計劃的預計節能成效： Estimated Energy Effectiveness of the FWCT Scheme:

每年節省約 **574** 百萬千瓦小時電力
Save about **574** million kWh of electricity every year

▶ 相等於 Equivalent to

Annual electricity consumption of about **120 000** 戶家庭每年用電量
households

減少排放約 **402 000** 公噸二氧化碳當量²³
About **402 000** tonnes of CO₂ equivalent emission reduction²³

重新校驗現有建築物

由於建築物的能源效益會隨着時間減退，為了改善現有樓宇的節能表現，機電署鼓勵樓宇業主和從業員為建築物進行重新校驗，並提供所需的支援。為使重新校驗工程更暢順，我們擬備《重新校驗技術指引》，清晰詳細說明校驗流程。我們深明執行重新校驗的專才的角色舉足輕重，所以特別編製一系列培訓教材幫助他們提升技能，並在正式推出有關培訓前，於2019年6月成功舉辦多個重新校驗先導訓練課程，讓我們根據專業機構及本署員工反映的意見完善培訓教材。

Retro-commissioning of Existing Buildings

The energy efficiency performance of buildings may deteriorate over time. In order to enhance energy-saving performance of existing buildings, the EMSD encourages and provides support to building owners and operators to conduct Retro-commissioning (RCx). Facilitating the execution of RCx, the Technical Guidelines on Retro-commissioning sets out clear and comprehensive procedural guidance. Recognising the importance of RCx professionals in supporting the application of RCx, a series of training kit was developed to build up the competence of RCx practitioners. Prior to formally launching RCx training, trial RCx courses were successfully organised in June 2019 to solicit comments from professional institutions and our staff to fine tune the training kit.



專業機構成員參加重新校驗先導訓練課程。

Members from professional institutions attending the trial RCx training course.

²³ 減碳量是按照全港性的排放系數預設值估算。

²⁴ 每宗淡水冷卻塔申請可能涉及一個或多個淡水冷卻塔。

²³ Carbon reduction is estimated using the territory-wide default emission factor of Hong Kong.

²⁴ Each FWCT application may involve one or more than one cooling tower(s).

使用可再生能源

機電署一直配合政府發展香港可再生能源政策，積極鼓勵各界廣泛使用可再生能源。我們發布多份相關技術指引和指南，同時建立「香港可再生能源網」，透過網上平台向公眾提供最新的可再生能源實用資訊，加深市民對可再生能源技術的認識。

Use of Renewable Energy

The EMSD has been promoting wider adoption of renewable energy (RE) to support the Government's policy on RE development in Hong Kong. In addition to issuing technical guidelines and guidance notes, we have launched the Hong Kong Renewable Energy Net, an online portal that provides the public with useful and latest information on RE and enhances public understanding of RE technologies.

於本匯報年度，我們繼續推行「採電學社：學校及非政府福利機構太陽能支援計劃」，向學校及合資格非政府機構提供財務及技術支援，協助他們安裝太陽能發電系統。計劃除應用太陽能發電外，亦讓學生了解可再生能源技術，從而加強他們的環保意識。計劃自推出以來喜獲學校及非政府機構熱烈支持，未來我們將繼續往開來，透過計劃向年青一代推廣可再生能源。

During the reporting year, we continued to implement the Solar Harvest – Solar Energy Support Scheme for Schools and Welfare Non-governmental Organisations (NGOs). Schools and eligible NGOs received financial and technical support for installing solar photovoltaic systems. Going far beyond solar power harvesting, the scheme also educates students about RE technologies to raise their environmental awareness. Thrilled by the positive and overwhelming response from schools and NGOs, we will continue to build on the success of this scheme to promote RE among the younger generations.

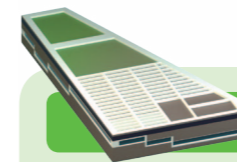
區域供冷系統

為滿足啟德發展區內極大的空調需求，區域供冷系統引進創新的高能源效益中央空調系統，供應啟德發展區內多幢建築物使用，包括機電署總部大樓。區域供冷系統較傳統氣冷式系統和獨立水冷式系統省電，分別可節省35%及20%用電量。按照估計，2025年啟德區域供冷系統計劃全面落成後，每年可節省約8 500萬千瓦小時電力。

District Cooling System

Catering to very high demand for air-conditioning at the Kai Tak Development, the District Cooling System (DCS) has been introduced as an innovative way to centralise the energy-efficient air-conditioning system for multiple buildings within the area, including the EMSD Headquarters (HQs) Building. Comparing with traditional air-cooled systems or individual water-cooled systems, DCS consumes 35% or 20% less electricity respectively. It is estimated that about 85 million kWh electricity will be saved annually upon completion of the Kai Tak DCS project in 2025.

啟德區域供冷系統計劃預計節能成效： Estimated Energy Effectiveness of the Kai Tak DCS Project:



每年節省約 **85** 百萬千瓦小時電力
Save about **85** million kWh of electricity every year

▶ 相等於 Equivalent to

Annual electricity consumption of about **18 000** 戶家庭每年用電量
households

減少排放約 **59 500** 公噸二氧化碳當量²³
About **59 500** tonnes of CO₂ equivalent emission reduction²³

²³ 減碳量是按照全港性的排放系數預設值估算。

²³ Carbon reduction is estimated using the territory-wide default emission factor of Hong Kong.

環保成效 Environmental Performance

機電署的環境管理系統

機電署遵循內部的環保政策，推行全面的ISO 14001環境管理系統，持續實行環保措施並致力於工作場所培養綠色文化，盡量減少我們營運上的環境足印。

機電署作為政府機構，必須嚴格遵守所有相關的環保法律及規例，匯報年度內並無任何觸犯環境監管法規而導致罰款或檢控的違例事件。

環保目標

我們矢志精益求精，繼續完善環保表現，每年訂立相關目標和定期檢討工作進展。

ENVIRONMENTAL MANAGEMENT AT THE EMSD

Adhering to the EMSD's Environmental Policy, we have implemented a comprehensive ISO 14001 Environmental Management System to continuously apply environmentally friendly measures and cultivate a green culture at the workplace to reduce the environmental footprint of our operations.

As a government organisation, it is fundamental that the EMSD fully complies with applicable environmental laws and regulations. During the reporting year, there were no cases of regulatory non-compliance on environmental aspects which resulted in fines or prosecutions.

Environmental Target

Aiming to improve our environmental performance continuously, we set clear environmental target annually and review our progress periodically.



節約用水

我們致力減少用水以節約水資源，總部大樓善用區域供冷系統，利用海水取代食水作冷卻媒體，用後可排出大海，並確保在排入排水渠時水體符合監管要求。此外，機電署亦安裝了水龍頭感應器和設置雨水回用系統，收集雨水作灌溉用途。2017/18及2018/19年度的用水量數據請參閱**統計資料摘要**。

廢物管理

機電署嚴格遵從環保措施處理並盡量回收辦公室和工場產生的廢物。2019/20年度的廢物回收數據請參閱**統計資料摘要**。

於本匯報年度，我們共採購28 023令再造紙，並於機電署總部大樓設置多組新回收箱，方便回收不同類型的辦公室廢物。現時辦公室回收廢物包括紙張、膠樽、鋁罐、金屬罐、碳粉盒和光管。我們定期統計回收物數量，確保交由合資格回收商妥善處理。

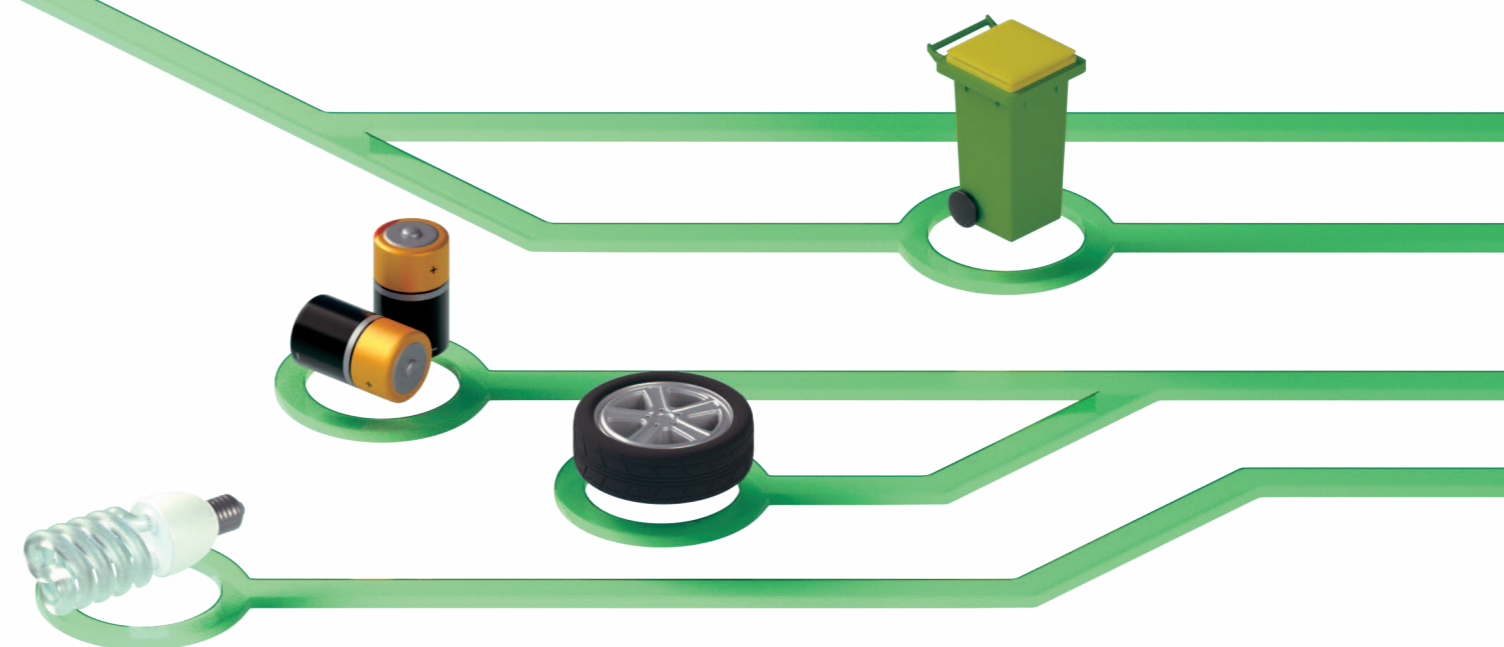
Water Conservation

The EMSD strives to preserve water resources by minimising water consumption. Utilising the DCS at our HQs Building, freshwater is replaced by seawater as cooling medium and discharged to the sea after use. We ensure that water discharged to drainage systems and water bodies are in compliance with regulatory requirements. Furthermore, the EMSD has equipped water taps with sensors and set up a rainwater collection system for irrigation. Water consumption data in 2017/18 and 2018/19 can be found in **Summary of Statistics**.

Waste Management

At the EMSD, we follow environmental procedures to handle waste generated from office operations and workshop activities, and we recycle waste whenever possible. Data for waste recycling in 2019/20 can be found in **Summary of Statistics**.

During the reporting period, we purchased a total of 28 023 reams of recycled paper. We placed new sets of recycling bins in the EMSD HQs Building to collect different types of office waste. The types of waste currently recycled are paper, plastic bottles, aluminium and metal cans, toner cartridges, and fluorescent tubes. We keep track of our output of recyclables regularly and ensure they are handled by qualified contractors.



除辦公室廢物外，本署亦盡量分類回收工場所產生的廢物，包括充電電池、金屬廢料、含水銀照明燈和車胎。工場作業涉及各種機電工程，例如安裝、保養及修理、更換舊車胎等。

環保採購

本署甄選供應商時按ISO 14001環境管理系統要求，他們需遵守相關的環保法律及規例。作為採購策略之一，我們的採購指引於可行情況下加入產品或服務的相關環保要求。本署為機電工程採購環保物料和產品時，亦會參照環境保護署訂立的環保規格。

機電署鼓勵提供綠色物料及產品的供應商登記成為機電署供應商。於本匯報年度，機電署供應商名冊共有831間提供環保物料和產品的供應商，本署共斥資7,121萬港元採購環保產品（佔部門總採購金額13.15%以上），較2018/19年度（3,782萬港元）大幅增加88.29%。

總部大樓排放量

我們日常營運中的車輛及發電機使用燃油產生直接溫室氣體排放（範圍一），而外購電力（範圍二）及公務旅行（範圍三）分別產生間接排放。

In addition to office waste, we sort and recycle waste arising from our workshop activities, including rechargeable batteries, metal scraps, mercury lamps, and vehicle tyres whenever feasible. Workshop activities include various E&M works such as installations, maintenance and repairs, replacement of worn vehicle tyres, etc.

Green Procurement

Our ISO 14001 Environmental Management System extends to supplier selection. Our suppliers are required to comply with applicable environmental laws and regulations. As part of our procurement strategy, the EMSD incorporates green procurement guidelines, including relevant environmental requirements of products or services, whenever feasible. Appropriate green materials and products are sourced for E&M works with reference to green specifications established by the Environmental Protection Department.

Suppliers providing green materials and products are encouraged to register on the EMSD Suppliers List. During the reporting year, the EMSD Suppliers List consisted of 831 suppliers that offer environment-friendly materials and products. We spent approximately HK\$71.21 million (over 13.15% of the total purchased value) on procuring green products, up 88.29% on 2018/19 (HK\$37.82 million).

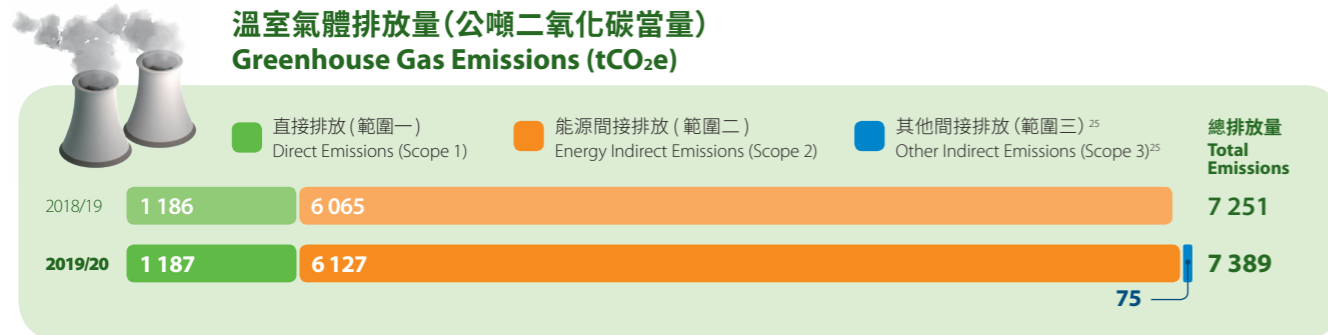
Emissions at the Headquarters Building

Our operations generate greenhouse gas emissions (GHG) directly due to fuel consumption by vehicles and generators (Scope 1), and indirectly from purchased electricity consumption (Scope 2) and from business travel (Scope 3) respectively.

環保成效 Environmental Performance

本匯報年度的溫室氣體總排放量約為7 389公噸二氧化碳當量，強度為每位員工1.29公噸二氧化碳當量。機電署2018/19年度及2019/20年度的碳足印列表如下。

The total amount of GHG emissions during the reporting year was approximately 7 389 tonnes of CO₂ equivalent (tCO₂e); intensity was 1.29 tCO₂e per employee. Below is a breakdown of the EMSD's carbon footprint in 2018/19 and 2019/20.



於2019/20年度，機電署轄下共有205部車輛，包括貨車、小型貨車、轎車及電單車，其中13部為電動車，六部為混合動力車輛。我們確保妥善維修所有車輛，再配合完善的內務管理和採購更高級別排放標準的車輛，盡量減低車輛的廢氣排放。

In 2019/20, the EMSD operated a fleet of 205 vehicles for operations, including lorries, vans, saloon cars and motorcycles. Among them, 13 were electric vehicles and six were hybrid vehicles. We have maintained firm control to minimise transportation emission through proper vehicle maintenance, good housekeeping, and adoption of vehicles with higher emission standards.

此外，我們積極應用環保建築策略，主動將總部大樓的空調系統連接區域供冷系統，預計較傳統氣冷式系統和獨立水冷式系統分別可節省35%及20%用電量，有助減低機電署總部大樓整體能源耗用量。匯報年度內，區域供冷系統的耗冷量為10 101 100千瓦小時(冷凍)。為加強應用天然可再生能源，大樓戶外廣場翻新時將增設太陽能裝置，包括於天篷安裝建材一體型太陽能發電系統和太陽能樹燈飾。

To demonstrate our commitment in adopting green building solutions, we took the initiative to connect the air-conditioning system of the HQs Building to the DCS, which is estimated to consume 35% and 20% less electricity compared to traditional air-cooled systems and individual water-cooled systems respectively. It helps to reduce overall energy consumption of the EMSD HQs Building. During the reporting year, 10 101 100 kWh of cooling energy was supplied by the DCS. To further utilise natural renewable resources, solar energy fixtures will be integrated in the outdoor piazza renovation, including building integrated photovoltaics on the canopy and solar tree lighting.

建築物節能措施

機電署樂於先行啟導，實現政府2019/20年度用電量比2013/14基準年度減少5%的目標。於2019/20年度，本署轄下的政府建築物²⁶購買電力使用總量相比2013/14年度及2018/19年度分別減少17.8%及增加3.1%，購買電力使用強度則升至每位員工2 116千瓦小時。我們轄下的政府建築物由2013/14年度至2019/20年度的購買電力使用總量在右頁報告。

Energy Reduction in our Buildings

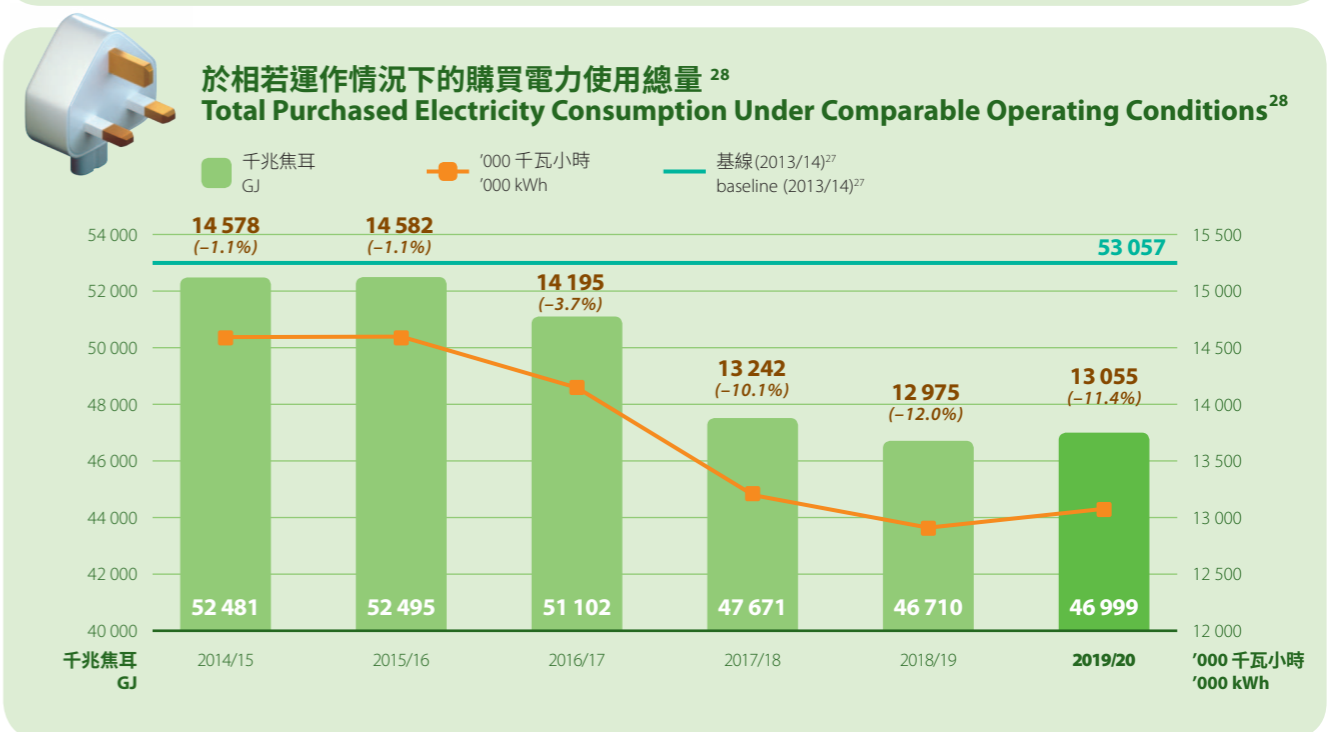
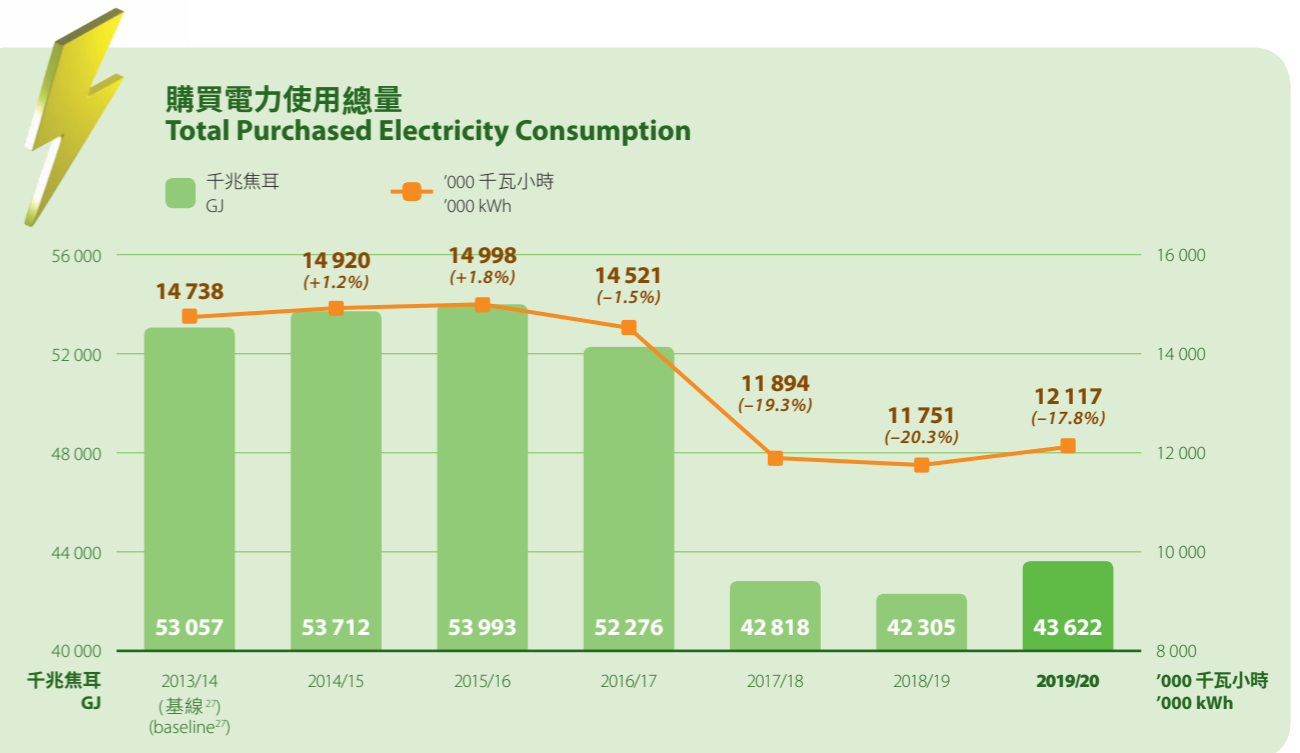
The EMSD takes a leading role in reducing electricity consumption of the Government by 5% by 2019/20 from the 2013/14 baseline year. In 2019/20, total purchased electricity consumption of our government buildings²⁶ decreased by 17.8% and increased by 3.1% compared to 2013/14 and 2018/19 respectively, and the purchased electricity consumption intensity was increased to 2 116 kWh per employee. The total purchased electricity consumption of our government buildings from 2013/14 to 2019/20 is presented on the right page.

²⁵ 2018/19年度的數據沒有記錄。

²⁶ 購買電力使用總量包括機電署總部、企業數據中心和所有策略業務單位的工場、廠房及中心。

²⁵ No data record keeping in 2018/19.

²⁶ Total purchased electricity consumption covers the EMSD Headquarters, Corporate Data Centre, and all Strategic Business Units' workshops, depots and centres.



掃描此二維碼或登入以下網址可連結年度碳審計資訊。
The information of annual carbon audit can be accessed through scanning this QR code or visit:
<https://bems.emsd.gov.hk/bems/faces/dist/public.10031.139.xhtml>

²⁷ 此基準年是參考政府公布的《香港都市節能藍圖2015~2025+》，當中以2013/14年為基準年，訂定政府建築物的能源消耗五年內(即2015~2020年)減少5%。

²⁸ 此計算比較於2013/14至2019/20年度仍然運作的營運單位淨用電量的改變。

²⁷ This baseline year made reference to Energy Saving Plan for Hong Kong's Built Environment 2015~2025+ published by the Government, which adopts 2013/14 as the baseline year to set out a 5% electricity reduction target for government buildings to be achieved within five years (i.e. 2015-2020).

²⁸ The calculation compares the net purchased electricity consumption changes of operating units that still in operation from 2013/14 to 2019/20.

社會成效 SOCIAL PERFORMANCE



機電署作為政府部門及領頭的機電工程服務供應商，深明在社會上擔當着獨特角色。我們努力履行社會責任，盡展專業知識與技能貢獻社會，並為機電業培育專業人才。我們關愛及支持員工，培育他們成才以促進社區長遠發展。機電署連續第六年榮獲香港社會服務聯會頒發「同心展關懷」標誌，表彰我們積極實踐企業公民責任。

The EMSD understands its unique role both as a government body and a leading E&M engineering service provider. We strive to fulfill our social responsibility by contributing our professional expertise to serve society, developing professionals for the E&M industry, and giving our staff care and support to foster the long-term development of local communities. For six consecutive years, we have been awarded the Caring Organisation Logo by the Hong Kong Council of Social Service (HKCSS) as a recognition of our commitment to responsible corporate citizenship.







連續五年或以上獲香港社會服務聯會頒發「同心展關懷」標誌
The 5 Years Plus Caring Organisation Logo awarded by HKCSS

我們的社會目標

除環保目標外，機電署亦每年擬定社會目標，同時持續監察達標進度。

Our Social Targets

Alongside environmental target, the EMSD also sets social targets on an annual basis and regularly monitors on-going progress towards these targets.

2019/20 年度社會目標 Social Targets in 2019/20	2019/20 年度工作進展 Progress in 2019/20	2019/20 年度工作成果 Achievements in 2019/20
 <p>每千名員工呈報的意外宗數不超過 No. of in-house staff reportable accident per 1 000 staff not exceeding 5 宗 nos.</p>	<p>達標 Achieved</p>	<p>每千名員工呈報的意外宗數為 No. of in-house staff reportable accident per 1 000 staff 3.93 宗 nos.</p>
 <p>於員工建議書計劃、工作改善小組計劃及業務流程改進建議獲得建議書 Award for Staff Suggestion Scheme, Work Improvement Team Scheme and Business Process Improvement Proposal 75 份 nos.</p>	<p>達標 Achieved</p>	<p>104 份 nos.</p>
 <p>99% 每月電話調查客戶滿意度 of satisfaction level based on monthly customer feedback</p>	<p>達標 Achieved</p>	<p>99.87%</p>
 <p>無違規事件 No statutory non-compliance</p>	<p>達標 Achieved</p>	<p>零違規事件 Zero non-compliance case</p>

社會成效 Social Performance

以專業睿智服務社會

機電署積極推動香港在機電安全及能源應用範疇上成為領先城市，亦不斷改善專業機電服務，為市民創造更優質城市生活。我們在機電服務上擔當着重要角色，為本港的機電裝置提供顧問及監管服務，範圍涵蓋電力安全、機械安全、氣體安全、鐵路安全以至能源效益和機電公用設施監察等。

提高業界技能

機電署一直不遺餘力地提升業界技能，積極與業界分享專業知識及與業界主要成員加強雙向溝通。多年來，我們分別籌辦技術研討會、講座和論壇以廣泛接觸機電業界，旨在推廣及交流機電工程服務、能源效益、綠色作業、創新科技、職安健等良好作業方式。例如，上年度的「淡水冷卻塔和建築物能源效益的規管及實務」技術研討會2019反應熱烈，本匯報年度我們再次舉辦此項活動。



「淡水冷卻塔和建築物能源效益的規管及實務」技術研討會2019
The 2019 Technical Forum on Control and Practice of Fresh Water Cooling Towers and Buildings Energy Efficiency

智慧城市發展

我們依循《香港智慧城市藍圖》和《香港氣候行動藍圖2030+》，努力應用各種創新科技，促進香港轉型成為世界級的智慧城市。於2019/20年度，我們拓展機遇與業界成員交流意念及經驗，分別參與「2019建造創新博覽會」、「綠色創科日」及「樂齡科技博覽暨高峰會2019」等活動。

CONTRIBUTING PROFESSIONAL EXPERTISE TO SERVE SOCIETY

The EMSD is committed to promoting Hong Kong as a top-ranking city in E&M safety and energy utilisation, as well as enhancing the quality of urban life through continuous improvement of our professional E&M services. We play a key role in providing various advisory and regulatory services for the city's E&M installations, covering electrical safety, mechanical safety, gas safety, railway safety as well as energy efficiency and utilities monitoring.

Enhancing Industry Capabilities

Always driving for industry capabilities enhancement, the EMSD takes the lead in sharing professional knowledge within the industry and facilitating two-way communication with key industry players. Over the years, we have hosted a wide range of technical seminars, symposiums and forums for the industry to promote and exchange best practices on E&M engineering services, energy efficiency, green operation, innovation and technology, and occupational health and safety. For example, in response to the positive feedback received in the previous year, we continued to deliver the 2019 Technical Forum on Control and Practice of Fresh Water Cooling Towers and Buildings Energy Efficiency during the reporting year.

Smart City Development

Guided by the Smart City Blueprint and Hong Kong's Climate Action Plan 2030+, we strive to make use of various innovative technologies to transform Hong Kong into a world-class smart city. In 2019/20, we took every opportunity to exchange ideas and share our experience with industry players through events and activities, such as Construction Innovation Expo (CIExpo) 2019, Green Innovation and Technology (I&T) Day and Gerontech and Innovation Expo cum Summit 2019.

2019建造創新博覽會

為了向業界成員廣傳數碼科技的最新動態和有用參考資訊，及提升能源效益與安全，機電署在「2019建造創新博覽會」設置攤位，展出虛擬實境、「政府物聯通」、「建築信息模擬—資產管理」系統及「機電創科網上平台」等創新應用方法。



「2019建造創新博覽會」的機電署攤位。
The EMSD booth at the CIExpo 2019.

Construction Innovation Expo 2019

To update trade and industry players with the latest trend in digital technologies and useful reference for enhancing energy efficiency and safety, we hosted a booth at the CIExpo 2019 to showcase innovative applications of Virtual Reality (VR), Government-Wide Internet of Things Network, Building Information Modelling – Asset Management system, and E&M InnoPortal.

綠色創科日

2019年8月，我們與環境局協辦「綠色創科日」，向公眾推廣及展示有助紓緩氣候變化的尖端技術應用方案。活動共吸引30多個來自政府及機電業機構的參展單位和600多位人士入場參觀。技術應用方案主要環繞四大主題：綠色轉型、明日低碳城市、可持續創新驅動力及智能環境大數據，推廣各種科技應用方案，宣傳環保創新技術。

Green Innovation and Technology Day

Together with the Environment Bureau, we organised the Green I&T Day in August 2019 to promote and showcase cutting-edge technological applications that are conducive to climate mitigation. The event attracted over 30 exhibitors and 600 participants from the Government and the trade. Various technological applications were highlighted under four main topics, namely, Green Transformation, Tomorrow Low-Carbon City, Sustainable Innovative Drivers, and Big Data for Smart Environment, to further promote the green innovative technology.

在「綠色創科日」中介紹技術應用方案。
Introducing technological applications in the Green I&T Day.



社會成效 Social Performance

樂齡科技博覽暨高峰會 2019

為支持創新科技應用以實踐智慧生活，特別透過樂齡科技提升長者生活質素，機電署於2019年11月參加由政府及香港社會服務聯合辦的「樂齡科技博覽暨高峰會」。我們的展覽攤位展示機電署和創科企業研發的創新科技項目，包括健康監測智慧手帶、智能室內燈光調節系統、利用掌紋及靜脈認證的智能儲物櫃以加強安全和便利性、提舉動力輔助服以容易移動及抱扶長者，以及本署自行研發的智能洗手間系統，通過實時環境及監測使用率提供更好的管理。



向公眾介紹本署自行研發的智能洗手間系統。
Introducing the self-developed Smart Toilet System to the general public.

Gerontech and Innovation Expo cum Summit 2019

In support of applying innovative technology for smart living, especially for enhancing the life quality of the elderly through gerontechnology, the EMSD participated in the Gerontech and Innovation Expo cum Summit in November 2019 that was co-organised by the Government and the HKCSS. Our exhibition booth showcased some I&T projects developed jointly by the EMSD and I&T organisations. Among them there were Smart Wristbands for health monitoring, a Smart Dimming Control System for indoor lighting, a Smart e-Locker using both palm print and palm vein as authentication for security and convenience, a Wearable Power Assist Suit for easier transfer and lifting of elderly, as well as our self-developed Smart Toilet System for better management through real-time environmental and utilisation monitoring.

推動機電業發展

機電署致力透過舉辦推廣活動、培訓計劃、教育活動和其他推廣渠道，務求吸引具潛質的人才投身機電業，培育他們成為機電業專才，特別是年輕一代。本署計劃招聘500名見習技術員及投資5億港元開辦培訓課程。

「機電·啟航」迎新典禮

由機電署牽頭的香港機電業推廣工作小組連續第三年主辦「機電·啟航」迎新典禮，今年活動主題為「協作·同行」，共吸引逾1 000位人士出席，包括700多位年青學員與親友及機電從業員。「機電·啟航」迎新典禮為2019年開展的連串培訓計劃打開序幕，提供良好機會讓年輕的學員跟現職從業員學習，並與其他學員交流，讓他們在個人發展的萌芽階段深入了解機電行業。

PROMOTING THE E&M INDUSTRY DEVELOPMENT

The EMSD is committed to attracting and developing potential professionals, especially youngsters, for the E&M industry through promotional activities, training programmes, educational events and other engagement channels. In particular, the EMSD plans to recruit 500 technician trainees and invest HK\$500 million in training programmes.

“E&M Go!” Orientation Ceremony

The Hong Kong Electrical and Mechanical Trade Promotion Working Group, led by the EMSD, organised the “E&M Go!” Orientation Ceremony for the third consecutive year. Under the theme of “Engagement • Connect”, the event attracted more than 1 000 participants, including over 700 young trainees, their relatives and friends, and industry practitioners. The “E&M Go!” Orientation Ceremony kicked off a series of training programmes that commenced in 2019, offering young participants with great opportunities to learn from industry practitioners and exchange thoughts with their fellow trainees, so as to gain closer understanding of the E&M industry at an early stage of their personal development.

虛擬實境示範工場

機電署與職業訓練局（職訓局）攜手合作，設立虛擬實境示範車輛維修工場（虛擬實境示範工場），展示註冊車輛維修工場必須具備的設施，以及宣傳《車輛維修工場實務指引》。為加深年輕人認識車輛維修的實際運作，我們邀請職訓局旗下卓越培訓發展中心（汽車業）的學員參觀虛擬實境示範工場，親身體驗互動虛擬實境科技，深入了解關於車輛維修的規定和法例。

青年外展工作

我們的「機電青少年大使計劃」旨在招募學童及青少年成為機電青少年大使，多年來成績令人鼓舞。今年適逢計劃十周年紀念，逾150位青少年大使與家長蒞臨機電署總部大樓慶祝。在本匯報年度內，我們為青少年大使安排了「星級大使訓練班」及「STEM工作坊」，培養他們對能源效益、機電工程和安全等機電主題的興趣。

我們致力栽培有志投身機電業的年輕人。機電署同事特別組成義工隊參加扶貧委員會的「友·導向」師友計劃，以友師身分舉辦一系列的參觀活動，並透過「工作影子」體驗與年青一代分享工作經驗，其中以高中學生為主要對象，鼓勵他們在機電業發展。

VR Sample Workshops

The EMSD has collaborated with the Vocational Training Council (VTC) to set up VR vehicle maintenance sample workshops (VR sample workshops) to display required facilities for registered workshops and publicise the Practice Guidelines for Vehicle Maintenance Workshops. To help youngsters understand more about the practice of vehicle maintenance, we invited a group of students from Pro-Act Training and Development Centre (Automobile) of VTC to visit the VR sample workshops. With the aid of interactive VR technology, they gained in-depth understanding of the requirements and laws in relation to vehicle maintenance.

Outreach to Youngsters

Marking the success of our E&M Young Ambassador Programme that encourages children and teenagers to become E&M Young Ambassadors, we celebrated the 10th anniversary of the programme this year with over 150 ambassadors and their parents at the EMSD HQs Building. “Star Ambassador Training Programme” and “STEM Workshop” were organised during the reporting year to foster interest in energy efficiency, E&M engineering and safety.

Striving to nurture youngsters who are interested in joining the E&M trade, our colleagues formed a volunteer team under the “Life Buddies” Mentoring Scheme organised by the Commission on Poverty. As mentors, our volunteers hosted a series of visits and shared their work experience through job shadowing programmes for the younger generation, with a particular focus on senior secondary students to motivate their pursuit of a career in the industry.

「機電青少年大使計劃」十周年
10th anniversary of E&M Young Ambassador Programme



社會成效 Social Performance

其他公眾及業界參與活動

機電署於本匯報年度舉辦多類推廣活動和計劃，向市民及業界介紹我們的服務和傳達機電知識。

Other Public and Trade Engagement Activities

During the reporting year, the EMSD hosted a wide array of promotional events and schemes to present our services and E&M knowledge to the public and the trades.



車輛維修自願註冊計劃 Voluntary Registration Schemes for Vehicle Maintenance

舉辦座談會分享計劃的最新資訊及動態。

Shared the latest updates and development of the schemes at seminars.

聯同車輛維修技術諮詢委員會協辦「車輛維修自願註冊計劃海報設計創作比賽」。

Jointly organised the Voluntary Registration Scheme for Vehicle Maintenance Poster Design Competition with the Vehicle Maintenance Technical Advisory Committee.

到訪1 039間註冊車輛維修工場徵詢他們對公共措施的意見。

Visited 1 039 registered vehicle maintenance workshops to canvass their views on public initiatives.



氣體安全 Gas Safety

為氣體業界、飲食業和物業管理員舉辦約15場氣體安全講座及研討會。

Conducted about 15 safety talks and seminars for the gas trade, catering industry and property management staff.

進行194次工地坑道巡查以推廣《避免損壞氣體喉管工作守則》。

Carried out 194 trench inspections at construction sites to promote the Code of Practice on Avoidance of Damage to Gas Pipes.

《重新校驗技術指引》 Technical Guidelines on Retro-commissioning

為各界機構舉辦14場關於技術指引的簡報會和分享會。

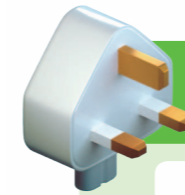
Delivered 14 presentations and sharing sessions on the technical guidelines to various organisations.



淡水冷卻 Fresh Water Cooling

舉辦兩場外展講座提倡採用淡水冷卻塔。

Organised two outreach talks to promote the use of fresh water cooling tower.



能源效益 Energy Efficiency

在環保促進會舉辦的2020環保嘉年華設置攤位宣傳「強制性能源效益標籤計劃」第三階段。

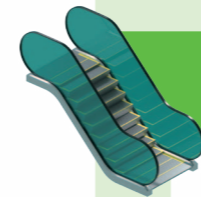
Promoted the third phase of the Mandatory Energy Efficiency Labelling Scheme through setting up game booths in the Green Carnival 2020 organised by the Green Council.

舉辦33場外展講座和安排221次機電署總部教育徑參觀活動，招待8 319名來自不同機構及學校的訪客。

Organised 33 outreach talks and 221 visits to the Education Path at the EMSD Headquarters for 8 319 visitors from different organisations and schools.

舉行28個有關「強制性能源效益標籤計劃」的學校展覽。

Conducted 28 school exhibitions on the Mandatory Energy Efficiency Labelling Scheme.



升降機和自動梯安全、機動遊戲機安全及架空纜車安全 Lifts and Escalators Safety, Amusement Rides Safety and Aerial Ropeways Safety

聯同市區重建局推出「優化升降機資助計劃」以改善升降機安全，8 000部升降機在六年內分階段達致符合最新安全標準。

Teamed up with the Urban Renewal Authority to launch the Lift Modernisation Subsidy Scheme to enhance lift safety by meeting the latest standards for 8 000 lifts in phases within six years.

與建造業議會、電梯業協會及職業訓練局合作編製培訓教材。

Developed training materials with the Construction Industry Council, the Lift and Escalator Contractors Association and the Vocational Training Council.

首次舉辦以升降機及自動梯安全作主題的短片拍攝比賽。

Organised a video production competition on lift and escalator safety for the first time.

在幼稚園、青年中心及長者中心舉辦305場外展講座，向超過17 000名參加者推廣安全使用機動遊戲、架空纜車、升降機和自動梯。

Conducted 305 sessions of outreach talks for kindergartens, youth centres and elderly centres, reaching over 17 000 participants to promote the safe use of amusement rides, aerial ropeways, lifts and escalators.

為業界代表、升降機/自動梯擁有人、業主立案法團成員及物業管理人員舉行68場講座和其他宣傳活動，講解《升降機及自動梯條例》和升降機及自動梯的管理、優化改善及使用安全。

Conducted 68 talks and other publicity activities for trade representatives, lift/escalator owners, members of incorporated owners and building management staff to introduce the Lifts and Escalators Ordinance as well as the management, modernisation and safe use of lifts and escalators.



義工服務 Voluntary Services

本署員工共花了419小時完成七個義工項目，成功籌得20,480港元善款，受惠機構包括香港公益金、建造業關懷基金、建造業關懷基金綜合服務中心及護·聯網。

Seven volunteering projects were completed by our staff who had spent a total of 419 man-hours. The EMSD staff successfully raised HK\$20,480. Beneficiaries included the Community Chest of Hong Kong, Construction Charity Fund, Construction Charity Fund Integrated Service Centre and Lifewire.

社會成效 Social Performance

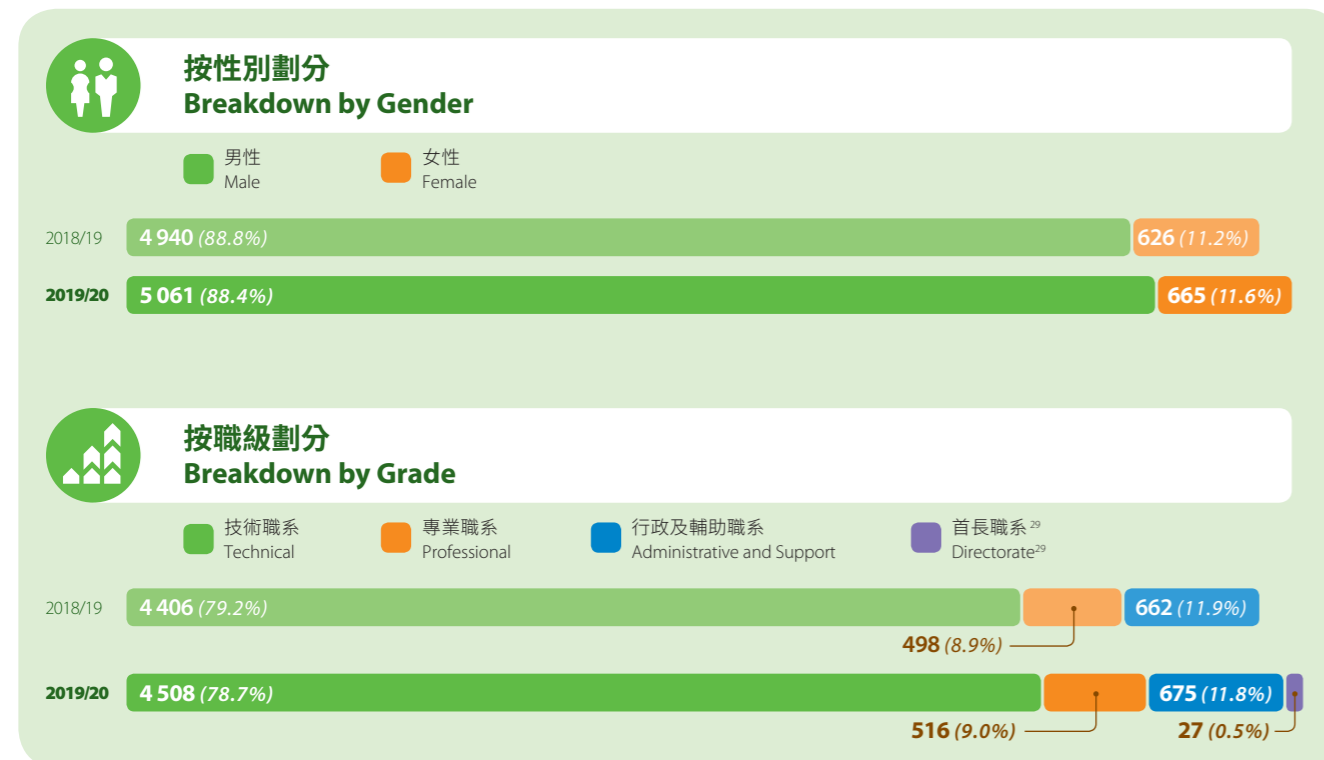
關懷我們的員工

機電署珍惜和關愛每一位員工，視其對持續發展為之重要。我們根據政府的公務員聘用條款及非公務員合約僱員計劃，適當地提供具競爭力的薪酬與福利，務求吸引及延聘人才。與此同時，我們亦悉心栽培不同職務範疇的員工，提供多元化的培訓資源，促進個人發展。

機電署的公務員和非公務員合約僱員只要符合《公務員事務規例》及公務員事務局通告和通函列明的資格，便可享有一系列醫療及牙科護理福利，機電署並設有員工熱線提供心理支援服務。於本匯報年度，機電署簽署《精神健康職場約章》，承諾用心聆聽溝通，關懷我們的員工。

截至2020年3月，機電署共有5 726名員工（2018/19年度：5 566名），包括全職、常任制及合約制員工，年內並無聘用兼職員工。本匯報年度的新入職率及離職率分別為11.2%及6.3%。

機電署僱員人數 Employees Statistics of the EMSD



²⁹ 2019/20年度新增首長職系分類。

CARING FOR OUR STAFF

The EMSD cherishes our employees who are critical to our sustainability development. Following the Government's civil service (CS) employment terms and the non-civil service contract (NCSC) staff scheme, we offer competitive remuneration and benefits, where applicable, to attract and retain employees. We also nurture employees of different disciplines by investing in their personal development and providing them with diverse training resources.

The EMSD staff appointed on CS and NCSC are entitled to a range of medical and dental benefits based on their employment terms, provided that they meet eligibility criteria set out in the Civil Service Regulations and the Civil Service Bureau Circulars and Circular Memoranda. Psychological support service is also made available to staff in need through a hotline. During the reporting year, we signed the Mental Health Workplace Charter to demonstrate our commitment in listening to and caring for our staff.

As at March 2020, we had a total of 5 726 staff members (2018/19: 5 566), who included full-time, permanent and contract employees. No part-time staff was recorded. The new hire rate and turnover rate were 11.2% and 6.3% respectively in this reporting year.

²⁹ Breakdown of Directorate is added in 2019/20.

多元化與平等機會

機電署矢志為轄下團隊營造多元化的良好工作環境，絕不容許出現任何形式的歧視、騷擾和誹謗行為，並確保所有員工均享有公平及公正的待遇。為推動有特殊需要的人士就業，我們繼續參與《有能者·聘之約章》及共融機構嘉許計劃，2019/20年度共僱用209名輕度殘疾人士，約佔員工總人數3.7%。

我們秉持企業文化，尊重人權和員工在作業場所應有的權利，嚴禁轄下任何單位聘用強迫及強制性勞工。本匯報年度並無發現任何營運或供應商違反關於童工及強迫勞工的法規，亦無任何涉及歧視的事件。

職業安全與健康

職業安全與健康（職安健）對本署營運至為重要。因此，我們於綜合管理系統下設立機電工程營運基金的職安健管理系統，專責規劃、實施、評估和持續改善所有職安健措施。我們嚴格遵守機電署的安全與健康政策，執行機電工程時必定將安全放在首要位置。

職安健管理

機電工程營運基金的職安健管理系統採用最新的ISO 45001:2018國際標準並於匯報年度內取得認證，藉此確保員工及承辦商的作業安全與健康。我們積極主動管理職安健事務，成立職安健策導委員會以全面統籌和監察本署營運上的職安健表現，亦設立部別職安健委員會促進溝通和推行保障工作間安全與健康的作業方法。上述兩個委員會均定期舉行會議，商討內部措施和評估職安健表現以識別改善範疇。截至2020年3月31日，全體員工均在部別職安健委員會中設有代表。

為能在早期階段採取預防措施，我們在綜合管理系統的框架下編製系統程序手冊，識別與作業相關的危險程序和評估風險。本署轄下的策略業務單位均會根據各自的業務性質進行風險評估，然後擬定相關的作業指示防範職安健危險或緩解潛在影響。在員工層面，我們為每位同事提供必要的個人防護設備及裝備，盡量避免工業意外發生。

員工發現任何安全危害均應向直屬上司報告，組別安全督導員或部別安全主任負責跟進、調查和處理所有合理查詢，保障員工免被報復。員工如有任何疑問應諮詢直屬上司。為不斷改善職安健管理系統，我們定期進行內部審計。

Diversity and Equal Opportunities

The EMSD is committed to creating a diversified and supportive working environment for all employees. We have zero tolerance for any form of discrimination, harassment and vilification in the workplace, while ensuring all employees are treated fairly and equally. To promote employment with special needs, we continued to support the Talent-Wise Employment Charter and Inclusive Organisations Recognition Scheme. 209 staff members with minor disabilities were employed in 2019/20, representing about 3.7% of our total workforce.

Our respect for human rights and workplace rights is ingrained in our culture where the use of forced or compulsory labour is forbidden at all units. During the reporting year, we did not identify any breach of laws and regulations on child and forced labour at any EMSD operations or by any of our suppliers, and no incident of discrimination was recorded.

Occupational Safety and Health

Occupational safety and health (OSH) is central to our operations. As such, an OSH management system has been established as part of our Integrated Management System for the EMSTF to govern the planning, implementation, evaluation and continuous improvement of our OSH practices. We strictly adhere to the EMSD Safety and Health Policy that stipulates work safety as the foremost consideration for our staff when delivering any E&M services.

OSH Management

Our OSH management system follows the latest international standard of ISO 45001:2018, which has been certified for the EMSTF during the reporting year to safeguard workplace safety and health for our staff and contractors. To manage OSH related matters proactively, we established the Steering Committee on OSH to take a leading role in overseeing and monitoring OSH performance across our operations, while the Divisional Occupational Safety and Health Committees (DivOSHCs) have been set up to enhance communication and adoption of workplace safety and health practices. Both committees hold regular meetings to review internal measures and evaluate OSH performance to identify areas for improvement. All workforce was represented by the DivOSHCs as at 31 March 2020.

To adopt preventive measures at an early stage, we have established a System Procedure Manual to identify work-related hazards and conduct risk assessment under our Integrated Management System. Each of our Strategic Business Units is required to carry out its own risk assessment based on business nature and then establish relevant work instructions to prevent OSH hazards or mitigate potential impacts. Staff members are provided with necessary personal protective equipment and gear to minimise occupational injuries.

Colleagues are required to report any safety hazard identified to their immediate supervisor. The Sectional Safety Supervisor or Safety Officer of the division is responsible for following up, investigating and responding to all reasonable enquiries to protect staff from reprisal. Employees should always seek their supervisors' advice in case of doubt. Internal audits are conducted periodically to drive continuous improvement in our OSH management system.

社會成效 Social Performance

加強職安健意識培訓

我們不時透過多元化渠道向員工分享職安健宣傳材料，包括但不限於部門內聯網、內部刊物及電郵。此外，為提高不同崗位員工的職安健意識，我們亦定期舉辦講座、比賽和安全訓練，包括安排強制性基本安全訓練課程、安全督導員培訓及一般職安健培訓課程。

除為本署團隊安排安全培訓，我們亦致力保障承辦商人員的安全與健康。機電署舉辦的承辦商研討會向他們推廣最新的安全標準和相關措施，鼓勵其養成安全作業的習慣。我們亦要求承辦商遵從政府合約的《工地安全特別規格》，為工地工人提供必要的安全培訓。

OSH Awareness Training

OSH promotional materials are regularly shared with staff through various channels, including but not limited to the departmental intranet, internal publications and emails. To reinforce the awareness of staff at all levels for safety related issues, we regularly organise seminars, competitions and safety training sessions, including Mandatory Basic Safety Training, Safety Supervisor Training, and General OSH Training.

In addition to providing safety training to our internal staff, we also care about contractors' safety and health. The EMSD Contractors Forum promotes the latest safety standards and relevant measures to encourage safety behaviour among workers. As detailed in "Particular Specifications on Site Safety" in government contracts, contractors are required to provide necessary safety training for their site workers.



定期舉辦安全比賽。
Regularly organising safety competition.

培訓及發展

機電署非常重視員工發展，提供各類培訓及發展課程以提升其專業和個人技能，並定期安排反貪污等有關員工操守及其他監管規定的培訓課程。

我們在員工培訓方面的努力於公務員優質服務獎勵計劃2019獲得表揚。機電署的參賽項目「非一般創新訓練」奪得隊伍獎(內部支援)金獎和特別嘉許獎(創科應用)。年內我們躋身「ERB(僱員再培訓局)人才企業嘉許計劃」的「人才企業」之列，嘉許我們不遺餘力地培訓及發展人才。

於本匯報年度，位於機電署總部大樓的技能評估中心及技能發展中心正式啟用，為技術人員提供更多先進設施作技術培訓之用。

Training and Development

The EMSD prioritises staff development and offers a series of training and development programmes to enhance employees' professional and personal skills. Training sessions related to staff conduct, such as anti-corruption, and other regulatory requirements, are also conducted on a regular basis.

Our effort to promote staff training was recognised by the Civil Service Outstanding Service Award Scheme 2019. Our submission "Training Beyond Innovation" won a Gold Prize in Team Award (Internal Support) and a Special Citation Award (Application of Innovation and Technology). We were also named Manpower Developer under the Employees Retraining Board Manpower Developer Award Scheme in recognition of our outstanding achievements in manpower training and development.

During the reporting year, the Skill Assessment Centre and the Skill Development Centre opened at the EMSD HQs Building to provide our technical staff with more advanced facilities for conducting technical training programmes.

員工培訓

我們的培訓內容均按年度部門培訓發展計劃而制訂，內容包括工作技能、證書和職業發展等課程。本匯報年度約有40 000人次報讀培訓課程，與去年情況相若。按性別及職系劃分的平均培訓時數³⁰如下：

Training for our Staff

Training contents are determined according to our annual Departmental Training and Development Plan which covers job skills, certificate courses and career development. Similar to the previous year, around 40 000 counts of attendees participated in training programmes during the reporting year. Average training hours³⁰ by gender and grade are as follow:

2019/20 年度按性別劃分的平均培訓時數 Average Training Hours by Gender in 2019/20



2019/20 年度按職系劃分的平均培訓時數 Average Training Hours by Grade in 2019/20



工程人員培訓

機電署的見習工程師訓練計劃推出至今超過30年，為見習工程師提供專業工程訓練，助他們考取專業工程師資格。見習工程師被安排到機電署不同部別和其他政府部門實習，藉此汲取理論知識和工作訓練，掌握實用技能，為長遠事業發展打好基礎。本計劃迄今已成功培訓超過500名專業工程人才，為機電署服務。

技術人員培訓

技術員訓練計劃的學員有機會到政府轄下不同場所操作各類機電工程系統，提升技能。除此之外，技術員訓練計劃的前線導師教授各類在職培訓前，我們定期為其舉辦簡報會，確保他們緊貼計劃的最新資訊。

Training for Engineering Professionals

The EMSD Engineering Graduate Training Scheme has been in operation for more than 30 years to provide professional engineering training for engineering graduates to attain professional engineer qualifications. Assigned to different divisions within the EMSD and other government departments, these engineering graduates are equipped with theoretical knowledge, hands-on training and practical skills to support their long-term career development. To date, the scheme has successfully trained more than 500 engineering professionals serving the EMSD.

Training for Technicians

Our technician trainees have opportunities to brush up their skills by operating E&M engineering systems at different government premises under the Technician Training Scheme. In addition, regular briefing sessions are organised for frontline trainers to keep them abreast of the latest information about the scheme before delivering relevant training to participants for on-job training.

³⁰ 平均培訓時數是按員工培訓日數乘以每日培訓小時數(6小時)再除以員工年末總人數計算。

³⁰ Average training hour was calculated by employee training days times training hours (6 hours) per day, and then divided by total number of employees at the year-end.

社會成效 Social Performance

隨着我們於2018年與廣州市工貿技師學院及廣州市人力資源和社會保障局簽署合作備忘錄，旨在協力培訓機電人才，年內我們派出多名技術員到中國內地作專業交流，促進提升機電業的服務品質與水準。另外，六個位於廣州及香港的培訓基地為「世界技能大賽」的參賽者提供聯合培訓和業界交流平台。

員工溝通

工作場所的開放溝通可營造活力和提升營運效率，正因如此，機電署十分重視員工的意見及建議。為保持雙向溝通，我們設立不同渠道鼓勵員工發表意見和提出建議。

員工諮詢途徑

我們定期聘請獨立專門機構進行員工滿意度調查，藉以聽取員工意見。於2019/20年度，我們設立網上平台整合及分享各部別建議的行動方案，以回應員工在調查提出的議題。

我們鼓勵所有員工向管理層表達意見，不論透過正式溝通途徑或午餐聚會等輕鬆員工活動。員工如對勞工措施不滿，他們的申訴均會記錄在案，然後透過正式機制審視和解決，確保員工的投訴得到妥善處理。除依循正式的員工投訴程序處理投訴，機電署的部門協商委員會亦探訪和約見前線員工，深入了解他們的需要與關注議題。

正式溝通途徑 Formal Communication Channels

部門協商委員會
Departmental
consultative committee
4 個
nos.

部別協商委員會
Divisional
consultative committee
5 個
nos.

部門工會和組織
Staff union and
association
11 個
nos.

Subsequent to signing the memoranda of co-operation with the Guangzhou Industry and Trade Technician College and the Guangzhou Municipal Human Resources and Social Security Bureau in 2018 on the collaboration of E&M talent development, we sent some of our technicians to the Mainland of China for professional exchanges, which have further enhanced the service quality and standards of E&M sectors. Also, six training bases were established in Guangzhou and Hong Kong to provide joint training for the WorldSkills Competition and exchange with the trade.

Staff Communication

Open communication is essential to vibrant and productive operation in the workplace. The EMSD pays close attention to its employees' opinions and feedback. To establish two-way communication with our staff, we have set up a number of channels for colleagues to express their opinions and make suggestions.

Staff Consultation Channels

We engage an independent specialist to conduct a staff satisfaction survey periodically to gauge employees' views. In 2019/20, we established an online platform to consolidate and share action plans proposed by different divisions to follow up issues raised in the survey.

All employees are welcome to exchange their views with the management through both formal communication channels and casual staff events, such as luncheons. Discontent related to labour practices are filed, addressed and resolved through formal mechanisms to ensure proper handling of staff complaints. Apart from registering grievances through the formal Staff Complaints Procedure, the departmental consultative committees also make on-site visits and interview the frontline staff to understand their needs and concerns.

聯繫我們的員工

為鼓勵員工提升機電署的生產力及表現，我們推行多項員工建議的計劃，包括工作改善小組計劃、員工建議書計劃及業務流程改善計劃。我們於本匯報年度共接獲104項員工建議，並已上載內聯網作分享。

匯報年度內我們亦舉辦「好人好事嘉許計劃」，表彰努力建立用心服務社群團隊的員工。

我們將2019年4月定為「員工攜手同行月」，藉此幫助員工維持作息平衡和推廣工作關懷文化，並鼓勵他們參與各式各樣員工活動。2019/20年度其他精彩的員工活動包括：

Engaging our Staff

Motivating our employees to enhance productivity and performance of the EMSD, we have put into effect various programmes, including the Work Improvement Team Scheme, the Staff Suggestion Scheme, and the Business Process Improvement, calling for proposals suggested by colleagues. During the reporting year, a total of 104 staff suggestion proposals were received, and they were uploaded to our intranet for sharing.

In addition, we organised "Good People, Good Deeds Commendation Scheme", a staff appreciation scheme, during the reporting year to award employees who contribute to building a team to serve the community with heart.

To help our employees maintain a work-life balanced lifestyle and promote a caring culture in the workplace, we named April 2019 the "Hand-in-Hand with Staff Month". Colleagues are encouraged to participate in a variety of staff activities. In addition, a number of staff engagement activities were organised in 2019/20, as highlighted below:

舉辦「Inno@E&M創新科技挑戰賽」及創新科技活動及工作坊，培養員工對創新科技的興趣。
Organising Inno@E&M Challenge and InnoEvent Series with workshops to arouse employees' interests in innovation and technology.

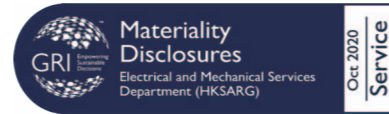


逾1 500位員工參與「EM員工鬆一鬆」活動，包括「音樂茶座」及「電競體驗坊」。
More than 1 500 EMSD employees participating in "EM Staff Chill-out" activities, including Lunch Concerts and Virtual Reality video game experience session.



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GRI CONTENT INDEX



對於本報告的英文版，全球報告倡議組織確認本報告按清晰表述全球報告倡議組織內容索引以及標示「一般披露」102-40至102-49的位置。

For the Materiality Disclosures Service, GRI Services reviewed that the GRI content index is clearly presented and the references for Disclosures 102-40 to 102-49 align with appropriate sections in the body of the report. The service was performed on the English version of the report.

可持續發展報告標準 GRI Standards	一般披露 General Disclosures	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance	
GRI 101: 基礎 2016 GRI 101: Foundation 2016					
GRI 102: 一般披露 2016 GRI 102: General Disclosures 2016					
機構簡介 Organisational Profile					
102-1	機構名稱 Name of the organisation	關於本報告 About this Report	p. 146	✓	
102-2	業務活動、品牌、產品及服務 Activities, brands, products, and services	部門簡介及架構 Organisational Profile and Structure	封面內頁 Inner page of cover	✓	
102-3	機構總部的地址 Location of headquarters	香港九龍啟成街3號 3 Kai Shing Street, Kowloon, Hong Kong	-	✓	
102-4	營運地點 Location of operations	只限香港 Hong Kong only	-	✓	
102-5	擁有權及法律形式 Ownership and legal form	屬於中華人民共和國香港特別行政區政府的一部分 Part of the Government of the Hong Kong Special Administrative Region of the People's Republic of China	-	✓	
102-6	所服務的市場 Markets served	中國香港 Hong Kong, China	-	✓	
102-7	機構的規模 Scale of the organisation	機電工程署二零一九至二零年年報 EMSD Annual Report 2019/20	p. 22-23, 97	✓	
		社會成效 Social Performance	p. 176	✓	
8 RECENT WORK AND ECONOMIC GROWTH 近期工作和經濟增長	102-8	有關僱員及其他員工的資料 Information on employees and other workers	社會成效 Social Performance	p. 176	✓
			全球報告倡議組織內容索引 GRI Content Index	p. 182	
			統計資料摘要 Summary of Statistics	p. 197-198	
102-9	供應鏈 Supply chain	可持續發展管理方針 Sustainability Management Approach	p. 153	✓	
		* 機電工程署聘請了2 875名供應商，他們大多負責提供機電安裝、運作及保養相關的零件/設備及服務。 * There are 2 875 suppliers engaged by the EMSD. They are mainly involved in provision of parts/equipment and services related to E&M installation, operation and maintenance.			
102-10	機構與其供應鏈方面的重大改變 Significant changes to the organisation and its supply chain	關於本報告 About this Report	p. 146	✓	
102-11	謹慎方針或原則 Precautionary principle or approach	可持續發展管理方針 Sustainability Management Approach	p. 150	✓	
102-12	由外部所制訂的倡議 External initiatives	可持續發展管理方針 Sustainability Management Approach	p. 155-158	✓	

可持續發展報告標準 GRI Standards	一般披露 General Disclosures	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance
102-13	機構參與的協會的會員資格 Membership of associations	* 機電工程署屬於以下協會的成員： 1) 保障資料主任聯會 2) 歐洲標準委員會 3) 綠十字會 4) 香港職業安全衛生協會 5) 英國燃氣專業學會 6) 國際纜車監管機構會議 * The EMSD holds membership in the following associations: 1) Data Protection Officers' Club 2) European Committee for Standardisation 3) Green Cross Group 4) Hong Kong Occupational Safety and Health Association 5) Institution of Gas Engineers and Managers 6) Internationale Tagung der Technischen Aufsichts-Behörden (International Meeting of Technical Authorities of Cableways)	-	✓
策略 Strategy				
102-14	最高決策者的聲明 Statement from senior decision-maker	機電工程署二零一九至二零年年報 EMSD Annual Report 2019/20	p. 2-9	✓
102-15	重大影響、風險及機遇 Key impacts, risks, and opportunities	可持續發展管理方針 Sustainability Management Approach	p. 149-150	✓
道德與誠信 Ethics and Integrity				
102-16	價值、原則、標準和行為規範 Values, principles, standards, and norms of behaviour	機電工程署二零一九至二零年年報 EMSD Annual Report 2019/20	p. 11, 91	✓
管治 Governance				
102-18	管治結構 Governance structure	* 我們的管治結構載於： https://www.emsd.gov.hk/tc/about_us/our_organisation/ 我們的品質、環境及生產力策導委員會及職安健康策導委員會負責經濟、環境和社會議題的決策。 * Our governance structure is listed on our website at: https://www.emsd.gov.hk/en/about_us/our_organisation/ Our Quality, Environmental & Productivity Steering Committee and Steering Committee on OSH are responsible for decision-making on economic, environmental and social topics.	-	✓
102-20	管理層在經濟、環境和社會議題方面的責任 Executive-level responsibility for economic, environmental, and social topics	* 我們的高級管理層參與了品質、環境及生產力策導委員會以及內部環保採購工作小組。機電署的助理署長負責監督機構內部的可持續發展議題。 * Our senior management staff participates in Quality, Environmental & Productivity Steering Committee and internal working group on green procurement. Assistant Directors of the EMSD are appointed to oversee sustainability issues within the organisation.	-	✓

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可持續發展報告標準 GRI Standards	一般披露 General Disclosures	參照 / * 直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance
持份者參與 Stakeholder Engagement				
102-40	持份者群體清單 List of stakeholder groups	關於本報告 About this Report	p. 147	✓
102-41	集體談判協議 Collective bargaining agreements	* 共有 11 個機電工程署工會由員工以自願性質參與，另有九個員工協商委員會代表不同職系及職級的機電工程署員工就員工福利與部門溝通。全體的員工(100%)都受集體談判協議的保障。 * There are 11 EMSD staff unions joined on voluntary basis. There are also nine departmental consultative committees who are representatives of all grades and ranks of the EMSD staff to liaise with the Department for the well-being of the staff. All of our employees (100%) are covered by collective bargaining agreements.	-	✓
102-42	界定及挑選持份者 Identifying and selecting stakeholders	關於本報告 About this Report 可持續發展管理方針 Sustainability Management Approach	p. 147 p. 151-152	✓
102-43	引入持份者參與的方針 Approach to stakeholder engagement	關於本報告 About this Report 可持續發展管理方針 Sustainability Management Approach	p. 147 p. 151-152	✓
102-44	提出的主要議題及關注事項 Key topics and concerns raised	關於本報告 About this Report	p. 148	✓
報告方式 Reporting Practice				
102-45	財務報表所包含的單位 Entities included in the consolidated financial statements	關於本報告 About this Report	p. 146	✓
102-46	界定報告內容及議題界限 Defining report content and topic boundaries	關於本報告 About this Report	p. 146-148	✓
102-47	重要議題清單 List of material topics	關於本報告 About this Report	p. 148	✓

可持續發展報告標準 GRI Standards	一般披露 General Disclosures	參照 / * 直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance
102-48	重整信息 Restatements of information	* (1) 上年度報告的統計資料摘要中，區域供冷系統的耗冷量單位從「000 千瓦小時」更正為「000 千瓦小時(冷凍)」，因此上年度報告中披露的 2017/18 與 2018/19 年度數據分別更正為 6 562 000 千瓦小時(冷凍) 和 8 532 000 千瓦小時(冷凍)。 (2) 上年度報告的統計資料摘要中，潤滑油用量從 2 378 公升更正為 4 235 公升，碳粉盒回收量從 2 500 個更正為 2 519 個。 (3) 上年度報告中披露的能源強度(p.138) 更正單位為「千瓦小時/員工」和 2018/19 年度用電量(p.139) 更正為 42 305 千兆焦耳，以與統計資料摘要一致。 * (1) In the Summary of Statistics of the report last year, the unit of cooling energy supplied by district cooling system was revised from "000 kWh" to "000 kWh", therefore, the figures in 2017/18 and 2018/19 disclosed in the report last year were updated to 6 562 000 kWh and 8 532 000 kWh, respectively. (2) In the Summary of Statistics of the report last year, lubrication oil consumption amount was revised from 2 378 L to 4 235 L, and toner cartridges recycle amount was revised from 2 500 to 2 519. (3) The unit of energy intensity (p.138) and electricity consumption in 2018/19 (p.139) disclosed in the report last year were revised to "kWh/employee" and 42 305 GJ respectively to align with the Summary of Statistics.	-	✓
102-49	匯報上的改變 Changes in reporting	關於本報告 About this Report * 「合規」和「反歧視」為新增重要議題。「節約用水」和「間接經濟影響」沒有識別為供應商的重要議題邊界。「關於本報告」章節亦概述了新添加的議題邊界。 * "Compliance" and "Non-discrimination" were newly-added material topics. "Water conservation" and "Indirect economic impact" were not identified as material boundaries for suppliers. Newly added topic boundaries were also outlined in "About this Report".	p. 148	✓
102-50	匯報期 Reporting period	關於本報告 About this Report	p. 146	✓
102-51	上一份報告的日期 Date of most recent report	2019 年 12 月 December 2019	-	✓
102-52	匯報周期 Reporting cycle	關於本報告 About this Report	p. 146	✓
102-53	查詢報告的聯絡點 Contact point for questions regarding the report	關於本報告 About this Report	p. 148	✓
102-54	按照 GRI 標準提出的匯報申述 Claims of reporting in accordance with the GRI Standards	關於本報告 About this Report	p. 146	✓
102-55	全球報告倡議組織內容索引 GRI content index	全球報告倡議組織內容索引 GRI Content Index	p. 182-193	✓
102-56	外部認證 External assurance	關於本報告 About this Report 獨立保證意見聲明書 Independent Assurance Opinion Statement	p. 146 p. 201-204	✓

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可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance	
經濟 Economic					
經濟成效 (財務表現) Economic Performance (Financial Performance)					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	機電工程署二零一九至二零年年報 EMSD Annual Report 2019/20	p. 97	✓	
	103-2	關於本報告 About this Report	p. 148		
	103-3				
GRI 201: 經濟績效 2016 GRI 201: Economic Performance 2016	201-1	機構所產生及分配的直接經濟價值 Direct economic value generated and distributed	機電工程署二零一九至二零年年報 EMSD Annual Report 2019/20	p. 97	✓
	 體面工作和經濟增長  產業、創新和基礎設施				
間接經濟影響 Indirect Economic Impacts					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	社會成效 Social Performance	p.168-175		
	103-3				
GRI 203: 間接經濟影響 2016 GRI 203: Indirect Economic Impacts 2016	203-1	基礎設施投資與支援性服務 Infrastructure investments and services supported	機電工程署二零一九至二零年年報 EMSD Annual Report 2019/20	p. 14-19, 96-101	✓
	203-2	重大間接經濟影響 Significant indirect economic impacts	社會成效 Social Performance	p. 168-175	✓
 體面工作和經濟增長					

可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance	
採購實務 Procurement Practices					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	可持續發展管理方針 Sustainability Management Approach	p. 153-154		
	103-3	環保成效 Environmental Performance	P. 165		
GRI 204: 採購實務 2016 GRI 204: Procurement Practices 2016	204-1	本地供應商採購的支出比例 Proportion of spending on local suppliers	* 物料供應分部的服務及產品主要購自本地(即指香港)供應商/承辦商或分銷商。香港以外的供應商於2019/20年度只佔大約0.13% * Acquisition of services and goods handled by Supplies sub-division are mainly from local (i.e Hong Kong) suppliers/contractors or local agents. Suppliers outside Hong Kong only take up around 0.13% in 2019/20.	-	✓
	遵守市場行為法規 Market Behaviour Compliance				
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	可持續發展管理方針 Sustainability Management Approach	p. 154		
	103-3	統計資料摘要 Summary of Statistics	p. 200		
GRI 206: 反競爭行為 2016 GRI 206: Anti-competitive Behavior 2016	206-1	就反競爭行為、反壟斷及壟斷獨營手法採取法律行動 Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	統計資料摘要 Summary of Statistics	p. 200	✓
	環境 Environmental				
物料 Materials					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-3	環保成效 Environmental Performance	p. 165		
	GRI 301: 物料 2016 GRI 301: Materials 2016	301-1	所採用原材料的重量或體積 Materials used by weight or volume	統計資料摘要 Summary of Statistics	p. 195
 負責任消費和生產					

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可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance	
能源 Energy					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	環保成效 Environmental Performance	p. 165-167		
	103-3				
GRI 302: 能源 2016 GRI 302: Energy 2016	302-1	機構內部的能源消耗量 Energy consumption within the organisation	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 165-167 p. 194	✓
	302-3	能源強度 Energy intensity	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 165-166 p. 194	✓
	302-4	減少能源的消耗 Reduction of energy consumption	環保成效 Environmental Performance	p. 166	✓
水 Water					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	環保成效 Environmental Performance	p. 164		
	103-3				
GRI 303: 水資源與污水 2018 GRI 303: Water and Effluents 2018	303-1	水資源共享的處理 Interactions with water as a shared resources	* 受 2019 冠狀病毒病影響，水務署暫停例行抄讀服務。因此不能全面提供 2019/20 年度用水量數據，預計相關數據將於下一份報告匯報。 * In light of coronavirus pandemic, routine meter readings services was suspended temporarily, and the 2019/20 water consumption data is not yet available. The relevant data is expected to be disclosed in the next report.	-	✓
	303-2	排水管理及影響 Management of water discharge-related impacts	環保成效 Environmental Performance	p. 164	✓
	303-5	耗水量 Water consumption	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 164 p. 194	✓

可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance	
生物多樣性 (生態保育) Biodiversity (Ecological Conservation)					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	環保成效 Environmental Performance	p. 164		
	103-3				
GRI 304: 生物多樣性 2016 GRI 304: Biodiversity 2016	304-1	機構所擁有、租賃、管理的營運地點或其鄰近地區位於環境保護區或區外的具有重要生物多樣性價值的地區或其毗鄰地區。 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	* 機構所擁有、租賃、管理的營運地點均不在環境保護區或區外的具有重要生物多樣性價值的地區或其毗鄰地區。 * No operation sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	-	✓
排放物 Emissions					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	環保成效 Environmental Performance	p. 165-166		
	103-3				
GRI 305: 排放 2016 GRI 305: Emissions 2016	305-1	直接溫室氣體排放 (範圍一) Direct (Scope 1) GHG emissions	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 166 p. 194	✓
	305-2	能源間接溫室氣體排放 (範圍二) Energy indirect (Scope 2) GHG emissions	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 166 p. 194	✓
	305-3	其他間接溫室氣體排放 (範圍三) Other indirect (Scope 3) GHG emissions	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 166 p. 194	✓
	305-5	溫室氣體減排量 Reduction of GHG emissions	環保成效 Environmental Performance	p. 166	✓

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可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance	
污水及廢物 Effluents and Waste					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	環保成效 Environmental Performance	p. 164-165		
	103-3				
GRI 306: 污水和廢物 2016 GRI 306: Effluents and Waste 2016	12 RESPONSIBLE CONSUMPTION AND PRODUCTION 負責任消費和生產	306-2 按類別及處置方法劃分的廢物 Waste by type and disposal method	環保成效 Environmental Performance	p. 165	✓
			統計資料摘要 Summary of Statistics	p. 196	
評估供應商/承辦商的环境表現 Supplier Environmental Assessment					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	環保成效 Environmental Performance	p. 165		
	103-3				
GRI 308: 供應商環境評估 2016 GRI 308: Supplier Environmental Assessment 2016	308-1	按照環境準則篩選的新供應商 New suppliers that were screened using environmental criteria	* 機電署未有用環保標準篩選新供應商。本署歡迎所有供應商登記成為機電工程署的供應商，並會記錄他們的環保產品。 * No new suppliers were screened using environmental criteria by the EMSD. All suppliers are welcome to register on the EMSD Suppliers List and their environment-friendly products would be recorded.	-	✓
社會 Social					
僱員關係 Employment					
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓	
	103-2	社會成效 Social Performance	p. 176		
	103-3				
GRI 401: 僱員 2016 GRI 401: Employment 2016	3 GOOD HEALTH AND WELL-BEING 良好健康與福祉	401-1 新入職員工及員工離職率 New employee hires and employee turnover	社會成效 Social Performance	p. 176	✓
			統計資料摘要 Summary of Statistics	p. 197-198	
	8 DECENT WORK AND ECONOMIC GROWTH 體面工作和經濟增長	401-2 不提供予臨時或兼職員工的全職員福利 Benefits provided to full-time employees that are not provided to temporary or part-time employees	* 公務員及非公務員僱員如符合相關規定及守則要求，均享有醫療及牙醫服務、教育津貼、年假、房屋津貼等。 * Employees appointed on civil service and non-civil service terms are entitled with medical and dental services, education allowance, leave and passage, housing benefit, etc. if they meet the eligibility criteria as stipulated in the relevant rules and regulations.	-	✓

可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance		
職業健康及安全 Occupational Health and Safety						
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓		
	103-2	社會成效 Social Performance	p. 177-178			
	103-3					
GRI 403: 職業健康與安全 2018 GRI 403: Occupational Health and Safety 2018	3 GOOD HEALTH AND WELL-BEING 良好健康與福祉	403-1 職業健康與安全管理體系 Occupational health and safety management system	社會成效 Social Performance	p. 177	✓	
		403-2 危險辨識、風險管理及事故調查 Hazard identification, risk management, and incident investigation	社會成效 Social Performance	p. 177	✓	
		403-3 職業健康服務 Occupational health services	社會成效 Social Performance	p. 177-178	✓	
		403-4 員工參與、諮詢及溝通有關職業健康及安全的事宜 Worker participation, consultation, and communication on occupational health and safety	社會成效 Social Performance	p. 177	✓	
			* 部別職安健委員會及職安健策導委員會代表規管及營運服務，即是機電署的全體員工。部別職安健委員會每三個月開會一次，而職安健策導委員會每三至六個月開會一次。 * Both Regulatory and Trading Services of the EMSD, which represented the whole workforce of the EMSD, represented by the Divisional Occupational Safety and Health Committees and Steering Committee on Occupational Safety and Health. The Divisional Occupational Safety and Health Committees meet every three months, while Steering Committee on Occupational Safety and Health meets every three to six months.			
		403-5 員工職業健康及安全培訓 Worker training on occupational health and safety	社會成效 Social Performance	p. 178	✓	
		403-6 促進員工健康 Promotion of worker health	可持續發展管理方針 Sustainability Management Approach	p. 153	✓	
			社會成效 Social Performance	p. 176		
		403-7 預防和減輕與業務關係直接相關的職業健康和安全的影響 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	社會成效 Social Performance	p. 177-178	✓	
		403-9 因工受傷 Work-related injuries	社會成效 Social Performance	p. 177	✓	
	統計資料摘要 Summary of Statistics	p. 199				

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可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance
培訓與教育 Training and Education				
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓
	103-2	社會成效 Social Performance	p. 178-180	
	103-3			
GRI 404: 培訓與教育 2016 GRI 404: Training and Education 2016	404-1	每名員工每年接受培訓的平均小時數 Average hours of training per year per employee	p. 179 p. 200	✓
	404-3	定期接受成效及職業發展評估的員工百分比 Percentage of employees receiving regular performance and career development reviews	-	✓
		* 報告期內，100%的機電署員工接受工作表現評估及培訓需要評估。 * 100% of the EMSD's employees received performance review as well as evaluation on training needs during the reporting period.		
多元化與平等機會 Diversity and Equal Opportunity				
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓
	103-2	社會成效 Social Performance	p. 177	
	103-3			
GRI 405: 多元化與平等機會 2016 GRI 405: Diversity and Equal Opportunity 2016	405-1	管治機構及員工多樣性 Diversity of governance bodies and employees	p. 177 p. 197-198	✓
		* 機電署沒有員工多樣性相關資料提供。 * The EMSD does not hold any information on diversity of employees.		
反歧視 Non-discrimination				
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓
	103-2	社會成效 Social Performance	p. 177	
	103-3			
GRI 406: 反歧視 2016 GRI 406: Non-discrimination 2016	406-1	歧視事件及採取的糾正行動 Incidents of discrimination and corrective actions taken	p. 177	✓



可持續發展報告標準 GRI Standards	特定議題標準 Topic-specific Standards	參照 / *直接解釋 Reference / * Direct Answer	頁數 Page No.	外部認證 External Assurance
客戶健康及安全 Customer Health and Safety				
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	機電工程署二零一九至二零年年報 EMSD Annual Report 2019/20	p. 24-67	✓
	103-2	關於本報告 About this Report	p. 148	
	103-3	可持續發展管理方針 Sustainability Management Approach	p. 150	
GRI 416: 客戶健康及安全 2016 GRI 416: Customer Health and Safety 2016	416-2	關於產品及服務健康與安全影響的違規事件 Incidents of non-compliance concerning the health and safety impacts of products and services	p. 200	✓
		統計資料摘要 Summary of Statistics		
客戶私隱 Customer Privacy				
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓
	103-2	可持續發展管理方針 Sustainability Management Approach	p. 153	
	103-3			
GRI 418: 客戶私隱 2016 GRI 418: Customer Privacy 2016	418-1	關於違反客戶私隱和遺失客戶資料而證明屬實的投訴 Substantiated complaints concerning breaches of customer privacy and losses of customer data	p. 200	✓
		統計資料摘要 Summary of Statistics		
遵守法規 Compliance				
GRI 103: 管理方針 2016 GRI 103: Management Approach 2016	103-1	關於本報告 About this Report	p. 148	✓
	103-2	可持續發展管理方針 Sustainability Management Approach	p. 150	
	103-3			
GRI 419: 社會經濟合規 2016 GRI 419: Socioeconomic Compliance 2016	419-1	違反社會與經濟領域的法律和法規 Non-compliance with laws and regulations in the social and economic areas	p. 200	✓

統計資料摘要

SUMMARY OF STATISTICS

環境 ENVIRONMENT

	單位 Unit	2017/18	2018/19	2019/20
能源³¹ Energy³¹				
柴油	千兆焦耳 ³² (GJ) ³² (升L)	3 298 (91 618)	2 790 (77 507)	3 880 (107 766)
Diesel				
汽油	千兆焦耳 ³² (GJ) ³² (升L)	11 068 (335 405)	11 848 (359 034)	10 848 (328 741)
Gasoline				
太陽能發電系統所生產的可再生電力 ³³	千兆焦耳 ³² (GJ) ³² (千瓦小時 kWh)	-	633 (175 631)	699 (194 121)
Renewable electricity generated from solar photovoltaic system ³³				
購買電力使用總量 ³⁴	千兆焦耳 ³² (GJ) ³² (‘000 千瓦小時 ‘000 kWh)	42 818 (11 894)	42 305 (11 751)	43 622 (12 117)
Total purchased electricity consumption ³⁴				
購買電力使用強度	千瓦小時/員工 kWh/employee	2 171	2 111	2 116
Purchased electricity consumption intensity				
水³⁵ Water³⁵				
水	立方米 m ³	16 061 ³⁶	13 348 ^{36,37}	- ³⁸
Water				
溫室氣體排放³⁹ GHG Emissions³⁹				
直接排放 (範圍一)	公噸二氧化碳當量 tCO ₂ e	1 152	1 186	1 187
Direct emissions (Scope 1)				
能源間接排放 (範圍二)	公噸二氧化碳當量 tCO ₂ e	6 152	6 065	6 127
Energy indirect emissions (Scope 2)				
其他間接排放 (範圍三) ⁴⁰	公噸二氧化碳當量 tCO ₂ e	-	-	75
Other indirect emissions (Scope 3) ⁴⁰				
總排放量	公噸二氧化碳當量 tCO ₂ e	7 304	7 251	7 389
Total emissions				

³¹ GRI 302-1，機電署為政府在啟德發展區營運區域供冷系統，提供耗冷量予附近建築物。隨着啟德持續發展，我們將分析及披露相關能源數據。

³² 系數的單位統一換算成千兆焦耳：柴油 (0.036千兆焦耳/升)、汽油 (0.033千兆焦耳/升)、電力 (0.0036千兆焦耳/千瓦小時)。

³³ 產生的可再生電力，只供內部使用。2017/18年度的數據沒有記錄。

³⁴ 購買電力的溫室氣體排放系數是根據兩家本地電力公司的可持續發展報告而釐定：0.81 kg CO₂e/kWh (香港電燈) 及 0.50 kg CO₂e/kWh (中電)。總用電量已包括太陽能發電系統所生產的電力。

³⁵ GRI 303-5

³⁶ 用水量包括總部大樓 (由第三方營運的員工飯堂除外) 和加路連山工場。

³⁷ 加路連山工場的水冷式空調系統於2018年年中終止後再無用水量，因此2018/19年度總用水量進一步下降。

³⁸ 受2019冠狀病毒病影響，水務署暫停例行抄讀服務。因此不能全面提供2019/20年度用水量數據，預計相關數據將於下一份報告匯報。

³⁹ GRI 305-1，GRI 305-2，GRI 305-3，參考《香港建築物 (商業、住宅或公共用途) 的溫室氣體排放及減除的審計和報告指引》 (由環境保護署及機電工程署發布)，溫室氣體包括二氧化碳、甲烷、氧化亞氮及氫氟碳化物。

⁴⁰ 2017/18及2018/19年度的數據沒有記錄。

³¹ GRI 302-1, the EMSD operates the District Cooling System at the Kai Tak Development for the Government, which supplies cooling energy to the neighbouring establishments. With the on-going development at Kai Tak, relevant energy data is to be analysed and disclosed in the future.

³² Conversion factors used to standardise the units to gigajoules (GJ): diesel (0.036GJ/L), gasoline (0.033GJ/L), electricity (0.0036GJ/kWh).

³³ The generated renewable electricity is for internal use only. No data record keeping in 2017/18.

³⁴ The emission factors of greenhouse gas emissions due to purchased electricity consumption are obtained from the sustainability reports of the two local electricity companies: 0.81 kg CO₂e/kWh (Hong Kong Electric) and 0.50 kg CO₂e/kWh (CLP). Total electricity consumption already included electricity generated from solar photovoltaic system.

³⁵ GRI 303-5

³⁶ Water consumption covers the headquarters (excluding staff canteen operated by third party) and workshops in Caroline Hill.

³⁷ Termination of water-cooled air-conditioning system at workshops in Caroline Hill after mid-2018 led to decrease in total water consumption in 2018/19.

³⁸ In light of coronavirus pandemic, routine meter readings services was suspended temporarily, and the 2019/20 water consumption data is not yet available. The relevant data is expected to be disclosed in the next report.

³⁹ GRI 305-1, GRI 305-2, GRI 305-3, made reference to the Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings of Commercial, Residential or Institutional Purposes in Hong Kong (by the Environmental Protection Department and the EMSD), greenhouse gas types include CO₂, CH₄, N₂O and HFCs.

⁴⁰ No data record keeping in 2017/18 and 2018/19.

	單位 Unit	2017/18	2018/19	2019/20
物料⁴¹ Material⁴¹				
不可再生材料 Non-renewable Materials				
油漆及溶劑	升 L	149	493	132
Paint & solvent				
潤滑油	升 L	1 809	4 235	3 565
Lubrication oil				
油脂	公斤 kg	249	492	264
Grease				
工業用氣體	立方米 m ³	25	0	0
Industrial gas				
蓄電池電解液	升 L	0	0	0
Battery electrolyte				
原子車胎	條 No.	220	230	217
Tubeless tyre				
外車胎	條 No.	160	0	0
Outer cover tyre				
車胎內膽	條 No.	30	0	0
Inner tube				
可再生材料 Renewable Materials				
紙張 ⁴²	令 ream	25 870	28 184	28 023
Paper ⁴²				

⁴¹ GRI 301-1

⁴² 機電署購買和使用的紙張全都是再造紙。

⁴¹ GRI 301-1

⁴² At the EMSD, we purchase and consume paper with recycled content.

統計資料摘要

Summary of Statistics

	單位 Unit	2017/18		2018/19		2019/20	
		棄置 Disposed	回收 Recycled	棄置 Disposed	回收 Recycled	棄置 Disposed	回收 Recycled
污水及廢物⁴³ Effluents and Waste⁴³							
無害廢物⁴⁴ Non-hazardous waste⁴⁴							
廢紙	公斤	6 895	26 431	4 307	30 596	7 755	22 435
Waste paper	kg						
鋁罐及金屬罐 ⁴⁵	個	-	27 063	-	20 750	0	17 375
Aluminium and metal cans ⁴⁵	No.						
膠樽 ⁴⁵	個	-	6 156	-	6 375	0	6 438
Plastic bottles ⁴⁵	No.						
即棄電池	公斤	667	529	546	310	290	131
Disposable batteries	kg						
金屬廢料	公斤	13 897	5 691	9 789	7 149	9 996	3 785
Metal scraps	kg						
有害廢物⁴⁶ Hazardous waste⁴⁶							
碳粉盒 ⁴⁷	個	-	2 589	2 640	2 519	2 960	2 345
Toner cartridges ⁴⁷	No.						
可充電電池 ⁴⁸	公斤	-	960	-	1 394	-	1 669
Rechargeable batteries ⁴⁸	kg						
廢油 ⁴⁸ (潤滑油)	升	-	2 895	-	4 801	-	4 720
Waste oil ⁴⁸ (lubrication oil)	L						
舊車胎 ⁴⁸	條	-	278	-	58	-	40
Used vehicle tyre ⁴⁸	No.						
舊光管/含水銀照明燈 ⁴⁸	盞	-	7 179	-	9 230	-	8 123
Spent fluorescent/mercury lamp ⁴⁸	No.						

⁴³ GRI 306-2

⁴⁴ 廢物處置方法根據本地政府要求處理。產生的無害廢物由合資格承辦商收集以作回收或妥善棄置。

⁴⁵ 2017/18及2018/19年度的棄置量數據沒有記錄。

⁴⁶ 廢物處置方法根據本地政府要求處理。產生的有害廢物由合資格承辦商收集以作回收。

⁴⁷ 2017/18年度的棄置量數據沒有記錄。

⁴⁸ 2017/18、2018/19及2019/20年度的棄置量數據沒有記錄。

⁴³ GRI 306-2

⁴⁴ Disposal method determined based on compliance with local government requirements. Non-hazardous waste are collected through licensed contractors for recycling or disposal to the landfills.

⁴⁵ No data record keeping for disposal in 2017/18 and 2018/19.

⁴⁶ Disposal method determined based on compliance with local government requirements. All hazardous waste are collected by licensed contractors for recycling.

⁴⁷ No data record keeping for disposal in 2017/18.

⁴⁸ No data record keeping for disposal in 2017/18, 2018/19 and 2019/20.

社會

SOCIAL

僱員人數⁴⁹ Employees Statistics⁴⁹

	截至2019年3月31日 (百分比) As of 31 March 2019 (Percentage)	截至2020年3月31日 (百分比) As of 31 March 2020 (Percentage)
總人數 Total number	5 566	5 726
男女分佈 By gender		
男性 Male	4 940 (88.8%)	5 061 (88.4%)
女性 Female	626 (11.2%)	665 (11.6%)
合約類型分佈 By employment type		
常任制 Permanent		
男性 Male	3 399 (87.3%)	3 437 (86.7%)
女性 Female	494 (12.7%)	529 (13.3%)
合約制 Contract		
男性 Male	1 541 (92.1%)	1 624 (92.3%)
女性 Female	132 (7.9%)	136 (7.7%)
年齡分佈 By age group		
50歲或以上 Aged 50 or above	1 696 (30.5%)	1 725 (30.1%)
30-49歲 Aged 30-49	2 593 (46.6%)	2 680 (46.8%)
29歲或以下 Aged 29 or under	1 277 (22.9%)	1 321 (23.1%)

2019/20新入職員工⁵⁰ 2019/20 New Hires⁵⁰

	截至2019年3月31日 (百分比) As of 31 March 2019 (Percentage)	截至2020年3月31日 (百分比) As of 31 March 2020 (Percentage)
總人數 Total number	605 (佔總員工10.9%) (10.9% of total employee)	643 (佔總員工11.2%) (11.2% of total employee)
年齡分佈 By age group		
50歲或以上 Aged 50 or above	86 (14.2%)	133 (20.7%)
30-49歲 Aged 30-49	147 (24.3%)	189 (29.4%)
29歲或以下 Aged 29 or under	372 (61.5%)	321 (49.9%)
男女分佈 By gender		
男性 Male	530 (87.6%)	566 (88.0%)
女性 Female	75 (12.4%)	77 (12.0%)

⁴⁹ GRI 102-8, GRI 405-1, 機電署並無聘用任何非僱員的工人, 所有員工均在香港執勤。

⁵⁰ GRI 401-1

⁴⁹ GRI 102-8, GRI 405-1, the EMSD does not employ workers who are not employees. All staff are based in Hong Kong.

⁵⁰ GRI 401-1

統計資料摘要

Summary of Statistics

2019/20 離職員工⁵⁰ 2019/20 Turnover⁵⁰

	截至 2019 年 3 月 31 日 (百分比) As of 31 March 2019 (Percentage)	截至 2020 年 3 月 31 日 (百分比) As of 31 March 2020 (Percentage)
總人數 Total number	172 (佔總員工 3.1%) (3.1% of total employee)	363 (佔總員工 6.3%) (6.3% of total employee)
年齡分佈 By age group		
50 歲或以上 Aged 50 or above	160 (93.0%)	219 (60.3%)
30-49 歲 Aged 30-49	2 (1.2%)	29 (8.0%)
29 歲或以下 Aged 29 or under	10 (5.8%)	115 (31.7%)
男女分佈 By gender		
男性 Male	153 (89.0%)	332 (91.5%)
女性 Female	19 (11.0%)	31 (8.5%)

管理層的結構⁵¹ Composition of Senior Management⁵¹

	截至 2019 年 3 月 31 日 (百分比) As of 31 March 2019 (Percentage)	截至 2020 年 3 月 31 日 (百分比) As of 31 March 2020 (Percentage)
總管理層人數 Total number of senior management staff	162 (佔總員工 2.9%) (2.9% of total employee)	147 (佔總員工 2.6%) (2.6% of total employee)
年齡分佈 By age group		
50 歲或以上 Aged 50 or above	107 (66.0%)	96 (65.3%)
30-49 歲 Aged 30-49	55 (34.0%)	51 (34.7%)
29 歲或以下 Aged 29 or under	0 (0%)	0 (0%)
男女分佈 By gender		
男性 Male	148 (91.4%)	133 (90.5%)
女性 Female	14 (8.6%)	14 (9.5%)

⁵⁰ GRI 401-1

⁵¹ GRI 405-1

⁵⁰ GRI 401-1

⁵¹ GRI 405-1

職業健康及安全指標⁵² Occupational Health and Safety Indicators⁵²

			2018/19	2019/20
機電署員工 For EMSD employees	死亡 Fatalities	數字 Number 比率 Rate	0 0	0 0
	嚴重工傷 ⁵³ High-consequence work-related injuries ⁵³	數字 Number 比率 Rate (按每 200 000 工時計算) (number per 200 000 man-hours)	0 0	4 0.06
	工傷 ⁵⁴ Recordable work-related injuries ⁵⁴	數字 Number 比率 Rate (按每 200 000 工時計算) (number per 200 000 man-hours)	26 0.41	29 0.44
	工作小時 Number of hours worked	小時 Hour	12 617 592	13 258 752
機電署承辦商 For EMSD contractors	死亡 Fatalities	數字 Number 比率 Rate	0 0	0 0
	嚴重工傷 ⁵³ High-consequence work-related injuries ⁵³	數字 Number 比率 Rate (按每 200 000 工時計算) (number per 200 000 man-hours)	0 0	1 0.03
	工傷 ⁵⁵ Recordable work-related injuries ⁵⁵	數字 Number 比率 Rate (按每 200 000 工時計算) (number per 200 000 man-hours)	5 0.15	4 0.11
	工作小時 Number of hours worked	小時 Hour	6 735 766	7 492 571

⁵² GRI 403-2

⁵³ 嚴重工傷 (不包括死亡) 指因工作而導致的損傷，從而使員工不能/不可/預計未能於六個月內回復傷前的健康狀態。

⁵⁴ 報告涉及機電署人員工作時的任何意外，包括未導致給予受傷人員病假的意外。2019/20 年度機電署員工工傷主要類型是滑倒、絆倒或在同一高度跌倒以及被手提工具弄傷。

⁵⁵ 2019/20 年度機電署承辦商工傷主要類型是高處墮下、滑倒、絆倒或在同一高度跌倒、遭移動或墮下的物件撞擊以及被手提工具弄傷。

⁵² GRI 403-2

⁵³ High-consequence work-related injuries (excluding fatalities) refer to work-related injury that results in an injury from which the worker cannot, does not, or is not expected to recover fully to pre-injury health status within six months.

⁵⁴ Any accident involving the EMSD personnel on duty reported, including those accidents which have not resulted in the granting of any sick leave to the injured person. Main types of work-related injury reported in 2019/20 for the EMSD employees were slip, trip or fall on the same level and injured by hand tool.

⁵⁵ Main types of work-related injury reported in 2019/20 for the EMSD contractors were fall of person, slip, trip or fall on the same level, striking by moving or falling object and injured by hand tool.

統計資料摘要 Summary of Statistics

培訓與教育⁵⁶ Training and Education⁵⁶

	單位 Unit	2017/18	2018/19	2019/20
平均受訓時數 ⁵⁷ Average training hours ⁵⁷				
男女分佈 By gender				
男性 Male	小時 Hour	-	-	25.0
女性 Female	小時 Hour	-	-	24.4
職系分佈 By grade				
高級管理層 Senior management	小時 Hour	-	-	53.8
一般員工 ⁵⁸ General staff ⁵⁸	小時 Hour	-	-	24.8

其他社會指標 Other Social Indicators

	單位 Unit	2017/18	2018/19	2019/20
須予呈報意外宗數 Reportable accidents	宗/千名員工 No./1 000 staff	3.65	4.70	3.93
就反競爭行為、反壟斷及壟斷獨營手法採取法律行動 Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	案件數量 No. of case	0	0	0
關於產品及服務健康與安全影響的違規事件 Incidents of non-compliance concerning the health and safety impacts of products and services	案件數量 No. of case	0	0	0
關於違反客戶私隱和遺失客戶資料而證明屬實的投訴 Substantiated complaints concerning breaches of customer privacy and losses of customer data	案件數量 No. of case	0	0	0

⁵⁶ GRI 404-1

⁵⁷ 2017/18及2018/19年度的數據沒有記錄。

⁵⁸ 一般員工指技術職系、專業職系和行政及輔助職系員工。

⁵⁶ GRI 404-1

⁵⁷ No data record keeping in 2017/18 and 2018/19.

⁵⁸ General staff refers to technical, professional, administrative and support staff.

獨立保證意見聲明書 INDEPENDENT ASSURANCE OPINION STATEMENT

bsi.

聲明書號碼：SRA-HK-736838



機電工程署 社會及環保報告 2019/20

英國標準協會與香港特別行政區政府機電工程署(以下簡稱「機電署」)為相互獨立的公司及組織，英國標準協會除了針對機電署社會及環保報告 2019/20 (以下簡稱「報告」) 進行評估和核實外，與機電署並無任何財務上的關係。

本獨立保證意見聲明書的目的，僅作為對下列有關機電署社會及環保報告所界定範圍內的相關事項進行保證之結論，而不作為其他之用途。除對查證事實提出獨立保證意見聲明書外，對於關於其他目的之使用，或閱讀此獨立保證意見聲明書的任何人，英國標準協會並不負有或承擔任何有關法律或其他之責任。本獨立保證意見聲明書供機電署之持份者及管理人員使用。

本獨立保證意見聲明書是基於機電署提供予英國標準協會之相關資料審查所作成之結論，因此審查範圍乃基於並只限在這些提供的資料內容之內，英國標準協會認為這些資料內容都是完整且準確的。

對於這份獨立保證意見聲明書所載內容或相關事項之任何疑問，只能向機電署提出。

核實範圍

機電署與英國標準協會協議的核實範圍包括：

1. 整份報告及焦點放於系統與活動，包括機電署於2019年4月1日至2020年3月31日期間，於香港的規管服務及營運服務。報告依據全球報告倡議組織標準的核心選項編製而成。
2. 第一類型中度保證等級評估機電署遵循三項報告原則：包容性，實質性及回應性的本質與程度，以及對報告中指定可持續發展的資料/數據作出評估。

意見聲明

我們可以總結，報告為機電署本報告年度的可持續發展計劃與成效提供一個公平的觀點。我們相信報告內之經濟、社會及環境成效指標是被正確無誤地展現。報告所披露的成效指標展現了機電署為可持續發展所作出的努力，備受持份者的廣泛認同。

這次核實工作是由一組具有可持續發展報告核實能力之團隊執行。透過策劃和進行核實時所獲得的資料及說明，我們認為機電署就符合全球報告倡議組織標準的核心選項之聲明，是屬公允的描述。

核實方法

為了收集能讓我們得出結論的證據，我們執行了以下工作：

- 對來自外部團體關於機電署政策的議題，進行高階審查，以確認本報告中聲明書的合適性
- 與機電署管理人員討論有關持份者參與的方式，然而，我們並無直接接觸外部持份者
- 訪問與可持續發展管理、報告編製及資料提供有關的員工
- 審查組織的主要發展內容
- 審查報告中所作宣告的支持性證據
- 審查報告的製作及管理流程是否按照包容性、實質性及回應性的原則進行

結論

我們對於包容性，實質性及回應性原則，及全球報告倡議組織標準的審查如下：

獨立保證意見聲明書 Independent Assurance Opinion Statement



包容性

此報告反映機電署透過以下多種渠道作持份者參與，包括：客戶意見調查及訪問、電話調查、合作項目、研討會及座談會、客戶通訊、會議、報告實質性調查、員工滿意度調查、焦點討論小組、高級管理層親善大使探訪、比賽及團隊建立活動、員工工會及員工協商委員會、員工通訊、培訓課程、業界參與計劃、工作小組、機電安全及節能社區推廣活動、YouTube、傳媒聚會、就傳媒查詢回應及發表意見等。

機電署日常運作包括不同的持份者參與方式。此報告包括持份者關注的經濟、社會及環境範疇，並以公允的水平披露。我們專業的意見認為，機電署遵循包容性原則。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

實質性

機電署發布可持續發展資訊，讓持份者對機電署的管理及表現可作出有事實根據的判斷。我們專業的意見認為，報告遵循實質性原則，並透過合適的方法識別出機電署的實質範疇，以重要範疇概覽展現出實質範疇。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

回應性

機電署實行措施以回應持份者的期望與意見，包括對內部及外部持份者的各種問卷及反映機制。以我們專業的意見，機電署遵循回應性原則。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

全球報告倡議組織標準

機電署向我們提供有關於已符合依循全球報告倡議組織標準的核心選項的自我申報。從審查的結果，我們確定報告內之三個類別（環境、社會及經濟）的社會責任及可持續發展披露，是根據符合全球報告倡議組織標準的核心選項披露。

以我們專業的意見認為，本報告包括機電署的社會責任及可持續發展事務。我們對報告的改善意見已被機電署於發出本意見聲明書前採納。

保證等級

我們提供的第一類型中度保證等級審查，是以本聲明書內之範圍及方法作定義。

責任

這份報告所展現的資料，是由機電署的高階管理層負責確保準確。我們的責任為基於所描述的範圍與方法，提供專業意見並提供持份者一個獨立的保證意見聲明書。

能力與獨立性

本核查團隊是由具房地產背景，且接受過包括全球報告倡議組織（以下簡稱「GRI」）G3、GRI G3.1、GRI G4、GRI標準、當責性原則、香港聯交所「環境、社會及管治報告指引」、聯合國全球契約十項原則、ISO 10002、ISO 14001、OHSAS 18001、ISO 45001及ISO 9001等之一系列可持續發展、環境及社會標準的訓練，具有主導擔保及核查員資格之成員組成。英國標準協會於1901年成立，是全球標準及驗證機構的領導者。本保證是依據英國標準協會公平交易準則執行。

英國標準協會代表：

Chris Cheung
Head of Operational Governance

2020年11月10日

本聲明書以英文編製，中文翻譯本只供參考。



By Royal Charter



Statement No.: **SRA-HK-736838**

Electrical and Mechanical Services Department Social and Environmental Report 2019/20

The British Standards Institution is independent to Electrical and Mechanical Services Department of the Government of the Hong Kong Special Administrative Region (hereafter referred to as "EMSD" in this statement) and has no financial interest in the operation of the EMSD other than for the assessment and assurance of the EMSD Social and Environmental Report 2019/20 ("Report").

This independent assurance opinion statement has been prepared for the EMSD only for the purposes of assuring its statements relating to the Report, more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read. This statement is intended to be used by stakeholders and management of the EMSD.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by the EMSD. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to the EMSD only.

Scope

The scope of engagement agreed upon with the EMSD includes the following:

1. The assurance covers the whole Report, and focuses on systems and activities of the EMSD in Hong Kong, which include Regulatory Services and Trading Services during the period from 1st April 2019 to 31st March 2020. The Report is prepared in accordance with the Core option of GRI Sustainability Reporting Standards ("GRI Standards").
2. Type 1 Moderate Level of Assurance evaluates of the nature and extent of the EMSD's adherence to three reporting principles, which include Inclusivity, Materiality and Responsiveness. The specified sustainability performance information/data disclosed in the Report has been evaluated.

Opinion Statement

We conclude that the Report provides a fair view of the EMSD's sustainability programmes and performances in the reporting year. We believe that the economic, social and environmental performance indicators are fairly represented in the Report, in which the EMSD's efforts being made to pursue sustainable development are widely recognised by its stakeholders.

Our work was carried out by a team of sustainability report assurers. We planned and performed this part of our work to obtain the necessary information and explanations. We considered the EMSD has provided sufficient evidence that EMSD's self-declaration of compliance with the Core option of GRI Standards were fairly stated.

Methodology

Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:

- A top level review of issues raised by external parties that could be relevant to the EMSD's policies to provide a check on the appropriateness of statements made in the Report
- Discussion with senior executives on the EMSD's approach to stakeholder engagement. We had no direct contact with external stakeholders
- Interview with staff involved in sustainability management, report preparation and provision of report information were carried out
- Review of key organisational developments
- Review of supporting evidence for claims made in the Report
- An assessment of the company's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality and Responsiveness.

Conclusions

A detailed review against the principles of Inclusivity, Materiality and Responsiveness, and in accordance with GRI Standards is set out below:

獨立保證意見聲明書 Independent Assurance Opinion Statement



Inclusivity

The Report has reflected a fact that the EMSD is seeking the engagement of its stakeholders through numerous channels such as Customer Opinion Surveys and Interviews, Telephone Surveys, Joint-projects, Symposiums and Seminars, Customer Newsletters, Meetings, Report Materiality Survey, Staff Satisfaction Surveys, Focus Groups, Ambassador Visits by Senior Management, Competitions and Team-building activities, Staff Unions and Departmental Consultative Committees, Staff Newsletters, Training Sessions, Trade Engagement Programme, Working Groups, Community-wide Promotion of E&M Safety and Energy Efficiency, YouTube, Media Gatherings, Feedback and Responses to Media Enquiries, and more.

The EMSD's operation involves various methods of engaging its stakeholders on daily basis. The Report covers economic, social and environmental aspects concerned by its stakeholder with a fair level of disclosures. In our professional opinion, the EMSD adheres to the principle of Inclusivity. Our view in area for enhancement to the Report was adopted by the EMSD before issue of this opinion statement.

Materiality

The EMSD publishes sustainability information that enables its stakeholders to make informed judgments about the company's management and performance. In our professional opinion, the Report adheres to the principle of Materiality and identifies the EMSD's material aspects by using appropriate method of materiality analysis and demonstrating material issues in a matrix form. Area for enhancement to the Report was adopted by the EMSD before issue of this opinion statement.

Responsiveness

The EMSD has implemented practices to respond to the expectations and perceptions of its stakeholders. It includes various surveys and feedback mechanisms to both internal and external stakeholders. In our professional opinion, the EMSD adheres to the principle of Responsiveness. Area for enhancement to the Report was adopted by the EMSD before issue of this opinion statement.

GRI Standards Reporting

The EMSD provided us with their self-declaration of compliance with GRI Standards "In Accordance" — Core option. Based on our verification review, we are able to confirm that social responsibility and sustainable development disclosures in all three categories (Environmental, Social and Economic) are reported with reference to "In accordance" with the GRI Standards — Core option.

In our professional opinion the report covers the EMSD's social responsibility and sustainability issues. Areas for enhancement of the Report were adopted by the EMSD before the issue of this opinion statement.

Assurance Level

The Type 1 Moderate Level of Assurance provided in our review is defined by the scope and methodology described in this statement.

Responsibility

It is the responsibility of the EMSD's senior management to ensure the information being presented in the Report is accurate. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence

The assurance team was composed of Lead Assuror, who are experienced in real estate sector, and trained in a range of sustainability, environmental and social standards including GRI G3, GRI G3.1, GRI G4, GRI Standards, AA1000, HKEX ESG Guide, UNGC's Ten Principles, ISO 10002, ISO 14001, OHSAS 18001, ISO 45001 and ISO 9001, etc. British Standards Institution is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.

For and on behalf of BSI:

Chris Cheung
Head of Operational Governance

10 November 2020

Verifier of the Report

Aaron Chim
Lead Assuror

This statement was prepared in English and translated into Chinese for reference only.

鳴謝 ACKNOWLEDGMENTS

在年報製作過程中，承蒙下列部門及機構提供協助，機電工程署特此鳴謝。

The EMSD would like to express its sincere thanks to the following departments and organisations for their support and co-operation in the course of preparing this annual report (list in alphabetical order).

懲教署	Correctional Services Department
香港海關	Customs and Excise Department
衛生署	Department of Health
渠務署	Drainage Services Department
起動九龍東辦事處	Energizing Kowloon East Office
食物環境衛生署	Food and Environmental Hygiene Department
鳳溪創新小學	Fung Kai Innovative School
政府產業署	Government Property Agency
路政署	Highways Department
香港房屋委員會	Hong Kong Housing Authority
香港警務處	Hong Kong Police Force
醫院管理局	Hospital Authority
入境事務處	Immigration Department
海事處	Marine Department
香港鐵路有限公司	MTR Corporation Limited
海洋公園	Ocean Park Corporation
東區尤德夫人那打素醫院	Pamela Youde Nethersole Eastern Hospital
中華基督教會基朗中學	The Church of Christ in China Kei Long College
運輸署	Transport Department
將軍澳醫院	Tseung Kwan O Hospital
市區重建局	Urban Renewal Authority

EMSD



機電工程署
香港九龍啟成街3號

Electrical and Mechanical Services Department
3 Kai Shing Street, Kowloon, Hong Kong

電話 Tel: (852) 1823 傳真 Fax: (852) 2890 7493

網址 Website: www.emsd.gov.hk

電郵 Email: info@emsd.gov.hk