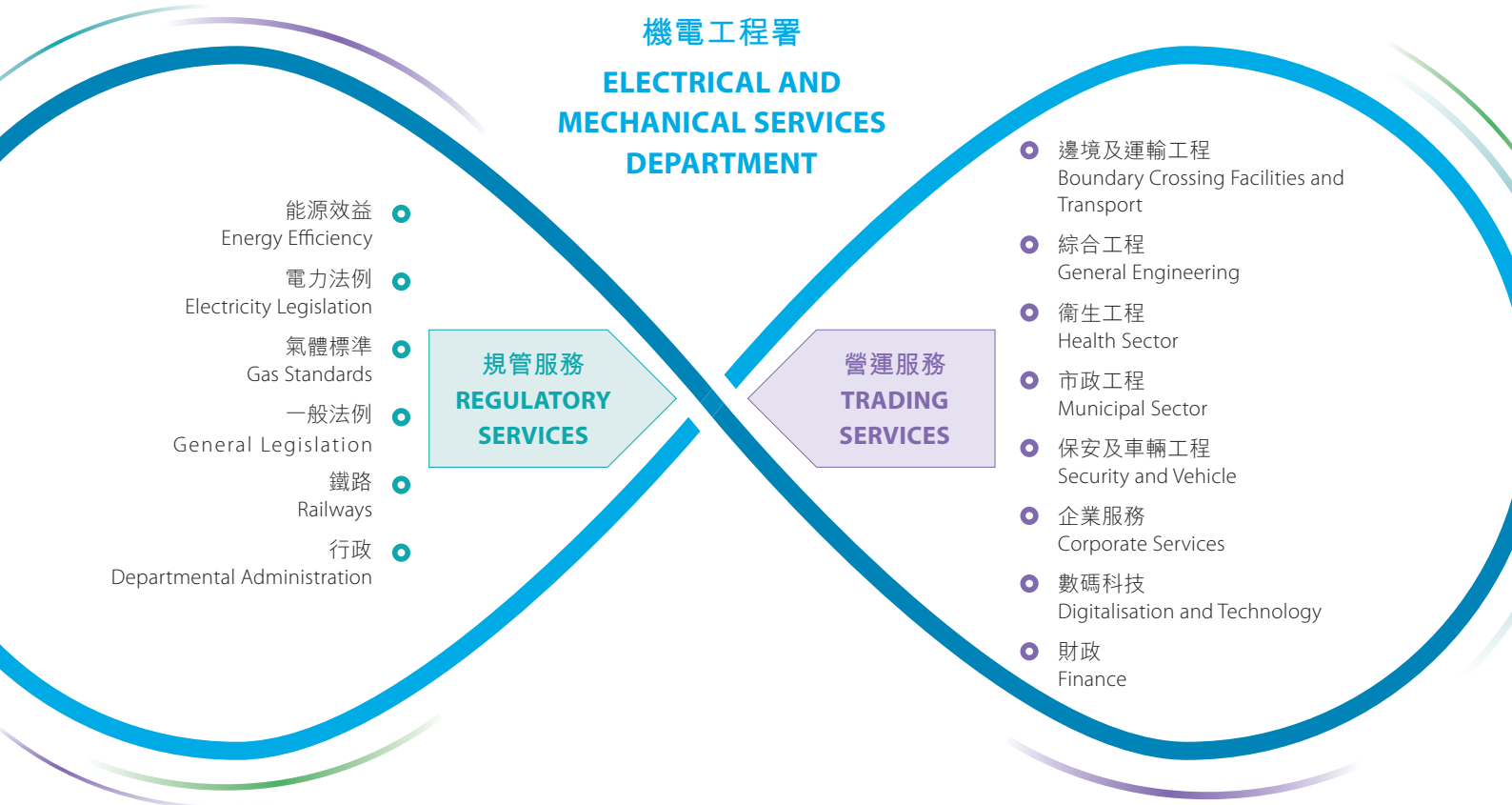
自強不息
同創智慧未來
Striving
to Co-create a Smart Future

機電工程署
EMSD

部門簡介及架構
Organisational Profile and Structure



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，即規管服務和營運服務，後者又稱為機電工程營運基金(營運基金)。機電署在香港肩負雙重職責，一方面透過執法和公眾教育規管機電設施的安全運作，同時亦為政府部門和公營機構提供專業、全面和具成本效益的機電工程服務，以持續提升社會的生活質素。

規管服務團隊擔當規管機構和執法部門的角色，負責保障機電安全和提高市民對能源效益的意識。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和發展計劃。此外，團隊亦向政府提供專業意見，並在社區推廣能源效益。

營運服務團隊肩負機電署的第二項職責，為政府部門和公營機構提供優質的機電工程服務，以持續提升市民的生活質素。營運基金為超過80個客戶部門的機電設施、屋宇裝備、電子系統和設備及車輛提供全面的工程服務，包括操作、維修保養、工程策劃和顧問服務。客戶的場地及設施涵蓋醫院、學校、運輸設施、公路、港口及海港、機場、政府合署、法院大樓、紀律部隊設施，以及公眾文娛康樂設施等。

The Electrical and Mechanical Services Department (EMSD) is a government department that performs electrical and mechanical (E&M) engineering services through its two functional arms, namely Regulatory Services (RS) and Trading Services (TS). The latter is also known as the Electrical and Mechanical Services Trading Fund (EMSTF). Playing a dual role in Hong Kong, the EMSD regulates the safe operation of E&M facilities through law enforcement and public education, while providing professional, comprehensive and cost-effective E&M engineering services for government departments and public bodies so as to continuously enhance the quality of life in our community.

The role of the RS team is to act as a regulatory body and law enforcement department to safeguard E&M safety and promote public awareness of energy efficiency. The RS team consists of a number of divisions which specialise in different regulatory and public education areas, including E&M safety, gas safety and railway safety, while monitoring the technical performance and development plans of the power companies based on the Scheme of Control Agreements. In addition, the team provides professional advice to the Government as well as promoting energy efficiency in the community.

Our second role, played by the TS team, is to provide quality E&M engineering services to other government departments and public bodies to continuously enhance the quality of life of our people. The EMSTF provides comprehensive engineering services, including operation, maintenance, project management and consultancy services, for E&M facilities, building services, electronic systems and equipment, and vehicles of over 80 client departments. Client venues and facilities range from hospitals, schools, transport facilities, highways, port and harbour, the airport, government offices, law court buildings, disciplined services facilities, to various public recreational and leisure facilities.

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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

回顧**2018/19**年度的工作，我們一直全力為公眾提供最佳及最可靠的服務。就營運服務來說，工作核心是協助客戶部門提升公共服務的質素；而在規管服務方面，就是聚焦支援機電業發展，協助業界進一步滿足公眾需要。

我們也秉持竭盡所能和精益求精的態度服務社會，並會把這傳統傳承下去。

During the year 2018/19 under review, we have spared no efforts to offer the public the best and the most reliable services. In the context of our Trading Services, the core of our work is to help client departments enhance public services. For Regulatory Services, we focus on supporting the E&M trade to better meet the needs of the public.

We also strive to pass on our service legacy to the next generation of EMSD colleagues by continuing to serve the community with our best endeavour and the pursuit of excellence.

確保公共機電安全

香港自上世紀六十年代起步入高速發展時期，時至今日，很多機電資產正面對老化的挑戰。為解決這問題，我們的規管服務已積極循多方面工作保障公眾安全，例如推出「優化升降機資助計劃」，提供財務誘因，資助合資格業主加快為其舊式升降機進行優化工程，以符合最新的安全標準。我們希望透過與社會大眾及相關持份者合作，把問題從根本解決，確保升降機使用者安全。

Ensuring Public E&M Safety

With rapid development since the 1960s, Hong Kong is now facing challenges of ageing E&M assets. To address this problem, our Regulatory Services has proactively adopted a multipronged approach to ensure public safety. One example is the Lift Modernisation Subsidy Scheme, which provides financial incentives for eligible property owners to expedite the modernisation of their aged lifts to meet the latest safety standards. By working together with the community and relevant stakeholders, we hope to tackle the problem at its roots so as to ensure the safety of lift users.

署長的話
Message from the Director

為進一步提升鐵路系統的安全水平，我們自2018年開始，積極為鐵路運作引進更全面和更系統化的審核機制，以期透過審核找出港鐵公司在資產管理方面仍可改善之處。

To further enhance the safety of our railway system, we have been actively introducing more comprehensive and systematic audit mechanisms on railway operations since 2018, with a view to identifying through audits the areas of improvement in asset management of the Mass Transit Railway Corporation Limited (MTRCL).

與內地及亞太地區加強聯繫

Strengthening Connection with the Mainland and Asia Pacific

除了確保機電安全和推動能源效益外，我們積極在香港和內地聯同有關機構推廣重新校驗，例如與來自粵港澳大灣區(大灣區)城市和國內其他地方的六個機構，在2018年11月簽署《粵港澳大灣區建築物重新校驗(再調適)合作備忘錄》，以推動大灣區在建築物重新校驗方面的研發和應用工作，這也是我們加強能源效益工作的新里程。

On top of the ongoing work to ensure E&M safety and promote energy efficiency, we also actively promote retro-commissioning (RCx) both in Hong Kong and the Mainland in collaboration with relevant organisations. For instance, the EMSD signed a Memorandum of Co-operation (MoC) on Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) with six organisations from cities in the GBA and other parts of China in November 2018 to promote the development and application of RCx of buildings in the GBA, marking a new milestone in our efforts of enhancing energy efficiency.

眾所周知，香港高廈林立，城中大量現有老化建築物也很適合應用重新校驗技術以改善能源效益。本港在重新校驗方面起步較早，當大灣區其他城市日後面對建築物老化的問題時，我們就可分享相關的技術和經驗。我們近年在能源效益和節能減排等方面的工作已初見成效，而上述重新校驗合作備忘錄更為規管服務開拓了一個全新領域，走出香港，帶領毗鄰城市共同推動可持續發展。

Widely regarded as a concrete forest packed with high-rise buildings, Hong Kong is well-placed to apply RCx to its stock of ageing buildings to improve energy efficiency. With a head start in RCx, Hong Kong is in a good position to share its expertise and experience with other GBA cities when they face challenges of ageing buildings in the future. Our work on energy efficiency, conservation and emissions reduction in recent years has already achieved initial results, while the above-mentioned MoC has opened up a new frontier for Regulatory Services to step out of Hong Kong and lead our neighbouring cities to promote sustainable development.

另外，我們的代表於2019年3月獲選為亞太經合組織第53屆「能源效益及節能專家小組」主席，任期兩年。「能源效益及節能專家小組」是亞太經合組織「能源工作組」轄下的四個專家小組之一，我們很高興香港能在國際組織擔當更積極角色，與亞太經合組織其他成員經濟體分享我們在能源效益方面的經驗。

In a separate development, our representative was elected the chairperson of the 53rd Expert Group on Energy Efficiency and Conservation (EGEE&C) of the Asia-Pacific Economic Cooperation (APEC) in March 2019 for a two-year term. The EGEE&C is one of the four expert groups under the APEC's Energy Working Group, and we are delighted that Hong Kong continues to play an active role in international organisations so that we can share our experience in energy efficiency with other APEC member economies.

同行協作

為配合政府在公共服務方面推動更廣泛使用創新科技的策略，我們近年積極與客戶部門共同開發各種創科方案，以提升公共服務的營運效率，更有不少項目屢獲殊榮，例如懲教署的智慧監獄系統及衞生署的智能發燒偵測系統等。我們的團隊與客戶合作無間，研究如何在其營運操作中應用先進技術，為日後客戶更廣泛運用創科作好準備。

除了推廣創科方案和促進創科研發外，我們還探索如何應用創新方法持續作出改善，而重新校驗便是其中一例。我們以身作則，運用這嶄新節能措施，為現有的政府建築物進一步擴闊節能空間。

機電工程營運基金在最新的2018年客戶意見調查中，客戶滿意指數創下歷史新高，以8分為滿分計達6.61分。這固然是一大喜訊，但我們不會自滿，更不會故步自封。我們深知提供全面而可靠的機電維修保養服務、維持系統的運作效率和避免發生故障，只是客戶對我們的基本要求。

要真正令客戶感到滿意，關鍵是要清楚了解公眾的需要，再運用我們的專業工程知識，協助客戶提供更貼心的服務，令市民受惠。我們深明與客戶建立緊密而持續的伙伴關係十分重要。無論環境順逆，我們的團隊都會與客戶同舟共濟、並肩同行，緊守崗位為客戶竭誠提供服務。多年來，機電工程署一直貫徹這種精神，是我們得以持續穩定發展的關鍵。

Connect and Collaborate

Consistent with the Government's strategy to promote the wider use of innovation and technology (I&T) in public services, we have actively and jointly developed with our client departments various I&T solutions to enhance the operational efficiency of public services in recent years. Award-winning examples include the Smart Prison System for the Correctional Services Department and the Smart Fever Screening System for the Department of Health. Our colleagues have worked together with clients to study ways to apply advanced technologies in their operations, which will pave the way for their wider adoption of I&T in the future.

Apart from promoting I&T solutions and facilitating I&T development, we also explore the application of innovative means for continuous improvement, RCx being one of them. We set an example by taking the lead to apply this new energy-saving measure to capture further energy-saving potential in existing government buildings.

The Electrical and Mechanical Services Trading Fund scored a record-high Customer Satisfaction Index of 6.61 on a scale of 8 in the latest Customer Opinion Survey in 2018. This is certainly very good news, but we will neither be complacent nor stop there. We understand that providing comprehensive and reliable E&M maintenance services, maintaining the operational efficiency of systems and preventing the occurrence of system failure are only basic requirements of our clients.

To truly satisfy our clients, the key is to understand the needs of the public and make use of our professional engineering knowledge to assist clients in providing more tailored services which will benefit members of the public. We understand that it is very important to establish a close and ongoing partnership with clients. Whether in good times or bad, our teams will work side by side with clients and continue to deliver to them our dedicated services. This partnership spirit has permeated the EMSD throughout the years and is the critical base for our continued stable development.

署長的話
Message from the Director

創新促成者角色

我們作為協助政府推動創新採購的促成者之一，透過多種途徑協助客戶部門加快創新的步伐。我們的「機電創科網上平台」是關鍵的線上工具。自2018年投入服務以來，該平台把客戶部門和公營機構與初創企業、大學和科研機構聯繫在一起，進行項目配對，並在概念驗證和項目試驗方面進行更緊密合作。有賴各合作伙伴的支持，平台推出不足一年，已吸納了來自客戶部門的200個創科願望和來自初創企業的130個創科方案，繼而催生了50多個創科項目，目前項目數量更不斷增加，進展令人鼓舞。

除了「機電創科網上平台」，我們還在2018年9月推出了一個名為「機電創科專區」的實體平台。在這個設於機電工程署總部大樓的展覽廳，客戶和訪客可親身體驗多個創科項目，包括一些我們與初創企業共同開發的項目，以及初創企業在不同政府場地進行測試的項目。「機電創科網上平台」及「機電創科專區」都深受歡迎，讓客戶探索初創企業、大學和科研機構在創科方面的巨大潛力，以滿足客戶部門的營運需要。

我們積極推動創科的工作初見成效，但未來仍有許多工作尚待開展。我們期待與政府各部門及業界同行協作，充分利用「機電創科網上平台」和「機電創科專區」，加強跨界別的合作，提升公共服務的質素，同時推動應用科研和開發工作，令社會整體受惠。此外，我們現正透過與本港12間主要的創科伙伴機構簽訂合作備忘錄，積極深化發展相關的策略伙伴關係，推動這些機構為「機電創科網上平台」的創科願望提供解決方案。

Our Role as Innovation Facilitator

Entrusted with the role as one of the facilitators to support pro-innovation procurement in the Government, we help client departments expedite innovation through a variety of channels. Our E&M InnoPortal serves as an important online tool. Since its inception in 2018, the E&M InnoPortal brings together client departments and public organisations with start-ups, universities and research institutions for project matching and closer collaboration on proof-of-concept and project trials. Thanks to the support of our partners, the E&M InnoPortal has received 200 I&T wishes from client departments and 130 I&T solutions from start-ups in less than a year after its launch, catalysing the implementation of more than 50 I&T projects. The number of such projects continues to grow and the progress is encouraging.

Apart from the E&M InnoPortal, a tangible platform named the E&M InnoZone was also launched in September 2018. It is an exhibition gallery at the EMSD Headquarters Building where clients and visitors may experience first-hand various I&T projects, including those we jointly developed with start-ups, as well as start-up projects under trial at different government venues. Both the E&M InnoPortal and the E&M InnoZone have proved popular with our clients, enabling them to explore the vast potential of I&T solutions offered by start-ups, universities and research institutions to fulfill their operational needs.

While our efforts in promoting I&T have yielded initial results, there is still much to be done in the future. We look forward to connecting and collaborating with government departments and the trade to fully utilise the E&M InnoPortal and the E&M InnoZone to strengthen cross-sectoral collaboration for enhancing public services, while driving applied research and development that will benefit the community as a whole. Furthermore, we are working actively to foster our strategic partnership with 12 major I&T partner organisations in Hong Kong through the signing of MoCs so as to encourage them to provide solutions for the I&T wishes on the E&M InnoPortal.

薪火相傳

年內，創科應用已擴展到我們的培訓課程。我們在總部大樓設立了全新的互動學習中心，提供使用全息影像及三維投影、虛擬實境和擴增實境等創新技術的培訓單元。此外，又會新增技能評估中心及技能發展中心兩項培訓設施，以期進一步為員工提供更優質的培訓課程。

2019年2月發布的《粵港澳大灣區發展規劃綱要》為部門在多方面提供了新機遇。舉例而言，在培訓方面，我們與廣州市工貿技師學院簽訂合作備忘錄，在培訓機電技術員和見習技術員方面加強合作；另外，我們亦與廣州市人力資源和社會保障局聯繫，促進雙方在機電人才發展方面的合作。

2018/19年度的喜訊之一，是機電工程署一位工程師獲香港工程師學會頒發2019年度「傑出青年工程師獎」，以表揚她在工程專業的成就、對工程師學會工作的貢獻，以及社會服務的表現。另外，我們也有數名工程師憑着其突破的創科設計，勇奪工程師學會「創意獎」。

繼近年部門一些見習技術員在「世界技能大賽」載譽歸來後，今年再有兩名見習技術員獲選代表香港參加8月於俄羅斯喀山舉行的「世界技能大賽2019」。行文之際，兩人分別在「電氣安裝」和「空調製冷」項目中報捷，贏得優異獎佳績。

知識和經驗的傳承，對任何機構都至為重要，機電工程署也不例外。上述獎項和榮譽，可說是我們多年來努力扶掖後輩，薪火相傳的成功例子。

多年來，我們積極為機電業樹立良好形象，不但竭力為業界吸納新血，還牽頭帶領香港機電業推廣工作小組，舉辦如職業博覽等招募推廣活動，向年青人介紹機電業的前景，也為來自本港各主要機電機構的新見習技術員，舉辦一年一度的「機電‧啟航」迎新典禮，支持人才發展。

Passing on the Torch

The application of I&T was also extended to our training programmes during the year. We have set up a new Interactive Learning Centre at the EMSD Headquarters Building which offers a number of training modules using such innovative technologies as hologram, virtual reality and augmented reality technologies. Moreover, two new training facilities, namely the Skills Assessment Centre and the Skills Development Centre, will be established to further provide better quality training programmes to staff.

The promulgation of the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area in February 2019 has opened up new opportunities for the EMSD in many aspects. For instance, in terms of training, we signed an MoC with the Guangzhou Industry and Trade Technician College (GITTC) to strengthen collaboration in training E&M technicians and technician trainees; and we also liaised with the Guangzhou Municipal Human Resources and Social Security Bureau (HRSSGZ) to enhance collaboration in E&M talent development.

An excellent piece of news in 2018/19 was that one of our engineers received the Young Engineer of the Year Award 2019 from the Hong Kong Institution of Engineers (HKIE) for her achievements in the engineering profession, contribution to the work of the HKIE and social services. Besides, several of our engineers have also won HKIE Innovation Awards for their groundbreaking I&T designs.

Further to the delightful results that some of the Department's technician trainees have achieved in the WorldSkills Competitions in recent years, two of our technician trainees were selected to represent Hong Kong in the WorldSkills Competition 2019 to be held in Kazan, Russia, this August. At the time of writing, the two trainees have won Medallions for Excellence in the "Electrical Installations" trade and the "Refrigeration and Air-conditioning" trade respectively in the WorldSkills Competition.

The passing on of knowledge and experience is vital to any organisation, and the EMSD is no exception. The above awards and honours are successful examples of our continuous efforts in nurturing the younger generation of colleagues and passing on the torch throughout the years.

Moreover, we have been fostering a positive image of the E&M trade to attract new blood over the years. We take the lead in the Hong Kong Electrical and Mechanical Trade Promotion Working Group in organising recruitment and promotional activities such as career expos to introduce to young people the prospects of the E&M trade, and we also organise the annual "E&M Go!" Orientation Ceremony for new technician trainees from major E&M organisations in Hong Kong to support talent development.

署長的話
Message from the Director

深化落實

展望來年，我們會以2018/19年度的成果為基礎，從三方面深化和落實各項工作。首先，我們會繼續協助其他政府部門和公營機構採用更多創科方案。另外，隨着「機電創科網上平台」開放予國際創科方案供應商，我們亦正研究與國際創科機構協作，進一步推動本港的創新文化。

第二，我們會在本港及大灣區其他城市繼續推動重新校驗，並加強重新校驗的培訓，也希望將來為整個大灣區制訂一套重新校驗的標準，從而為香港和周邊城市締造可持續發展的環境。在國際舞台上，我們會與亞太經合組織其他成員經濟體分享部門在能源效益方面的經驗，作出更多貢獻。

來年第三個工作重點，是按照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訂的合作備忘錄，落實各項聯合培訓工作。憑藉這些國內機構的支持，我們希望可達致最終目標，使本港代表能在「世界技能大賽」取得更佳成績，並吸引更多年青人加入機電業。同時，我們也會與本港的機電業從業員同行協作，並加強與大灣區的聯繫，協助提升業界的服務水平。

Deepening our Efforts

Looking ahead to the coming year, we will deepen and implement our work in three aspects based on the achievements made in 2018/19. First, we will continue to assist other government departments and public organisations to adopt more I&T solutions. Furthermore, subsequent to our opening-up of the E&M InnoPortal to international I&T solution providers, we are exploring collaborations with international I&T organisations to further promote a culture of innovation in Hong Kong.

Second, we will continue to promote RCx in Hong Kong and other GBA cities, step up RCx training and, hopefully, help establish a set of RCx standards for the entire GBA in the future, thus creating a sustainable environment for Hong Kong and surrounding cities. We will share the Department's experience in energy efficiency with other APEC member economies and make more contributions in the international arena.

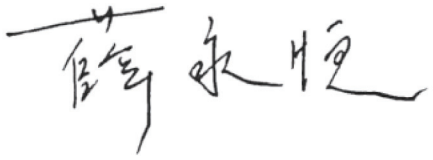
The third priority of work in the coming year is to implement the joint training initiatives under the MoCs signed with the GITTC and the HRSSGZ. With the support of these Mainland organisations, we hope to achieve our ultimate goal of helping Hong Kong representatives to obtain better results in the WorldSkills Competition and attracting more young people to join the E&M trade. Meanwhile, we will connect and collaborate with local E&M trade practitioners and strengthen our ties with the GBA to help enhance the service standard of the trade.

由衷謝意

我非常感謝部門所有同事，不僅盡心竭力完成日常工作，更憑着熱誠和創意接受許多新任務和挑戰。過去數年，我們在支援創科方面取得了初步成績，為公共服務及機電業界帶來裨益，實有賴各位同事勇於承擔，敢於創新。

各政策局和政府部門一直給予我們大力支持，而專業團體、學者、培訓機構、機電業界及其他持份者也對我們的工作貢獻良多，謹此衷心致謝。

最後，我們也要感謝市民、傳媒、立法會議員及其他意見領袖不斷給予反饋和建議，讓我們掌握社會脈搏。來年我們定會繼續努力，恪守初衷，為香港這個家服務。



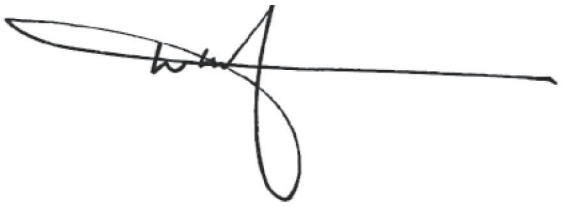
薛永恒
機電工程署署長
機電工程營運基金總經理

Heartfelt Appreciation

I am very grateful to all of our colleagues who have not only made dedicated efforts in carrying out their regular duties, but have also accepted many new tasks and challenges with zeal and creativity. The initial success in our I&T work over the past few years, which has brought benefits to public services and the E&M trade, would not have been possible without our colleagues' strong commitment and innovative minds.

Our heartfelt appreciation also goes to various policy bureaux and government departments which have always given us staunch support, and to professional bodies, academics, training institutes, the E&M trade and other stakeholders for their valuable contributions to our work.

Lastly, we would also like to thank members of the public, the media, Legislative Councillors and other opinion leaders who have helped us feel the pulse of the community through their continuous feedback and suggestions. In the year ahead, we shall continue with our work and adhere to our original goal of serving the people of our home, Hong Kong.



Sit Wing-hang, Alfred
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

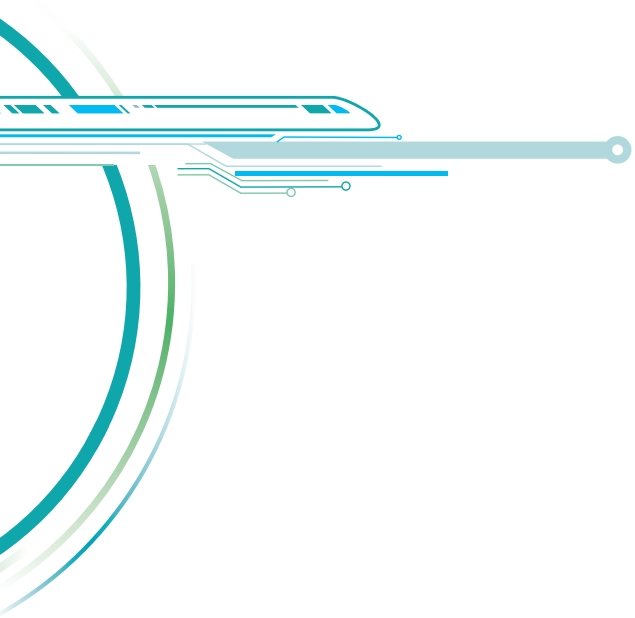
我們的抱負，是要成為促使香港在機電安全及善用能源方面，都達到世界首要都會水平的政府機構。
Our vision is to be the government agency that makes Hong Kong a top–ranking city in E&M safety and in the utilisation of energy.

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

1 **薛永恒太平紳士**
Mr Sit Wing-hang, Alfred, JP
機電工程署署長
Director of Electrical and Mechanical Services

2 **賴漢忠太平紳士**
Mr Lai Hon-chung, Harry, JP
副署長 / 規管服務
Deputy Director/Regulatory Services

3 **陳秋發先生**
Mr Chan Chau-fat
助理署長 / 鐵路
Assistant Director/Railways

4 **黃奕進先生**
Mr Vy Ek-chin
助理署長 / 電力及能源效益
Assistant Director/Electricity and Energy Efficiency

5 **潘國英先生**
Mr Poon Kwok-ying, Raymond
助理署長 / 氣體及一般法例
Assistant Director/Gas and General Legislation

6 **羅皓宜女士**
Ms Law Ho-yee, Sharon
部門會計師
Departmental Accountant

7 **袁秀明女士**
Ms Yuen Sau-ming, Anna
主任秘書
Departmental Secretary

* 彭耀雄太平紳士出任助理署長 / 氣體及一般法例至二零一八年九月十一日
Mr Pang Yiu-hung, JP was Assistant Director/Gas and General Legislation up to 11 September 2018

* 潘國英先生出任助理署長 / 電力及能源效益至二零一九年二月二十八日
Mr Poon Kwok-ying, Raymond was Assistant Director/Electricity and Energy Efficiency up to 28 February 2019

* 羅肇嫻女士出任主任秘書至二零一九年二月二十七日
Ms Lo Siu-han, Cynthia was Departmental Secretary up to 27 February 2019

服務回顧
Operations Review

賴漢忠太平紳士
Mr Lai Hon-chung, Harry, JP

機電工程署副署長/
規管服務

Deputy Director/
Regulatory Services, EMSD

在2018/19年度，規管服務各方面的工作都有穩健進展。在拓展國際視野與建立區域連繫方面，也在往年的基礎上更進一步。年內，規管服務在科技發展和區域與國際層面合作上取得三項重要成果，尤其矚目。

攜手推動重新校驗

重新校驗是透過定期檢查建築物的能源表現，調整相關機電系統和設備，以達致最佳能源效益，降低營運成本，對已運作多年的建築物尤其有效。政府已計劃率先為主要政府建築物進行重新校驗。為配合推動重新校驗，我們推出了《重新校驗技術指引2018》更新版本，廣納專業團體和持份者的意見，為業界提供最新技術指引。

除了在本地推動重新校驗外，本署於2018年11月舉辦題為「共創智慧未來」研討會期間，跟六個來自本港、澳門和內地其他城市的綠色建築、機電維修保養及節能科研領軍機構，簽署了《粵港澳大灣區建築物重新校驗（再調適）合作備忘錄》。香港自上世紀六七十年代城市化發展以來，不少現有商用建築物的機電系統已運作多年，因此我們開展重新校驗工作的時間，也比其他內地城市為早，希望日後能把相關經驗逐步推廣至粵港澳大灣區，以收互惠互利之效。

上述各簽署機構於2019年3月在北京舉行全體大會，成立了三個工作小組，分別負責編撰技術指引、提升業界專業能力和宣傳推廣工作。簽署機構承諾會互相分享相關知識和經驗、合作提供培訓，以及鼓勵業界把重新校驗作為提升建築物能源效益的新方案，長遠目標是在大灣區的城市鼓勵更多建築物進行這方面的工作。

與海關總署簽訂合作協議

機電工程署早於2003年已與前國家質量監督檢驗檢疫總局（國家質檢總局）簽訂合作安排，十多年來在機電安全和能源效益的相關課題上都合作無間，主要工作包括安全推廣、經驗交流、事故通報和人才培訓等，並每年舉行年會商討各方面的進展。

Regulatory Services sustained progress in all areas of work in 2018/19. We built on our success in expanding our international horizons and establishing regional connections. Our significant achievements in three specific aspects of Regulatory Services, related to technological development as well as regional and international relations, were particularly notable.

Joint Promotion of Retro-commissioning

Retro-commissioning (RCx) is a process involving regular inspection of a building's energy efficiency performance and fine-tuning the electrical and mechanical (E&M) systems and equipment to achieve optimal energy efficiency and lower operation costs. It is especially beneficial for older buildings. The Government has planned to take the lead to conduct RCx in major government buildings. In preparation for the initiative, we introduced an updated version of the Retro-commissioning Technical Guidelines 2018, incorporating feedback from professional bodies and stakeholders, to serve as an updated technical guide for the trade.

In addition to local implementation of RCx, we signed a Memorandum of Co-operation (MoC) on Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area with six organisations from Hong Kong, Macao and other mainland cities at the EMSD Symposium themed "Co-creating a Smart Future" held in November 2018. Among the signatories were leading organisations involved in green building, E&M maintenance and repair, and energy conservation research. The E&M systems of many commercial buildings in Hong Kong have been in operation for decades, since the urbanisation of Hong Kong in the 1960s and 1970s. Therefore, we have embarked on RCx sooner than mainland cities. We are keen to share our experience to promote RCx in the Greater Bay Area and achieve mutual benefits.

The signatories of the MoC held a plenary meeting in Beijing in March 2019, at which three working groups were formed for compiling technical guidelines, enhancing professional expertise of the industry and carrying out publicity work respectively. The signatories undertook to share knowledge and experiences, co-operate on training, and encourage the trades to adopt RCx as a new solution for achieving higher building energy efficiency, with the long-term goal of promoting RCx to more buildings in the Greater Bay Area.

Co-operation Agreement with the General Administration of Customs

Since signing a co-operation agreement with the former General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) in 2003, we had been working closely with the AQSIQ for more than a decade on E&M safety, energy efficiency and other relevant issues. The major areas of work included safety promotion, experience sharing, incident reporting and talent training, etc. Annual meetings were also held to review the progress in all aspects.

服務回顧
Operations Review

由於國家質檢總局已於2018年3月併入海關總署，因此我們於同年9月在重慶與海關總署簽訂了新的合作安排，訂明雙方日後會在電氣產品、氣體爐具、升降機與自動梯及能源效益這四方面繼續合作。

除了與內地合作之外，我們也在2019年1月與澳門經濟局的牌照及稽查廳建立了新的協作機制，雙方會就不安全的電氣產品及氣體爐具互作通報，做好信息互通。這是機電工程署與澳門政府部門的首次協作安排，為大灣區合作邁進重要一步。

在亞太經合組織擔當新角色

年內的一項突破，是機電工程署代表首次於亞太經濟合作組織（亞太經合組織）能源工作組轄下的能源效益及節能專家小組出任主席，在區域以至國際層面推動能源效益的工作發揮更大影響力。近年，我們積極參與亞太經合組織的工作，先後多次與環境局合作，以東道主身分在香港舉辦能源工作組及其專家小組的會議。能源效益及節能專家小組是能源工作組轄下的四個專家小組之一，我們的助理署長/電力及能源效益於2019年3月獲選擔任該專家小組主席，是部門首次有代表晉身亞太經合組織能源工作組的領導崗位。此外，我們更代表中國香港接受亞太經合組織可持續能源中心邀請，加入亞太經合組織低碳及節能城市合作網路，以期落實低碳能源轉型和城市可持續發展。我們正積極與亞太經合組織建立更緊密多邊聯繫，希望藉此提升香港在國際能源合作的地位，進一步擴闊網絡，加強能源資訊和經驗的交流，從而推動節能減排和可再生能源的發展，為減緩氣候變化的影響注入動力。

應對挑戰

我們在應付新工作及挑戰的同時，亦不時反思如何把規管服務做得更好。

2018年發生了兩宗嚴重升降機事故，涉及尚未進行優化的舊式升降機。我們除了深入調查事故和作出跟進外，亦檢討和收緊了對所有尚未優化的舊式升降機的保養要求，以策安全。

Following the AQSIQ's integration into the General Administration of Customs of the People's Republic of China (GACC) in March 2018, we signed a new co-operation agreement with the GACC in Chongqing in September 2018 to continue our collaboration in four areas, namely electrical products, gas appliances, lifts and escalators and energy efficiency.

In addition to collaboration with the mainland of China, we also set up in January 2019 a new collaboration mechanism with the Licensing and Inspection Department of Macao Economic Bureau on mutual notification of unsafe electrical products and gas appliances, aiming at better information exchange. As the first collaboration arrangement between the EMSD and a Macao government department, this made a significant stride in the Greater Bay Area collaboration.

New Role in APEC

A breakthrough achieved during the year was that an EMSD representative was elected chairperson of the Expert Group on Energy Efficiency and Conservation (EGEE&C) of Asia-Pacific Economic Cooperation (APEC) for the first time, giving us the platform to have a greater influence on energy efficiency promotion at regional and international level. In recent years, we have actively taken part in APEC programmes. We co-hosted a number of the APEC Energy Working Group and Associated Meetings with the Environment Bureau (ENB) in Hong Kong. EGEE&C is one of the four expert groups under the APEC Energy Working Group. Our Assistant Director/Electricity and Energy Efficiency was elected chairperson of the expert group in March 2019. It is the first time a representative from our Department has taken a leadership role in the APEC Energy Working Group. Besides, at the invitation of the APEC Sustainable Energy Centre, we represented Hong Kong, China, to join the APEC Cooperative Network for Low Carbon Energy Efficient Cities. This will facilitate our transition to the low-carbon energy and sustainable city model. We are actively establishing closer and multilateral ties with APEC, through which we hope to elevate Hong Kong's position in international energy co-operation and further expand our network to strengthen the exchange of energy information and experiences, thereby giving us impetus to promote energy conservation, emission reduction and renewable energy development to mitigate the impact of climate change.

Overcoming Challenges

While embracing new initiatives and challenges, we continued to deliberate on how Regulatory Services could perform even better.

Two major lift incidents occurred in 2018, involving aged lifts that had not yet been modernised. Apart from carrying out detailed investigation into the incidents and follow-up work, we also reviewed and tightened the maintenance requirements for the lifts that have yet to undergo modernisation to ensure safety.

此外，政府為提升全港舊式升降機安全而投入25億元推出的「優化升降機資助計劃」，已於年內開始接受申請。該計劃旨在資助有需要匱乏的舊式升降機擁有人進行優化工程。我們的同事會繼續為市區重建局和升降機業界提供有關的技術及協調支援，以助推行該計劃。

在鐵路安全方面，同事忙於應付年內新鐵路綫（包括廣深港高鐵香港段）投入運作的事宜。與此同時，部分現有鐵路綫亦正進行運作系統更新。由於系統更新期間曾發生嚴重事故，因此我們必須進一步加大相關的審核力度。

去年，我們就港鐵公司的安全管理系統及資產管理系統進行了全面而有系統的審核，又委託獨立顧問公司在資產管理審核期間審視港鐵的鐵路信號系統和電力系統，並檢討港鐵公司以往處理事故的手法，目的是藉此督促港鐵公司制訂更有效的方法，確保鐵路安全。

能源效益新發展

機電工程署轄下的能源效益事務處於1994年成立，今年已踏入25周年，一直帶領香港推動各種能源效益、節能減排和可再生能源的計劃、活動和立法建議，從而鼓勵各行各業和市民大眾採取更高能效的綠色低碳營運和生活方式，成績有目共睹，也贏得不少國際獎項和廣泛認同。

隨着兩家電力公司推行上網電價計劃，機電工程署與環境局於2019年年初推出了「採電學社」計劃。這是一項推動可再生能源的新猷，旨在提供一站式服務，協助合資格的中小學、幼稚園和非政府福利機構申請參加上網電價計劃，並為其設計和安裝太陽能光伏系統和進行測試工作，而費用由「採電學社」計劃支付，希望學校和福利機構更積極加入推動可再生能源的行列。「採電學社」擬於2019-20至2023-24財政年度推行，為期五年。首批申請的反應非常踴躍。本署計劃於本財政年度內為約50間學校和機構進行安裝工程，有關工程已於8月中展開，預計首批光伏系統將於10月完工。

Applications for the $2.5 billion Lift Modernisation Subsidy Scheme (LIMSS), which was launched by the Government to enhance the safety of aged lifts in the territory, began during the year. The LIMSS aims to give financial aid to owners in need so that they can proceed with modernisation of their aged lifts. Our colleagues will continue to provide relevant technical and co-ordination support for the Urban Renewal Authority and the lift industry to facilitate the implementation of the scheme.

Regarding railway safety, our colleagues were busy with preparations for the inauguration of new railway lines (including the Guangzhou-Shenzhen-HongKong High Speed Rail Hong Kong Section) during the year, while some railway lines were undergoing operation system renewal. As a major incident occurred during the system renewal, we must further step up our monitoring efforts.

Last year, we conducted a comprehensive and systematic audit of the safety management system and the asset management system of Mass Transit Railway Corporation Limited (MTRCL). We also appointed independent consultants to examine MTRCL's railway signalling system and electrical system during the course of the asset management audit and review its handling of past incidents. The goal was to compel MTRCL to establish more effective means to ensure railway safety.

New Development for Energy Efficiency

Established in 1994, the Energy Efficiency Office of the EMSD will be celebrating its 25th anniversary this year. It has all along taken a leading role in implementing various programmes, activities and legislative proposals to promote energy efficiency, energy conservation and emission reduction as well as renewable energy, thereby encouraging people from all trades and all walks of life to adopt green and low-carbon business operations and lifestyles with higher energy efficiency. Its remarkable achievements have also won numerous international awards and wide recognition.

Following the introduction of the Feed-in Tariff (FiT) Scheme by the two power companies, the EMSD and the ENB launched Solar Harvest in early 2019. As a new initiative for promoting renewable energy, Solar Harvest aims to provide one-stop support to assist eligible primary and secondary schools, kindergartens and welfare non-governmental organisations (NGOs) in applying to join the FiT Scheme, designing and installing solar photovoltaic (PV) systems and carrying out system testing. The cost will be covered by the Solar Harvest scheme. This is intended to encourage more schools and welfare NGOs to adopt renewable energy. Solar Harvest is planned to last for five years from the financial year 2019-20 to 2023-24. The response to the first round of applications was enthusiastic. We have planned to carry out installation work at about 50 schools within the current financial year. The work has begun in mid-August and the installation of the first batch of solar PV systems is scheduled for completion in October 2019.

服務回顧
Operations Review

規管服務的策略方向

近年，規管服務的策略方向重點是加強對公眾、業界和同事三方面的工作，從而提升規管機電安全和促進能源效益的成效，讓市民大眾使用機電設施時更加安心，並讓我們進一步落實節能減排的承諾。每個策略方向分別由一位助理署長負責，以期以互相協調的方式推展規管服務的工作。

在公眾方面，我們正準備推出一個流動應用程式，讓公眾可隨時獲得機電工程署的規管服務所提供的有用資訊，例如最新的法規要求、各類承辦商的名單或符合安全規格及能源標籤規定的電氣產品型號等。另一方面，部門的「機電青少年大使計劃」今年已踏入第十個年頭，會員人數也突破了一萬大關。除了參觀不同場地外，我們也會按青少年的興趣，舉辦較富技術性的機電安全和能源效益知識講座及星章計劃等活動，鼓勵會員充分發揮大使的作用，並協力推廣「科學、技術、工程及數學」(STEM)的教育工作。

在業界方面，我們已聯同營運服務的同事開始編寫一套《香港機電設施操作及保養大全》，內容會按冷氣、電氣、氣體、消防裝備、屋宇裝備等各類機電設施，羅列維修保養的最佳作業方法、相關的規管框架和實務守則等，作為機電業界從業員的一站式參考文件，預計2020年年初可推出第一冊。

在同事方面，我們的首要工作是做好培訓。規管服務的工作涉及大量有關如何解讀法例和執法的專門知識，因此我們為新加入規管服務的同事提供基本規管知識入門課程，並安排資深同事親自教授，好讓新同事能盡快掌握規管工作的正確概念。

感恩道謝

首先，我要感謝規管服務全體同事在過去一年努力不懈，應對各種挑戰，克服不少困難。規管服務現時的服務範圍相當廣闊，新工作又不斷增加，但新增資源及人手卻有限。儘管如此，但同事們仍能羣策羣力，靈活應對，並做出好成績，我委實心存感激。

Strategic Directions of Regulatory Services

In recent years, the strategic directions of Regulatory Services have been mainly about strengthening programmes targeting the general public, the trade and our colleagues, so as to enhance the effectiveness of E&M safety regulation and energy efficiency promotion. This is designed to give the general public peace of mind when using E&M facilities and to fulfill our commitment to further achieving energy conservation and emission reduction. Each policy direction is spearheaded by an Assistant Director with a view to taking the work of Regulatory Services forward in a cohesive manner.

With regard to the general public, we are preparing for the launch of a mobile app to enable members of the public to have useful information about Regulatory Services of the EMSD at their fingertips. The information encompasses the latest regulatory requirements, lists of contractors in different categories, and the models of electrical products that comply with safety and energy label requirements. On the other hand, the E&M Young Ambassador Programme entered its 10th year in 2019 and its membership has grown to more than 10 000 people. In addition to visits to different venues, we also organise such activities as seminars on E&M safety and energy efficiency of a more technical nature and introduction of a badge programme to suit youngsters' interests, encouraging them to give full play to their role as ambassadors and assist in promoting STEM (science, technology, engineering and mathematics) education.

As for the trade, we have begun the compilation of a comprehensive guide to operation and maintenance of E&M facilities in Hong Kong in conjunction with our colleagues in Trading Services. The guide will detail the best practices for proper maintenance of key E&M facilities, relevant regulatory frameworks and codes of practice for different categories of E&M facilities, such as air-conditioning, electrical, gas, fire services and building services installations. It will also serve as a one-stop reference document for trade practitioners. The first volume is expected to be released in early 2020.

For our colleagues, our primary task is to deliver training. The work of Regulatory Services involves extensive professional knowledge about the interpretation of legislation and law enforcement. For new members of Regulatory Services, we provide courses on basic regulatory knowledge and personal mentorship by experienced colleagues to help familiarise them with proper regulatory concepts.

Gratitude and Thanks

First of all, I wish to thank all colleagues of Regulatory Services for their hard work over the past year, addressing challenges and overcoming difficulties. The remit of Regulatory Services is very extensive, and new work is constantly added to our portfolio. Our colleagues, though with limited new resources and manpower, are still able to work together to respond flexibly and deliver great results. For this, I am truly grateful.

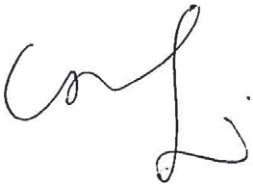
在此，我也想向所有持份者，包括各決策局、其他政府部門、業界朋友、學者、專業團體、非政府機構、培訓機構和大眾市民衷心致謝，特別是出任本署各個諮詢及技術委員會成員的人士，他們為業界作出無私奉獻，十分難得。此外，多個本港、海外、大灣區及內地其他城市的機構與我們簽署合作安排，並經常合辦交流活動，讓我們能開拓視野，與內地、亞太區及國際社會的伙伴接軌，實在非常感恩。

I would also like to express my heartfelt gratitude to all stakeholders, including the policy bureaux, other government departments, trade partners, academia, professional bodies, NGOs, training institutions and the general public. Special thanks go to all members of our advisory and technical committees for their valuable and selfless contributions to the trades. I am also very grateful that we have signed co-operation agreements with a host of organisations from Hong Kong, overseas, the Greater Bay Area and other cities of the mainland of China, and worked with them on regular exchange activities. These partnerships and exchanges have broadened our horizons and connected us to our partners in the mainland of China, the Asia Pacific region and the world.

我很幸運在機電工程署工作30多年，見證了部門不同階段的發展和創新，特別是規管服務近年的茁壯成長。我盼望各位同事在未來繼續精益求精，緊守服務市民的信念，加強與業界的聯繫，在創科新世代把機電安全和能源效益的工作做得更好。

I am truly blessed to have witnessed the development and innovation journey of the EMSD in different stages during my 30-plus years of service, especially the flourishing growth of Regulatory Services in recent years. I wish all our teams continue to deliver exceptional services to strengthen our connections with the trade, as well as leverage innovation and technology to enhance E&M safety and energy efficiency, in line with our ethos of serving the public.

賴漢忠
機電工程署副署長/規管服務



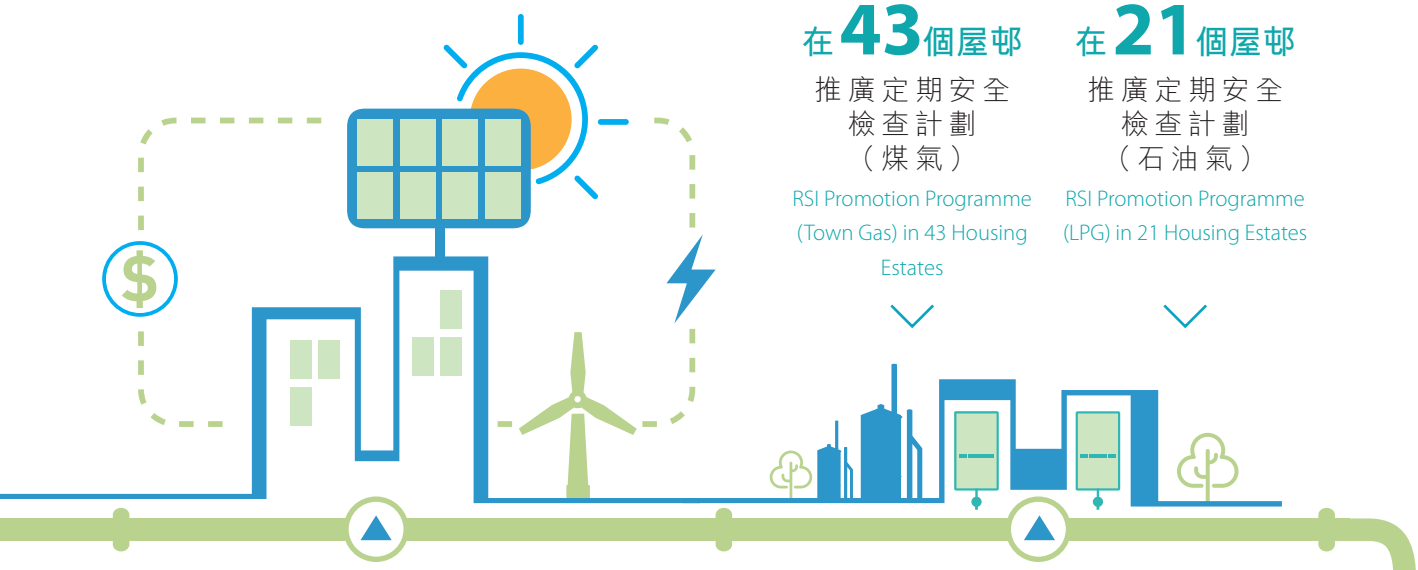
Lai Hon-chung, Harry
Deputy Director/Regulatory Services, EMSD

年度亮點
Highlights of the Year

上網電價計劃宣傳工作
Publicity for Feed-in Tariff Scheme

隨着兩家電力公司實施上網電價計劃，我們也開展了全新的工作範疇，包括訂立相應的註冊及執法措施和展開宣傳工作，並舉辦配合市民和業界需要的宣傳活動和研討會，以透過該計劃推動更廣泛採用可再生能源。

With the introduction of the Feed-in Tariff Scheme by the two power companies, we have embarked on a new era of work, including the formulation of corresponding measures on registration and enforcement and the commencement of publicity. Various publicity initiatives and seminars have been organised for the trade and the public to promote the wider adoption of renewable energy via the Scheme.



在43個屋邨
推廣定期安全檢查計劃（煤氣）
RSI Promotion Programme (Town Gas) in 43 Housing Estates

在21個屋邨
推廣定期安全檢查計劃（石油氣）
RSI Promotion Programme (LPG) in 21 Housing Estates

定期安全檢查計劃擴展至屋邨的石油氣用戶
Regular Safety Inspection Programme Extended to LPG Households in Housing Estates

專為「長期沒接受安全檢查服務」用戶而設的定期安全檢查計劃，年內不單涵蓋香港房屋委員會（房委會）和香港房屋協會（房協）轄下43個屋邨共5 280個長期沒接受安全檢查的煤氣用戶，更擴展至房委會和房協轄下21個屋邨共540個長期沒接受安全檢查的石油氣用戶。以上屋邨用戶過去五年的定期安全檢查成功率高達99%，成績令人鼓舞。

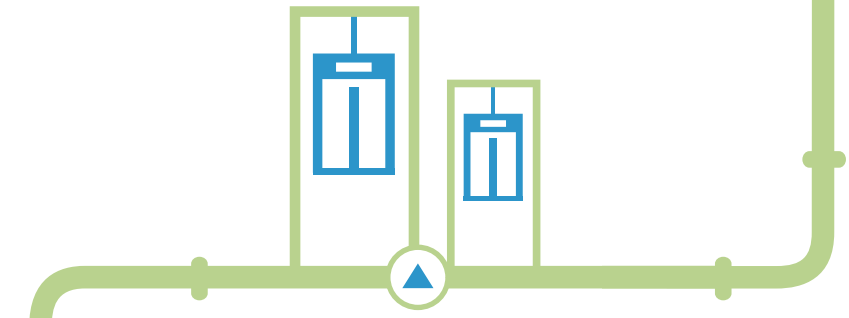
During the year, the Regular Safety Inspection (RSI) programme for long-time-no-service (LTNS) households covered not only 5 280 LTNS town gas households in 43 housing estates under the Hong Kong Housing Authority (HKHA) and the Hong Kong Housing Society (HKHS), but was also extended to cover 540 LTNS LPG households in 21 housing estates under the HKHA and HKHS, with an encouraging RSI success rate of 99% in the past five years.

政府推出優化升降機資助計劃
Lift Modernisation Subsidy Scheme Launched

為加強舊式升降機安全，政府推出25億元的「優化升降機資助計劃」，資助符合相關資格的私人住宅或綜合用途（商住）樓宇業主為其舊式升降機進行優化工程。全港約有13 000部舊式升降機符合資助資格。我們的目標是在未來六年為約5 000部舊式升降機進行優化工程。

To enhance the safety of aged lifts, a $2.5 billion Lift Modernisation Subsidy Scheme was launched to subsidise eligible owners of private residential buildings or composite (commercial and residential) buildings to carry out lift modernisation works. About 13 000 aged lifts in Hong Kong are eligible for the Scheme. Our target is to modernise about 5 000 aged lifts over the next six years.

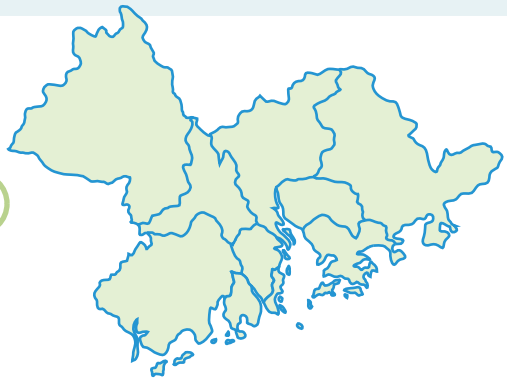
為5 000部
舊式升降機
進行優化工程
Modernise 5 000 aged lifts



於政府建築物及大灣區推廣重新校驗
Promoting Retro-commissioning in Government Buildings and the Greater Bay Area

為了提升現有建築物的能源效益，近年我們積極推動重新校驗，並計劃於未來七年為200多幢政府建築物進行重新校驗，務求為社會帶來示範作用。我們也於2018年11月牽頭與來自香港、澳門及大灣區其他城市的六個機構，簽署《粵港澳大灣區建築物重新校驗（再調適）合作備忘錄》，在大灣區合力推廣重新校驗。

To enhance energy efficiency in existing buildings, we have been actively promoting retro-commissioning (RCx) in recent years and aim to conduct RCx in more than 200 government buildings in the next seven years to set an example for the community. We also took the lead to sign a Memorandum of Co-operation on Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area in November 2018 with six organisations from Hong Kong, Macao and other cities in the Greater Bay Area (GBA) to jointly promote RCx in the GBA.



高鐵香港段順利通車
Smooth Opening of High Speed Rail Hong Kong Section

籌備多年的廣深港高鐵香港段已於2018年9月正式通車，為香港接通內地高鐵網絡立下里程碑。籌備期間，我們進行了大量安全測試和涉及多方的緊急應變演練。在中港兩地跨部門協作下，新鐵路綫終於順利通車。

The Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong High Speed Rail (HSR) was opened in September 2018 after years of preparation, marking a milestone in speed rail connection between Hong Kong and the Mainland. Numerous safety tests and multi-party emergency response drills were held during preparation. With inter-departmental collaboration across the border, we finally saw the smooth opening of the new railway line.

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

2017
78 304 名 NOS.

2018
79 716 名 **NOS.**

電業承辦商
ELECTRICAL CONTRACTORS

註冊電業承辦商
REGISTERED ELECTRICAL CONTRACTORS

2017
12 169 間 NOS.

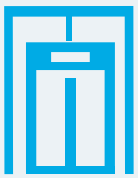
2018
13 097 間 **NOS.**

升降機及自動梯
LIFTS AND ESCALATORS

升降機
LIFTS

2017
66 735 部 NOS.

2018
68 177 部 **NOS.**



自動梯
ESCALATORS

2017
9 502 部 NOS.

2018
9 709 部 **NOS.**

燃氣供應
GAS SUPPLY

氣體喉管網路總長
TOTAL LENGTH OF GAS PIPE NETWORK

2017
3 636 公里 KM

2018
3 660 公里 **KM**

車輛維修技工
VEHICLE MECHANICS

註冊車輛維修技工
REGISTERED VEHICLE MECHANICS

2017
9 359 名 NOS.

2018
9 333 名 **NOS.**

車輛維修工場
VEHICLE MAINTENANCE WORKSHOPS

註冊車輛維修工場
REGISTERED VEHICLE MAINTENANCE WORKSHOPS

2017
1 942 間 NOS.

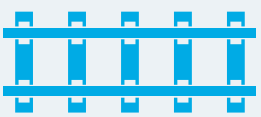
2018
2 071 間 **NOS.**

鐵路
RAILWAY

鐵路年度載客量
RAILWAY ANNUAL PATRONAGE

2017
1 945 百萬 MILLION

2018
1 984 百萬 **MILLION**



保障公眾安全
Protecting Public Safety

電力安全

電力相關事故持續減少

電力相關事故連續三年減少，由2016年的151宗，減至2017年的130宗，至2018年進一步減至115宗。事故與固定電力裝置、家用電氣產品及第三者損壞供電電纜有關。在這三類事故當中，第三者損壞供電電纜事故數目更持續下降，由2016年的44宗，減至2017年的34宗，至2018年再跌至25宗，是《供電電纜(保護)規例》自2001年實施以來的記錄新低。

整體電力相關事故減少，實有賴同事共同努力和業界通力合作，並針對問題所在，以目標為本方式進行規管。隨着事故數字降低，我們可投放更多資源於巡查及宣傳工作，建立良性循環。

Electrical Safety

Electrical Incidents Continued to Decline

The number of electrical incidents has continued to decline over the past three years, falling from 151 cases in 2016 to 130 in 2017, and further to 115 in 2018. The incidents were related to fixed electrical installations, household electrical products and electricity supply lines damaged by third parties. Among them, the number of incidents involving supply lines damaged by third parties fell from 44 cases in 2016 and 34 in 2017 to 25 in 2018, a record low since the implementation of the Electricity Supply Lines (Protection) Regulation in 2001.

The overall reduction in the number of electrical incidents is attributable to the concerted efforts of our colleagues and the co-operation of the trade, coupled with the target-oriented approach to address the problem in our regulatory work. With the decrease in electrical incidents, more resources can be deployed to carry out inspection and publicity work, thereby creating a virtuous circle.

電力相關事故
Number of electrical incidents

實務守則陸續更新

我們不時檢討並修訂有關《電力條例》及其附屬規例的工作守則及指南，以切合不斷轉變的實務需要，與時並進。新版《有關在供電電纜附近工作的實務守則》已於2018年12月29日起生效。實務守則概述「工作安全方式」，要求施工者向電力公司索取電纜圖則、聘請合資格人士確定地下供電電纜位置，以及在地下供電電纜附近進行工程時採取安全措施，避免損毀地下供電電纜。新版實務守則亦要求在工地保存一份地下供電電纜探測報告的副本，以方便前線工人參考。

《電氣產品(安全)規例指南》旨在為電氣產品供應商提供重要參考，使其了解相關規例的詳細要求。我們已於2018年開展更新這份指南的工作，目的除了更新指南內容外，還會加入一個新的簡化章節，以協助小型零售商更易掌握規例的基本要求。至於更新的內容，將包括市場上出現的新家用電氣產品，以及相關的最新國際和國家安全標準等。我們已於2018年12月至2019年2月期間，就修訂建議廣泛徵詢公眾及業界的意見。我們亦已與業界商會、專業團體、公用事業機構、大專院校、政府部門等成立工作小組，就指南的修訂細節進行討論，並一併考慮在諮詢期間所接獲的意見和建議。

Revisions to Codes of Practice and Guidance Notes

We review and update the codes of practice and guidance notes related to the Electricity Ordinance and its subsidiary regulations from time to time to meet the ever-changing operational needs and keep pace with the times. The revised Code of Practice on Working Near Electricity Supply Lines, effective since 29 December 2018, outlines the "Safe Working Mode" which requires the working party to obtain electricity cable plans from the power companies, engage Competent Person to detect cable locations, and adopt safety measures to avoid damaging electricity supply cables when carrying out work near underground electricity supply lines. The revised Code of Practice also stipulates that a copy of underground cable detection report must be kept at the work site for easy reference by frontline workers.

The Guidance Notes for the Electrical Products (Safety) Regulation provide an important reference for electrical product suppliers to understand the relevant regulatory requirements. Updating of the Guidance Notes began in 2018 and is now underway with various revision proposals as well as the addition of a new and concise chapter that serves as a handy guide to facilitate better understanding of the basic regulatory requirements by small retailers. The revised version will also cover new types of electrical products at the market and the latest relevant national and international safety standards, etc. Members of the public and the trade were widely consulted on the proposed revisions during the period from December 2018 to February 2019. A working group was also established with trade associations, professional bodies, public utility companies, tertiary institutions and government departments to discuss the detailed revisions of the Guidance Notes taking into account the feedback and recommendations collected during the consultation exercise.

此外，我們已於2018年開始籌劃《電力(線路)規例工作守則》的檢討及修訂工作，而檢討方向已獲電氣安全諮詢委員會確認。我們將於2019年年中成立一個由20多位代表組成的工作小組，進行檢討及修訂工作。新版本預計可於2020年公布。

Preparations for reviewing and updating the Code of Practice for the Electricity (Wiring) Regulations also began in 2018, with the direction of review endorsed by the Electrical Safety Advisory Committee. A working group comprising over 20 representatives will be formed in mid-2019 to conduct the review and update. The new edition is expected to be published in 2020.

展開與上網電價計劃相關的工作

Work Related to Feed-in Tariff Scheme Commenced

隨着兩家電力公司實施上網電價計劃，我們預計不少太陽能發電裝置擁有人需要為其發電設施註冊，因此已開展一個新的工作範疇，加緊訂立相應的註冊、宣傳及執法措施。我們於2018年製作了中英文版本的宣傳單張，提醒有興趣安裝太陽能發電設施的人士了解相關的法例要求，例如需要辦理註冊和進行維修保養以確保裝置安全。我們也向業界進行密集式宣傳教育，例如向註冊電業承辦商及註冊電業工程人員講解太陽能發電裝置的法規要求及註冊需要等，務求透過他們向用家傳達相關訊息。

With the introduction of the Feed-in Tariff (FiT) Scheme by the two power companies, it was foreseen that many owners of solar power generating installations would have to complete registration for their generating facilities. Therefore, we have embarked on a new area of work by expediting the formulation of corresponding measures regarding registration, publicity and enforcement. Publicity flyers, in both English and Chinese, were produced in 2018 to remind those interested in installing solar power generating facilities to understand the relevant regulatory requirements, such as the need to complete registration for their installations and carry out maintenance work to ensure the safety of their installations. We also arranged intensive publicity and education for the trade, such as briefing registered electrical contractors and registered electrical workers on the statutory and registration requirements for solar power generating installations, so that they would pass the relevant messages to users.

年內，我們舉辦了四場技術研討會及註冊電業工程人員持續進修講座，共約1 540名業界人士參與。這些活動為業界提供有關上網電價計劃的資訊，並講解註冊發電設施的法規要求。

During the year, four technical seminars and continuing education talks for registered electrical workers were held, with the participation of about 1 540 members of the trade. The events provided information about the FiT Scheme as well as the regulatory requirements for registered generating facilities.

宣傳策略以目標為本

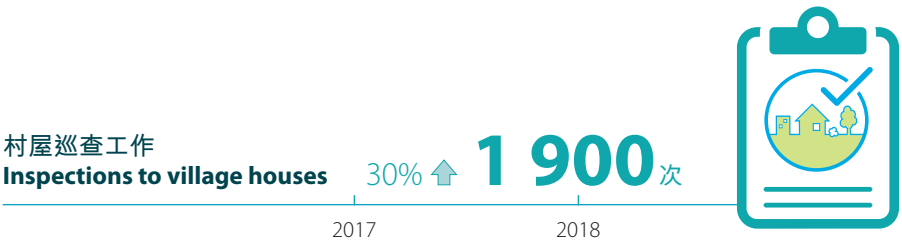
Target-oriented Promotion Strategy

近年，市面上越來越多小型零售商店兼售拖板、萬能插蘇以至其他小型家用電氣產品。然而，這些零售商店很多對相關法例所訂的要求卻不太清楚，因此我們特別為其推行了一個外展計劃，加強宣傳相關法例的工作。我們派員主動接觸小型商戶，講解售賣電氣產品必須符合《電氣產品(安全)規例》的要求，單是2018年就到訪了8 000多家小型零售商店進行宣傳工作，成效顯著，不少商店已明白相關法例的要求，並主動向上游的電氣產品供應商索取產品的符合安全規格證明書。我們在2019年會繼續進行有關工作，目標是到訪另外4 000家所在位置較為分散的小型商店。

In recent years, small retailers which also sell extension units, adaptors and other small household electrical products have been on the rise, but many of them are not familiar with the relevant regulatory requirements. Therefore, a tailor-made outreach programme has been launched to step up publicity on the relevant laws. In 2018, we paid visits to more than 8 000 small retail shops to explain to them that the sale of electrical products shall comply with the requirements of the Electrical Products (Safety) Regulation. The programme has proven effective as many retailers have got to know the regulatory requirements and taken the initiative to ask their upstream suppliers for certificates of safety compliance of their household electrical products. We will continue with the efforts in 2019, targeting at 4 000 more small retail shops scattered across the territory.

村屋的電力安全也是我們關注的範疇。過去幾年，村屋出現零星的電力安全事故，例如室內固定電力裝置因缺乏維修而發生漏電事故等。為免再生意外，我們已加強村屋巡查工作，2018年的巡查次數達到1 900次 ，較2017年增加了30%。此外，我們亦在巡查時向住戶派發宣傳單張，加強他們對電力裝置安全的意識。

Electrical safety at village houses is another area of our concern as there were a number of electrical incidents such as electricity leakage arising from inadequate maintenance of the fixed electrical installations over the past few years. To prevent recurrence of the incidents, we have stepped up inspections to village houses in 2018 and made 1 900 visits, representing an increase of 30% compared with 2017. During the inspections, we also disseminated information leaflets to residents so as to raise their awareness of the safety of their fixed electrical installations.



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另外，我們去年也增加使用圖像，使宣傳工作更到位。舉例來說，在《有關在供電電纜附近工作的實務守則》新版於2018年6月刊憲後，我們用連環圖形式製作了有關實務守則的宣傳單張，讓前線工人更易掌握重點。此外，我們又派發可張貼在工地告示板或手機等工具上的標貼和二維碼，方便工人隨時查閱單張或收看短片，快速找到安全施工資訊，以減低損毀供電電纜的風險。

Last year, we also made use of more visual images and illustrations in our promotional materials to enhance the effectiveness of our promotion work. For example, after the updated version of the Code of Practice on Working near Electricity Supply Lines was gazetted in June 2018, we have published promotional leaflets in the form of serial diagrams to facilitate the frontline workers, in getting the salient points of the Code of Practice. Furthermore, stickers with QR codes, which can be easily placed on worksite notice boards, mobile phones or other tools, have also been distributed to allow workers to view the leaflets or watch the video clips any time for quick access to information on how to work safely so as to reduce the risk of damaging electricity supply lines.

與內地合作揭開新一章

機電工程署與原國家質量監督檢驗檢疫總局（國家質檢總局）自15年前開始合作以來，在機電氣安全和能源效益方面的推廣、經驗交流、事故通報和人才培訓方面一直合作無間。由於國家質檢總局由2018年3月起已併入海關總署，機電工程署已於2018年9月在重慶與海關總署簽訂了新的合作協議，訂明雙方會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合作。

A New Chapter in our Collaboration with Mainland China

The EMSD worked closely with the former General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) for 15 years to promote electrical, mechanical and gas safety and energy efficiency, share experiences, report incidents and nurture talents. Following the integration of the AQSIQ into the General Administration of Customs of the People's Republic of China (GACC) in March 2018, we signed a new co-operation agreement with the GACC in Chongqing in September 2018. It provides that both parties will continue to collaborate in four areas, namely safety in household electrical products, gas appliances, lift and escalator safety, and energy efficiency.

機電工程署與中國海關總署於2018年9月在重慶簽訂了新合作協議，是部門與前國家質檢總局合作15年的延續。

The EMSD signed a new co-operation agreement with the GACC in Chongqing in September 2018, a continuation of our 15-year co-operation with the former AQSIQ.

至於在粵港澳大灣區的合作，我們去年開始已與澳門的牌照及稽查廳建立了新的協作機制，就家用電氣產品及氣體爐具，互相通報當地發現的不安全產品，力求做好信息互通。2019年1月，澳門的牌照及稽查廳廳長更率領代表人員來訪機電工程署。我們的技術人員也於2019年3月前赴澳門、廣州和深圳等地進行技術和法規交流，並參觀當地測試機構，有助於大灣區逐步建立合作關係。

As regards collaboration in the Guangdong-Hong Kong-Macao Greater Bay Area, we set up a collaboration mechanism with the Licensing and Inspection Department (LID) of Macao last year on mutual notification of unsafe household electrical products and gas appliances found in the local market, aiming at better information exchange. In January 2019, the head of the LID led a delegation to visit the EMSD. In March 2019, some of our technical staff travelled to Macao, Guangzhou and Shenzhen to share and exchange technical and regulatory insights, in addition to visiting local testing organisations. This helps to build up our network of co-operation in the Greater Bay Area.

澳門牌照及稽查廳廳長鄺信昌先生(右)於2019年率代表團來訪機電工程署。圖為時任機電工程署副署長/規管服務賴漢忠先生(左)致送紀念品及《機電工程署七十周年紀念特刊》予鄺先生。

Mr Kong Son-cheong (right), Head of Licensing and Inspection Department of Macao led a delegation to visit the EMSD in 2019. Photo shows the then Deputy Director/Regulatory Services of the EMSD, Mr Harry Lai, presenting a souvenir and the EMSD 70th Anniversary commemorative publication to Mr Kong.

機電工程署代表與澳門牌照及稽查廳代表團成員於機電工程署總部大樓合照。

EMSD representatives are pictured with delegates from the Licensing and Inspection Department of Macao at the EMSD Headquarters Building.

來年工作

《電氣產品(安全)規例指南》和《電力(線路)規例工作守則》的修訂工作，會是來年重點之一。隨着市民逐漸認識上網電價計劃，預計有關太陽能發電設施的註冊、巡查和安全宣傳工作也會隨之增加。至於電氣安全宣傳工作，無論面向業界抑或市民，我們都會繼續探索以目標對象為本並配合時代步伐的渠道及手法，包括製作新的電視宣傳短片及社交平台短片，務使宣傳工作更有效和到位。

The Year Ahead

The review of the Guidance Notes for the Electrical Products (Safety) Regulation and the Code of Practice for the Electricity (Wiring) Regulations will continue to be a key focus in the coming year. As the public awareness of the FiT Scheme grows, we anticipate that there will be an increasing demand for registration, inspection and safety publicity regarding solar power generating facilities. On electrical safety promotion, whether for the trade or the general public, we will continue to explore channels and means which are target-oriented and in sync with the times, including the production of a new series of TV announcements and video clips for social platforms, so that our messages can be delivered to target audiences more effectively.

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「機電署發明家」傳承經驗
"EMSD Inventor" Passes on His Experience

人稱「機電署發明家」的電力法例部前電氣督察利漢堅先生由學徒出身，投身機電業47載，不時按工作需要設計別出心裁的小發明，務求把工作做得更好。漢堅在2019年3月退休後，對機電業熱誠不減，因此決定於下半年重返機電署協助培訓電氣學徒，將畢生功藝和知識傳承給新一代。

Known as "EMSD's inventor", Mr Lee Hon-kin, former Electrical Inspector at the Electricity Legislation Division, dedicated 47 years to the E&M trade since starting his career as an apprentice. From time to time, he designed and made small and unique inventions based on operational needs to facilitate his work. After retiring in March 2019, Hon-kin remained passionate about the E&M trade, and decided to return to the Department in the second half of the year to serve as a trainer of electrical apprentices so that he can pass on his skills and knowledge to the new generation.

漢堅效力機電署長達23年，先後參與多個工作崗位，包括肩負電力法例部的執法工作、為消防處驗收危險品倉庫和檢查機電設備，以及負責維修保養香港國際機場的機電設施等。

Hon-kin held various positions during his 23 years of service with the EMSD, including taking on the law enforcement work of the Electricity Legislation Division, accepting dangerous good stores and inspecting E&M installations for the Fire Services Department, and carrying out maintenance of the E&M facilities at the Hong Kong International Airport, etc.

由於工作需要和個人興趣，漢堅不時製造各種便利工作的工具，例如測試儀錶是否運作正常的小工具、用於日常測試工作的轉接插頭、可配合安全帽使用的電筒燈夾、應付高空工作需要的伸縮檢測棍，以及方便追尋漏電源頭的測試工具等。

Due to needs at work and personal interest, Hon-kin made various tools to facilitate his work from time to time, such as small tools to test whether the instruments function properly, adaptors for daily testing tasks, flashlight clips which can be used with helmets, extendable inspection rods to facilitate work at height, and testing tools for tracing sources of earth leakage.

他說：「記得在電力法例部工作時，由於部分工作地點沒有升降機，當同事和我需要取走電器產品作調查時，只可使用樓梯搬運，非常不便。」為此，漢堅運用創新思維，設計並製造了一部與別不同的手拉車，能上落樓梯和應付高低不平的地面，用以運載日常工作所需的用具。

"When I was with the Electricity Legislation Division, some of the locations that my colleagues and I worked at had no lifts. It was very inconvenient when we had to take away the electrical products for investigation as we could only use the staircase," Hon-kin recalled. He therefore applied his ingenuity to design and make a unique trolley that could go up and down the stairs and cope with uneven ground surfaces to carry tools needed for daily work.

漢堅於2017年年中開始構思有關設計，僅以數月時間便完成手拉車。「手拉車每邊有三個車輪，可應付高低不平的地面。除了可以摺疊和方便攜帶外，設計時亦特別考慮到手拉車的承載面大小及載重量，大大減輕了日常搬運工具和電器的負擔。」他所設計的手拉車更獲部門頒發「員工建議書計劃」獎項，並奪得部門2019年度QEPPP比賽金獎。漢堅亦憑藉創作這個有助提升職安健的工具，獲職業安全健康局頒發第十屆全港傑出職安健員工嘉許計劃的「機構/企業組 — 管工組別」項目優異獎。

Hon-kin began to conceive the design of the trolley in mid-2017 and completed his invention in just a few months. "There are three wheels on each side of the trolley to cope with uneven ground surfaces. It is foldable and handy to carry around, with special consideration given to the size of its carrying surface and its load capacity during the design stage, significantly reducing the daily burden of transporting tools and appliances." The trolley he designed won an award in the Department's Staff Suggestion Scheme and a Gold Award in the Department's QEPPP 2019 Competition. The invention also served to enhance occupational safety and health, for which Hon-kin won a Merit Award in the 10th Outstanding OSH Employees Awards (Supervisor - Corporation and Organisation Category) organised by the Occupational Safety and Health Council.

退休後，漢堅稍作休息便由2019年下半年開始執起教鞭，培訓機電署的見習技術員，將他累積近半世紀的機電知識和經驗，以及不斷思考和熱愛發明創新的工作態度，傳承下去。

After retirement and taking a short break, Hon-kin started to serve as a trainer of EMSD technician trainees from the second half of 2019. The E&M knowledge and experience he has accumulated for nearly half a century as well as his drive to keep thinking and passion for invention and innovation will be passed on to new generations.

氣體安全

氣體事故宗數持續下降

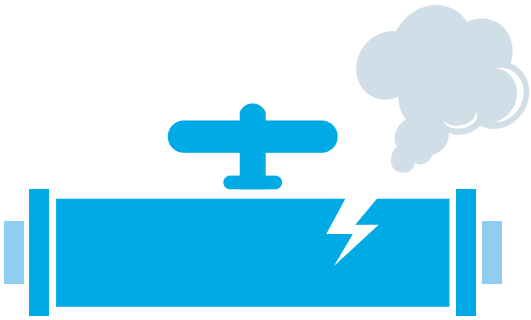
有賴業界與我們攜手合作，加強公眾對保障氣體安全的認識和參與，氣體事故整體數字在過去三年持續下降，由2016年的275宗下降至2017年的236宗，而2018年更進一步下降至195宗。另外，有關供氣主喉遭第三方損毀的事故宗數在過去幾年亦逐年下降，並在2018年錄得七宗的歷史低位。近年氣體事故數字持續下降，正好反映各持份者共同努力的成果，公眾安全亦得到更佳保障。

Gas Safety

Continued Drop in the Number of Gas Incidents

Thanks to the joint efforts of the trade and our colleagues in enhancing public awareness of and participation in protecting gas safety, the overall number of gas incidents continued to drop in the past three years, from 275 in 2016 to 236 in 2017, and further down to 195 in 2018. Furthermore, the number of incidents involving third-party damage to gas mains also gradually fell over the past few years, hitting a record low of seven in 2018. The continued drop in the number of gas incidents in recent years reflects the result of the concerted efforts among various stakeholders, leading to enhanced protection of public safety.

氣體事故整體數字
Number of gas incidents



由2016年的**275**宗下降至2017年的**236**宗，而2018年更進一步下降至**195**宗

From **275** in 2016 to **236** in 2017, and further down to **195** in 2018

進一步提高屋邨氣體裝置定期安全檢查的覆蓋率

我們自2015年開始聯同香港房屋委員會(房委會)和中華煤氣有限公司分別在不同屋邨推廣定期安全檢查計劃，以期積極減少過去五年因工作人員未能進屋為煤氣裝置進行檢查，而「長期沒接受安全檢查服務」的煤氣用戶數目。在2018/19年度，我們在房委會轄下的30個公共屋邨推行該計劃，共涉及約4 900個目標用戶。年內，我們亦在香港房屋協會(房協)轄下的13個屋邨進行該計劃，共涉及約380個目標用戶。本年度的推廣計劃於2019年首季完成，過去五年的整體入屋檢查率達99%，成功率相當高。

至於使用管道石油氣的公共屋邨，我們同樣積極與各相關的註冊氣體供應公司合作，向「長期沒接受安全檢查服務」的用戶推廣該計劃。年內，該計劃在房委會管理的15個屋邨及房協管理的六個屋邨推行，共涉及約540個目標用戶。計劃推行至2019年年初，「長期沒接受安全檢查服務」的用戶數目已顯著減少，過去五年的整體入屋檢查率也達99%，成績令人鼓舞。

Coverage of RSI of Gas Installations in Housing Estates Further Improved

We have joined hands with the Hong Kong Housing Authority (HKHA) and the Hong Kong and China Gas Company Limited (HKCG) to promote the Regular Safety Inspection (RSI) programme in different housing estates since 2015, with a view to actively reducing the number of "long-time-no-service" (LTNS) town gas households whose town gas installations were not inspected within the previous five years due to difficulties in accessing the households. In 2018/19, we implemented the RSI programme in 30 HKHA public housing estates, involving about 4 900 target households in total. During the year, the programme was also implemented in 13 housing estates under the Hong Kong Housing Society (HKHS), involving a total of about 380 target households. The RSI promotion programme for LTNS households this year was completed in the first quarter of 2019, with a very high overall access rate of 99% over the past five years.

As for public housing estates using piped LPG, we also actively collaborated with relevant registered gas supply companies (RGSCs) to promote the RSI programme to LTNS households. During the year, the programme was implemented in 15 HKHA estates and six HKHS estates, involving a total of about 540 target households. As at early 2019, the number of LTNS households was significantly reduced, with an encouraging overall access rate of 99% in the past five years.

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我們的外展隊伍跟工地施工人員親自接觸，宣傳最新的《避免損壞氣體喉管工作守則》第二版。新版《工作守則》已於2018年8月正式生效，目的是進一步減少供氣主喉遭第三方損毀事故。

Our outreach team approaches site workers directly to promote the latest Code of Practice on Avoidance of Damage to Gas Pipes (2nd Edition) which came into effect in August 2018 to further reduce the number of incidents of third-party damage to gas mains.

新版《避免損壞氣體喉管工作守則》

《避免損壞氣體喉管工作守則》(第二版)已於2018年8月刊憲生效。新版《工作守則》詳列安全作業的四個步驟，包括向氣體喉管擁有人/營運者索取氣體喉管設施圖則；利用喉管定位器勘測地下設施；在全面施工前挖掘試孔，確認氣體喉管位置；以及採用安全的挖掘方法。其中主要的修訂包括氣體喉管擁有人/營運者提供氣體喉管圖則的時限由28個工作天縮短至14個工作天；涵蓋更多的工程類別；界定氣體喉管和相關工程之間的距離；以及擴大「勝任人士」在氣體喉管附近地方進行工程的責任範圍。

隨着《工作守則》(第二版)生效，我們也向工程承辦商加強宣傳，並派遣同事到工地直接與施工人員接觸，講解新修訂的內容。經過多管齊下的努力，我們喜見2018年供氣主喉遭第三方損毀的事故宗數首次下降至單位數字。

加強社區層面的石油氣安全

機電署與註冊氣體供應公司於2016年年初推出「瓶裝石油氣分銷商安全表現評級計劃」，深受分銷商和用戶歡迎。分銷商可在店外展示計劃的標誌，並在店內展示評級證書，方便市民識別安全表現優異的分銷商，從而鼓勵業界進一步提升石油氣的安全水平。

2018年評級計劃的成績已於2019年3月公布，在168間參與的分銷商中，48間獲評為「金級」，較上一年度的36間增加近三成，反映瓶裝石油氣業界的安全水平日益提高，而獲評為「銀級」及「銅級」的分銷商則分別有26間及94間，顯示業界的表現正持續進步。

Updated Code of Practice on Avoidance of Damage to Gas Pipes

The Code of Practice on Avoidance of Damage to Gas Pipes (2nd Edition) was gazetted and came into effect in August 2018. The revised Code of Practice details four steps of safe system of work, which include obtaining gas pipe utility plans from gas pipe owners/operators, using pipe locating devices to survey underground utilities, digging trial holes before commencement of works to confirm the positions of gas pipes, and adopting safe excavation practices. Major revisions include shortening the time frame for gas pipe owners/operators to provide gas pipe layout plans from 28 to 14 working days, covering more types of works, defining the distances between gas pipes and associated works, and expanding the scope of responsibility of Competent Persons carrying out works in the vicinity of gas pipes.

As the Code of Practice (2nd Edition) came into force, we have stepped up promotion to contractors and dispatched colleagues to visit work sites to explain to workers the newly revised contents. With a multi-pronged effort, we are pleased to see that the number of incidents of third-party damage to gas mains was brought down to a single digit in 2018 for the first time.

Strengthening LPG Safety in the Community

Introduced by the EMSD and RGSCs in early 2016, the LPG Cylinder Distributor Safety Performance Recognition Scheme is well received by LPG distributors and users. LPG distributors may display the logo of the Scheme and certificates with ratings outside and inside their shops respectively to facilitate members of the public in identifying distributors with outstanding safety performance, thereby motivating the trade to further improve the safety standards of LPG.

The results of the Scheme for 2018 were released in March 2019. Among the 168 participating distributors, 48 attained a gold rating, an increase of nearly 30% when compared with 36 in the previous year. This reflects the improving safety standards of the LPG cylinder trade. 26 and 94 distributors received silver and bronze ratings respectively, showing that the performance of the trade has continued to improve.

瓶裝石油氣安全對社區相當重要。機電工程署同事定期巡查業界的運作情況，而「瓶裝石油氣分銷商安全表現評級計劃」則對評級表現優秀的分銷商予以表揚。

Cylinder LPG safety is important to the community. EMSD staff regularly inspect the operation of the trade, while the LPG Cylinder Distributor Safety Performance Recognition Scheme gives recognition to distributors which excel in the Scheme.

我們的同事巡查用戶的瓶裝石油氣裝置。根據「瓶裝石油氣分銷商安全表現評級計劃」，分銷商可在店鋪展示計劃的標誌和評級證書，讓市民知悉該店的安全表現。

Our colleague inspects a cylinder LPG installation of user. Under the LPG Cylinder Distributor Safety Performance Recognition Scheme, distributors may display the logo of the Scheme and certificates in their shops so that the public may get to know their safety performance.

我們除了與房委會、房協及註冊氣體供應公司合作，推動屋邨用戶進行定期安全檢查外，還特別向全港多幢「三無」樓宇的住戶加強宣傳工作，鼓勵住戶讓煤氣公司或瓶裝石油氣分銷商人員入屋進行定期安全檢查，同時提醒住戶避免儲存過量瓶裝石油氣，以及在煮食時保持室內空氣流通等。

In addition to working with the HKHA, HKHS and RGSCs to promote RSI in housing estates, we have also stepped up publicity in "three-nil" buildings in Hong Kong. The objective is to encourage households to allow personnel from HKCG or LPG cylinder distributors to conduct RSI in their premises, remind them to avoid storing excessive LPG cylinders, and maintain good ventilation when cooking, etc.

工作人員在氣體用戶屋內進行定期安全檢查，測試氣體爐具軟喉的狀態。

Checking the condition of the flexible tubing of a gas appliance during the RSI in a user's premises.

另一相關工作是加強宣傳妥善處理壓縮氣瓶（包括石油氣瓶）的正確方法，以免發生危險。年內，我們與環境保護署（環保署）、食物環境衞生署和消防處攜手編製了一系列單張及海報，呼籲公眾切勿胡亂棄置壓縮氣瓶，以及教育市民壓縮氣瓶的回收方法，鼓勵他們通報在公眾地方發現的棄置壓縮氣瓶。

Besides, we strengthened promotion of the proper handling of compressed gas cylinders, including LPG cylinders, to avoid danger. During the year, we worked with the Environmental Protection Department (EPD), the Food and Environmental Hygiene Department and the Fire Services Department to produce a series of leaflets and posters, urging the public not to improperly abandon compressed gas cylinders and educating them on the recycling methods of compressed gas cylinders. The campaign also encouraged members of the public to report abandoned compressed gas cylinders found in public places.

保障公眾安全
Protecting Public Safety

機電工程署的氣體安全大使外展團隊於星期日主動接觸外傭，宣傳氣體爐具安全。團隊也與幾個以少數族裔羣體為服務對象的社福團體合作，發放氣體安全資訊。

The EMSD outreach team of gas safety ambassadors takes the initiative to approach foreign domestic helpers on Sundays to promote gas appliance safety. The team also works with several welfare organisations serving ethnic minority groups to disseminate gas safety information.

此外，為了向少數族裔羣體推廣氣體安全，我們特別以多種語言(包括印尼文及泰文)印製宣傳單張，並透過大氣電波於少數族裔的電台頻道以印尼語、泰語及尼泊爾語分享氣體安全貼士。我們於年內繼續進行街頭外展宣傳工作，由同事擔任氣體安全大使，在星期日到訪外傭休假時聚集的熱門地點，親自向他們講解安全及正確使用住宅式氣體用具的知識，加強互動溝通。我們亦與幾個以外傭為服務對象的慈善團體協作，向外傭羣組發放有關氣體安全的資訊，務求令宣傳工作更到位和有效。

Moreover, to promote gas safety to ethnic minority groups, we have produced leaflets in different languages (including Bahasa Indonesia and Thai), and shared the tips on gas safety in Bahasa Indonesian, Thai and Nepali via radio channels dedicated to servicing ethnic minorities. During the year, we continued to conduct outreach publicity work, in which EMSD colleagues acted as gas safety ambassadors and visited popular gathering places of foreign domestic helpers on Sundays to convey to them knowledge on the safe and proper use of household gas appliances to enhance interaction and communication. We also collaborated with several charities serving foreign domestic helpers to disseminate gas safety information to helpers' groups so that our publicity work can achieve greater impact and effectiveness.

加強食肆氣體安全的宣傳工作

繼上年度我們開始加強有關食肆氣體安全的巡查及宣傳後，在2018/19年度，我們進而與數家大型商場發展商及物業管理公司協作，向旗下的食肆商戶推廣氣體安全。

我們現正與其他政府部門和業界共同商討一系列協作措施，以期進行更深入的外展宣傳，藉此向食肆負責人推廣為氣體裝置適時進行安全檢查的重要性，防患於未然。

Enhancing Gas Safety Promotion at Restaurants

Following enhanced gas safety inspection and promotion at restaurants in the previous year, we took one step further to collaborate with a number of major shopping mall developers and property management companies to promote gas safety to restaurants in their properties in 2018/19.

We are currently discussing with other government departments and the trade a series of collaborative measures in order to pursue more in-depth outreach promotion, so that we can promote to persons-in-charge of restaurants the importance of conducting safety inspections of their gas installations in a timely manner as a precautionary measure.

加強巡查石油氣車輛燃料缸

《石油氣車輛燃料缸保安封條系統工作守則》自2017年1月實施以來，已有效阻遏非法更換石油氣車輛燃料缸配件的情況。年內，專責確保石油氣車輛燃料系統維修安全的氣體安全督察更積極在車輛維修工場、石油氣加氣站和運輸署轄下的政府車輛驗車中心等地方進行突擊巡查，檢查石油氣車輛燃料缸的保安封條是否完整有效，至今並無發現違規個案，反映上述《工作守則》成效顯著。

我們預計的士業界未來會引入更多石油氣及電動混能車輛。由於新款混能車輛的內置燃料泵將更耐用，同時代理商為新款混能車輛提供長達十年的保用期，相信能進一步減低非法更換燃料泵的誘因。

車輛維修安全

車輛維修註冊組於2006年正式成立，負責推廣「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」。註冊組團隊於2018/19年度增至17人，為業界舉行各類活動，提高業內人士對車輛維修安全及品質的意識。

「車輛維修技工自願註冊計劃」自2007年推出以來，截至2019年3月底，在全港一萬多名車輛維修技工當中，有9 300多人已登記為註冊車輛維修技工。而「車輛維修工場自願註冊計劃」自2015年推出以來，截至2019年3月底，在全港2 800多間車輛維修工場當中，共有2 071間已經註冊，創歷史新高。

Stepping Up Inspections of LPG Vehicle Fuel Tanks

The Code of Practice on Security Label System for LPG Vehicle Fuel Tanks has successfully deterred unlawful replacement of LPG fuel tank components since its implementation in January 2017. During the year, our gas safety inspectors who are dedicated to ensuring the safety of maintenance for fuel system of LPG vehicles actively conducted surprise inspections at such locations as vehicle maintenance workshops, LPG filling stations and Government Vehicle Examination Centres under the Transport Department to check if the security labels on the LPG fuel tanks were intact and valid. So far, no violations have been found, showing that the above Code of Practice is highly effective.

We anticipate that the taxi trade will introduce more hybrid vehicles running on LPG and electricity in the future. As the internal fuel pump of the newly introduced hybrid vehicle will be more durable, and the agent of this new hybrid vehicle offers a lengthy warranty of ten years, it is believed that the incentive for unlawful replacement of fuel pumps will be further reduced.

Vehicle Maintenance Safety

The Vehicle Maintenance Registration Unit was set up in 2006 to promote the Voluntary Registration Scheme for Vehicle Mechanics (VRSVM) and the Voluntary Registration Scheme for Vehicle Maintenance Workshops (VRSVMW). The team, which was expanded to 17 members in 2018/19, organised various activities for the trade to enhance the awareness of trade members on vehicle maintenance safety and quality.

Since the introduction of the VRSVM in 2007, as at end-March 2019, more than 9 300 of the 10 000-plus mechanics in Hong Kong were registered vehicle mechanics. As for the VRSVMW, since its launch in 2015 and as at end-March 2019, a record high of 2 071 out of the 2 800-plus vehicle maintenance workshops in the territory were registered.

氣體標準事務處轄下車輛維修註冊組的工作之一是巡查全港的車輛維修工場。

One of the duties of our Vehicle Maintenance Registration Unit under the Gas Standards Office is to inspect vehicle maintenance workshops across the territory.

我們的車輛維修註冊組負責推行「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」，並於2018/19年度擴大編制，進一步提升車輛維修業界的安全水平及質素。

Our Vehicle Maintenance Registration Unit, which takes charge of implementing the Voluntary Registration Scheme for Vehicle Mechanics and the Voluntary Registration Scheme for Vehicle Maintenance Workshops, was expanded in 2018/19 to further enhance the safety and quality of the vehicle maintenance trade.

保障公眾安全
Protecting Public Safety

為了加強宣傳和增添教育趣味，我們於2018年12月舉辦醒目車輛維修技工問答比賽，吸引了近90名註冊車輛維修技工參加。有關活動的頒獎典禮已於2019年3月舉行，由機電署署長主持，並邀請了車輛維修技術諮詢委員會的委員一同參與。另外，我們於2019年3月亦舉辦了四格故事攝影創作比賽，共收到50多份參賽作品，反應非常熱烈，有關比賽的頒獎典禮已於2019年7月舉行。

To step up publicity and educate the public in a more interesting manner, we organised the Smart Vehicle Mechanic Quiz Competition in December 2018, which attracted some 90 registered vehicle mechanics to take part. Officiated by the Director of Electrical and Mechanical Services, the prize presentation ceremony of the competition was held in March 2019, and members of the Vehicle Maintenance Technical Advisory Committee were also invited to join. Additionally, a Four-Panel Photo Story Telling Competition was held in March 2019 with more than 50 submissions received, a very enthusiastic response indeed. The prize presentation ceremony of the competition was held in July 2019.

我們於2018年12月舉辦醒目車輛維修技工問答比賽，吸引了近90名註冊車輛維修技工參加。圖為機電工程署車輛維修註冊組人員、業界代表和全體參賽者合照，共享歡樂一刻。

Some 90 registered vehicle mechanics took part in the Smart Vehicle Mechanic Quiz Competition which we organised in December 2018. Picture shows officers from the EMSD Vehicle Maintenance Registration Unit, trade representatives and all participants sharing a joyful time.

我們於2019年3月舉辦了四格故事攝影創作比賽，以宣揚正確維修車輛的重要性，共收到50多份參賽作品。圖為頒獎典禮情況。

A Four-Panel Photo Story Telling Competition was held in March 2019 to promote the importance of proper vehicle maintenance with over 50 submissions received. Picture shows the prize presentation ceremony.

至於培訓方面，我們與職業訓練局合作，以虛擬實境技術製作了一個車輛維修示範工場。參觀者可在虛擬世界內了解工場的日常運作和《車輛維修工場實務指引》的基本要求。同時，參觀者亦可嘗試操作虛擬的車輛升降台，為車輛進行更換機油的工作。我們希望透過虛擬實境示範工場，讓年輕一代感受到車輛維修業正緊隨社會轉變和科技發展的步伐，與時並進，持續提升車輛維修安全水平和業界對品質的要求。

In terms of training, we have built a vehicle maintenance sample workshop with virtual reality (VR) technology in collaboration with the Vocational Training Council. Visitors can learn about the daily operation of a vehicle maintenance workshop and the basic requirements of the Practice Guidelines for Vehicle Maintenance Workshops in the virtual world. Furthermore, visitors can also try to operate the virtual vehicle lifting platform to replace engine oil for vehicles. It is hoped that the VR sample workshop will help deliver the message to young people that the vehicle maintenance trade is closely following changes in the society and keeping pace with technology development. We will keep up with the times to continuously improve the safety standards of vehicle maintenance and the quality requirements of the trade.

氣體風險評估及監督工作

機電署於年內進行了重要的氣體風險評估及監督工作。首先，就兩家電力公司將於索罟群島以東水域建造和營運海上液化天然氣接收站的工程，我們在環境影響評估中審視風險評估報告後，提出氣體安全建議，並與兩電就未來的天然氣業務和相關氣體裝置的審批展開商討 。接收站的碼頭為雙泊位設計，可供一艘浮式儲存再氣化裝置的船隻(儲氣船)和一艘液化天然氣運輸船停泊。儲氣船內的液化天然氣被再氣化後，會經兩條獨立的海底天然氣輸氣管道，分別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。工程預計於2019年年底展開，於2020年或2021年竣工，屆時將能提升天然氣供應的穩定性。配合目前兩電的燃氣發電機組，預期到2020年左右天然氣將可滿足香港大約一半的電力需求，大幅減少發電時的碳排放，增加使用清潔能源。

另外，環保署已展開有機資源回收中心的工程項目，務求減少廚餘棄置量和堆填廢物的需求，廚餘亦可透過生物處理技術(厭氧分解)產生生物氣(甲烷)而轉化成可再生能源。位於大嶼山小蠔灣的有機資源回收中心第一期已於2018年年底投入運作。為確保有機資源回收中心安全營運，我們與環保署及其承辦商緊密合作，審批有關氣體裝置、考核負責操作和保養的合資格人士、就風險評估提出建議，以及監督工程。我們亦正就有機資源回收中心第二和第三期的各項技術研究及環境影響評估工作提供有關氣體方面的意見，促使工程能夠順利進行。

Gas Risk Assessment and Monitoring

The EMSD conducted major gas risk assessments and monitoring work during the year. First, for the construction and operation of an offshore Liquefied Natural Gas (LNG) terminal by the two power companies in the waters to the east of the Soko Islands, we have made gas safety recommendations after reviewing the risk assessment report in the environmental impact assessment (EIA), and have started discussions with the two power companies about their future natural gas business and the vetting and approval of related gas installations. The terminal will enable a Floating Storage and Regasification Unit (FSRU) vessel and an LNG carrier to be moored at a double berth jetty. The regasified LNG from the FSRU vessel will be supplied to the Black Point Power Station of CLP Power Hong Kong Limited and the Lamma Power Station of The Hongkong Electric Company Limited via two separate subsea gas pipelines. The works are scheduled for commencement in late 2019 and completion in 2020 or 2021. Upon completion, the new facility will enhance the stability of natural gas supply in Hong Kong. With the existing gas-fired generating units of the two power companies, it is expected that natural gas will be able to satisfy about 50% of Hong Kong's electricity demand by about 2020, which will significantly reduce carbon emissions from power generation and increase the use of clean energy.

Meanwhile, the EPD has commenced the Organic Resources Recovery Centres (ORRCs) project to reduce the amount of food waste and minimise the need for landfill disposal. Food waste can also be converted into renewable energy through biological technology (anaerobic digestion) to produce biogas (methane). Phase 1 of the ORRC at Siu Ho Wan, Lantau Island, was commissioned in late 2018. To ensure the safe operation of the ORRC, we worked closely with the EPD and its contractor to vet and approve the gas installations, assess the qualified persons responsible for operation and maintenance, provide recommendations on risk assessment and monitor the works. We are also offering advice on gas related matters in various technical studies and EIA for Phases 2 and 3 of the ORRC to facilitate a smooth progress of the works.

我們製作了一個虛擬實境車輛維修示範工場，讓業界能更了解《車輛維修工場實務指引》的要求，協助車輛維修業跟上科技發展，與時並進。

We have developed a virtual reality vehicle maintenance sample workshop to facilitate the trade in better understanding the requirements of the Practice Guidelines for Vehicle Maintenance Workshops and help the industry to keep pace with technological advancements.

保障公眾安全
Protecting Public Safety

我們已推出新的安全使用輕度易燃雪種家用式冷氣機電視宣傳片，提醒市民大眾在安裝這類冷氣機時應注意的主要安全事項。

Our new TV announcement on "Safe Use of Mildly Flammable Refrigerant Household Air-conditioners" has gone on air to remind the public of key safety tips when installing such air-conditioners.

安全使用易燃雪種

目前市面上有四個品牌的家用冷氣機已推出新型號和採用較環保但輕度易燃的雪種。為了加強公眾對使用易燃雪種的家用冷氣機的安全意識，機電署年內已製作安全使用輕度易燃雪種家用式冷氣機的電視宣傳片，預計於2019年5月推出，提醒消費者應注意生產商所建議的房間大小和高度限制，並須委聘受過相關專業訓練的人士進行安裝和維修保養，以減低易燃雪種的潛在風險。

由機電署擔當聯絡角色的「跨部門監察易燃雪種協調小組」早於2017年已向冷氣業界及物業管理公司發信，建議大型冷氣裝置不應採用易燃雪種，而協調小組亦於2018/19年度把有關建議推廣至香港空調製冷業職工總會、保險業及物業管理從業員，並進一步提醒業界應關注使用易燃雪種的風險評估。

隨着機電署於2018年與廣州市工貿技師學院簽訂合作備忘錄，我們正聯繫學院提供有關易燃雪種冷氣機的培訓，預計於2019年下半年舉辦。

來年展望

來年，我們會繼續加強各項安全巡查和宣傳教育工作，務求以風險為本的管理方式，在有限的資源下，把各範疇的氣體安全和車輛維修安全工作做得更好。

Safe Use of Flammable Refrigerants

Four brands of household air-conditioners currently available in the market have introduced new models and adopted relatively eco-friendly but mildly flammable refrigerants. In order to enhance the safety awareness of members of the public on using household air-conditioners with flammable refrigerants, the EMSD produced a TV announcement on "Safe Use of Mildly Flammable Refrigerant Household Air-conditioners" during the year, which is expected to be launched in May 2019. It reminds consumers to pay attention to the room size and height restrictions as recommended by the manufacturers. Consumers should also engage professionally trained persons to carry out installation and maintenance so as to minimise the potential risks of flammable refrigerants.

The Inter-departmental Co-ordination Group for the Monitoring of Flammable Refrigerants, in which the EMSD takes up a liaison role, issued a letter to the air-conditioning trade and property management companies as early as 2017, recommending that flammable refrigerants should not be used in large-scale air-conditioning systems. In 2018/19, the recommendation was also disseminated to the Hong Kong Air-Conditioning and Refrigerating Trades Workers General Union, the insurance industry and property management personnel, further reminding them to pay attention to the risk assessments on the use of flammable refrigerants.

With the signing of a memorandum of co-operation with the Guangzhou Industry and Trade Technician College (GITTC) in 2018, the EMSD is liaising with the GITTC on its provision of training on flammable refrigerant air-conditioners, which is expected to take place in the second half of 2019.

The Year Ahead

We will continue to step up safety inspections and public education in the coming year, with a view to making the best use of limited resources to further improve our different areas of work on gas and vehicle maintenance safety under a risk-based management approach.

肩負確保氣體安全的使命：
Dedicated to Ensuring Gas Safety:

深入社羣，走進外傭圈子，提高她們對使用氣體用具的安全意識

Enhancing the Safety Awareness of Foreign Domestic Helpers on the Use of Gas Appliances with a Personal Touch

現時香港約有30多萬名外籍家庭傭工，而她們大多會使用氣體用具煮食。因此，為了確保氣體安全，以及提高外傭對使用氣體用具的安全意識，氣體標準事務處助理機械督察潘賦翹先生及其同事不惜減少假日與家人共聚天倫的時間，主動於星期日走到外傭聚集的熱門地方，宣傳氣體用具的安全知識和進行巡查，藉此照顧不同社群的需要，把氣體安全工作做得更到位。

賦翹及其團隊的主要職責包括批核住宅式氣體用具、處理日常與氣體安全相關的查詢，以及調查意外事故的原因，例如不正確使用氣體用具。

賦翹回想：「幾年前，在我接手處理關於外籍家庭傭工不安全使用氣體用具的個案時，於巡查期間發現部分外傭在公眾地方不適當使用手提卡式氣體用具煮食，這存在一定程度的氣體安全風險。我們明白外傭在異地工作，缺乏本地氣體安全知識，於是由2017年開始，安排在假日期間到外傭休假經常聚集的熱門地點(例如灣仔駱克道、維多利亞公園、旺角道行人天橋、中環皇后像廣場及美孚葵涌道天橋底一帶)進行巡查及宣傳推廣活動，並派發以英語、印尼語和泰語製作的宣傳單張，教導她們正確使用氣體用具的知識。」

此外，為進一步加強對外傭的宣傳推廣工作，他更主動接觸一些外傭中介公司及專門支援外傭的慈善團體，探討合作機會。他深信與相關團體協作，定能令宣傳效果事半功倍。另外，他又安排在專為少數族裔而設的電台頻道，以印尼語、泰語和尼泊爾語分享一些氣體安全小貼士。賦翹說：「我和同事會繼續努力，從多方面做好宣傳推廣工作，加強外傭和少數族裔的氣體安全意識。」

At present, there are over 300 000 foreign domestic helpers in Hong Kong, and a majority of them may use gas appliances for cooking. Therefore, in order to ensure gas safety and enhance the safety awareness of these helpers on the use of gas appliances, Assistant Mechanical Inspector at the Gas Standards Office, Mr Poon Fu-kiu, David, and his team did not hesitate to sacrifice some of their family time on holidays, and took the initiative to visit popular gathering places of domestic helpers on Sundays to promote the safety knowledge of using gas appliances and conduct inspections, thus taking care of the needs of different communities and making our work on gas safety more effective.

The major responsibilities of David and his team include approval of domestic gas appliances, handling daily enquiries related to gas safety, and investigating the causes of gas incidents, such as improper use of gas appliances.

David recalled: "A few years ago, I started to take over cases involving the unsafe use of gas appliances by foreign domestic helpers. During inspections, we found that some of the helpers improperly used portable gas cassette cookers for cooking in public places, which posed a certain level of gas safety risks. We were aware that domestic helpers were working in a foreign place and lacked local gas safety knowledge. Therefore, we have, since 2017, arranged to carry out inspections and outreach publicity programmes at popular gathering places (such as Lockhart Road in Wan Chai, Victoria Park, Mong Kok Road Footbridge, Statue Square in Central and areas under Kwai Chung Road Flyover in Mei Foo) of foreign domestic helpers during holidays. We distributed publicity leaflets in English, Bahasa Indonesian and Thai to teach them the proper use of gas appliances."

Besides, to further step up promotion and publicity to foreign domestic helpers, David proactively approached domestic helper agencies and charities that provide specialised support to helpers to explore collaboration opportunities. He believed that collaborative efforts with relevant organisations would definitely achieve a multiplying effect. In addition, he also arranged to broadcast gas safety tips in Bahasa Indonesian, Thai and Nepali on radio channels dedicated to ethnic minorities. "My team and I will continue with our promotional and publicity efforts to enhance the gas safety awareness of domestic helpers and ethnic minorities," he said.

保障公眾安全
Protecting Public Safety

機械安全

加強巡查舊式升降機以策安全

我們一直非常關注舊式升降機的安全。在2018年，我們與發展局制訂了一系列提升舊式升降機安全水平的措施，並逐步予以落實。

為加強巡查舊式升降機，我們於2018年6月成立了一支由11名督察人員組成的專責巡查隊伍，再於同年11月聘請獨立顧問公司，研究進一步擴大舊式升降機的巡查範圍和增加巡查次數。在2018年，我們單是針對舊式升降機便進行了合共4 683次巡查，預計2019年巡查舊式升降機的次數會增至約17 000次。

因應市民對升降機及自動梯安全的要求不斷增加，我們檢討並更新了2012年出版的《升降機工程及自動梯工程實務守則》(《實務守則》)。最新的2018年版《實務守則》已於2018年8月刊憲，並於2019年2月1日生效。在此次修訂中，我們引入了針對舊式升降機的「特別保養」要求，規定承辦商須為所有尚未安裝機廂上行超速保護裝置、機廂非預定移動保護裝置及雙重制動系統的舊式升降機，每年進行不少於兩次「特別保養」或採用升降機生產商建議的其他方案，以確保升降機安全運作。新措施旨在針對尚未配備最新安全設備的舊式升降機，加強其重要部件的保養，以提升其安全水平。

推行優化升降機資助計劃

為進一步加快在社區推展升降機優化工程，行政長官於2018年《施政報告》中提出投入25億元推行優化升降機資助計劃，資助符合平均應課差餉租值上限的合資格私人住宅或綜合用途(商住)樓宇業主為其舊式升降機進行優化工程。此外，相關樓宇的升降機必須欠缺該計劃訂明的最少一項「必須的安全裝置」，即雙重制動系統、機廂非預定移動保護裝置、機廂上行超速保護裝置和機廂門鎖及門刀，方可申請資助。

Mechanical Safety

Stepping Up Inspection of Aged Lifts to Ensure Safety

The safety of aged lifts has always been a key area of concern for us. In 2018, we developed a set of safety enhancement measures for aged lifts in conjunction with the Development Bureau, and had them implemented progressively.

To strengthen the inspection of aged lifts, we formed a new dedicated team consisting of 11 inspectors in June 2018. In November the same year, we further engaged independent consultants to study on expanding the coverage of aged lift inspections and increasing their frequency. A total of 4 683 inspections on aged lifts were conducted in 2018. It is expected that the number would rise to about 17 000 in 2019.

In response to ever-increasing public expectations for lift and escalator safety, we reviewed and updated the Code of Practice for Lift Works and Escalator Works (Works Code) published in 2012. The latest 2018 Edition of the Works Code was gazetted in August 2018 and came into effect on 1 February 2019. In this revised edition, the requirement to undertake "special maintenance" was introduced. Lift contractors are now required to conduct "special maintenance" at least twice a year for aged lifts that have not yet been installed with ascending car overspeed protection device, unintended car movement protection device and double brake system; or to implement the recommendations of lift manufacturers to ensure the safe operation of such lifts. The new measure is intended to enhance the maintenance of certain critical components in aged lifts that do not yet have the latest safety mechanisms, so as to raise their safety level.

Lift Modernisation Subsidy Scheme Implemented

To further expedite lift modernisation in the community, the Chief Executive announced in her 2018 Policy Address the launch of a $2.5 billion Lift Modernisation Subsidy Scheme (LIMSS). The subsidy is available for application by owners of private residential buildings or composite (commercial and residential) buildings not exceeding a stipulated average annual rateable value. Also, the lifts concerned must be in short of at least one of the "essential safety devices" specified in the LIMSS, namely double brake system, unintended car movement protection device, ascending car overspeed protection device, and car door mechanical lock and door safety edge.

舊式升降機巡查次數
Aged lift inspections

4 683 次
2018

預計增至
Expected to rise to
17 000 次
2019

全港約有13 000部舊式升降機符合上述資助資格。我們的目標是在未來六年為約5 000部舊式升降機進行優化工程，而每部合資格升降機的資助額最高為工程費用的六成，上限為50萬元。年滿60歲或以上的長者自住業主更可獲工程費用的全數資助，上限為每個單位50,000元。首階段資助申請已於2019年3月29日至8月1日進行，市民反應踴躍，申請結果將於2019年第四季公布。

資助計劃旨在幫助有需要的業主為其舊式升降機進行優化工程，從而提升升降機安全水平，我們樂見其成，並會與市建局、發展局和升降機業界共同協作，為資助計劃制訂具體的實施框架和細則，發揮促成者的角色。

應用科技為自動梯安全「把脈」

年內的另一成就是成功申請創新及科技局的「科技統籌(整體撥款)」資助，以研究應用光纖光柵傳感技術，監測升降機及自動梯運作的安全及穩定性。

我們於2018年9月首度獲批撥款，為港鐵旺角站的一部升降機及兩條自動梯「把脈」，進行有關創新科技的概念驗證和可預測性警報系統先導測試。這個項目的進展良好，預計在2019年第三季完成。有關系統已妥為安裝，並開始經雲端的平台收集數據作分析。項目工程人員已進行多項實地故障模擬測試，把收集所得的數據與從正常運作的升降機及自動梯取得的數據作比對，從而推斷出系統故障和部件運作不良的情況，並就異常情況自動發出預警，提示有關人員進行預防性維修，避免故障和意外發生。

上述項目的第二階段將以自動梯為重點，我們正籌備有關工作，並會加入人工智能分析技術的元素，實時為自動梯「把脈」。我們更計劃在有關技術發展成熟時，把其推廣至其他政府部門、運輸設施、大專院校、商場及物業管理公司等。我們亦歡迎升降機及自動梯製造商研究為現有的產品及設施引入光纖光柵傳感技術，並與我們共同努力，透過應用科技以提高升降機及自動梯的安全水平。

About 13 000 aged lifts in Hong Kong are eligible for the LIMSS. Our target is to modernise about 5 000 aged lifts over the next six years. The subsidy will cover up to 60% of the cost of the modernisation works, subject to a cap of $500,000 per lift. Elderly owner-occupiers aged 60 or above of eligible buildings may apply for full subsidy, subject to a cap of $50,000 per domestic unit. Enthusiastic response from the community was received during the first round of application from 29 March to 1 August 2019. Results will be released in the fourth quarter of 2019.

The LIMSS aims to help needy building owners modernise their aged lifts, thereby improving the lift safety. We are delighted to see the implementation of the LIMSS, and will work in conjunction with the Urban Renewal Authority, Development Bureau and the lift trade to formulate its implementation framework and details, fulfilling our role as a facilitator.

Applying Technology in Escalator "Health Checks"

Another achievement during the year was our successful bid for the TechConnect (block vote) funding from the Innovation and Technology Bureau for a study on applying optical fibre Bragg grating (FBG) sensing technology to monitor the safety and reliability of lift and escalator operation.

We obtained the funding approval for the first time in September 2018 for a proof-of-concept of an innovative technology and a pilot trial of a predictive alert system on a lift and two escalators at the Mong Kok MTR station, as part of their "health checks". The project is in good progress and scheduled for completion in the third quarter of 2019. The system was successfully installed and began collecting data via a cloud platform for analysis. Numerous on-site simulation tests of faults were conducted, with data collected and compared against data from normal lift and escalator operation. The simulation tests made it possible to predict system faults or component malfunctioning, and automatically issue early warning of abnormalities. This will prompt maintenance personnel to conduct preventive maintenance and avoid breakdowns and accidents.

Preparations for the second phase of the project focusing on escalators are underway. Artificial intelligence analytics will be added to conduct health checks on escalators in real time. We are also planning to extend the FBG sensing technology to other government departments, transport facilities, tertiary institutions, malls and property management companies, etc. when the technology matures. We welcome manufacturers of lifts and escalators to explore the use of FBG sensing technology in their existing products and facilities, and make joint efforts with us to adopt technology to enhance the safety of lifts and escalators.

為自動梯「把脈」
Conduct "health checks" on escalators

保障公眾安全
Protecting Public Safety

機動遊戲機審批工作

中環海濱的「歐陸嘉年華」於2018年踏入第五個年頭，場內設施包括多款 大型機動遊戲機，均須先經機電工程署審批才可向公眾開放。

Vetting and Approval of Amusement Rides

The Great European Carnival was held at the Central Harbourfront for the fifth year in 2018. All amusement rides at the Carnival, including a variety of large-scale ones, must be vetted and approved by the EMSD before they could be opened to the public.

機電工程署人員為2018年中環海濱嘉年華的所有機動遊戲機進行安全檢測後，遊戲機才可開放給公眾使用。

All amusement rides at the Central Harbour front Carnival held in 2018 were tested to be safe before they were opened to the public.

累積了近年經驗，我們在短短兩個多星期內已完成所有審批和檢查工作，並就場地的32部機動遊戲機向嘉年華營運商發出「使用及操作許可證」。

With the benefit of experience in recent years, we completed all vetting and checking work and issued to the operator of the Carnival the "Permit to Use and Operate" for the 32 rides at the venue within just two weeks or so.

累積了近年的經驗，主辦機構早在2018年嘉年華開幕前的半年已展開準備工作，包括根據《機動遊戲機（安全）條例》，就機動遊戲機的設計及安裝事宜向機電工程署申請「設計批准」；在機動遊戲設備運抵香港後，根據相關的風險評估結果進行無損探傷測試；在完成機動遊戲機的安裝後，安排獨立檢測員對遊戲機進行全面檢測，然後就每一台遊戲機向我們提交「使用及操作許可證」申請。

With the experience from the past few years, the organiser began their preparations as early as six months prior to the event. Among other things, they applied to the EMSD for "design approval" regarding the design and installation of the amusement rides in accordance with the Amusement Rides (Safety) Ordinance. Upon arrival of the ride equipment in Hong Kong, the organiser conducted non-destructive testing based on the results of risk assessments. When the installation of the rides was completed, the organiser engaged an independent surveyor to conduct a comprehensive examination of the rides before submitting the application for "Permit to Use and Operate" for every single amusement ride.

與此同時，我們亦為主辦機構所僱用的「主管人員」進行審核，他們負責維修保養機動遊戲機和確保其安全操作。我們在短短兩個多星期內已就場地的32台機動遊戲機發出「使用及操作許可證」。主辦機構對本港的相關安全法規要求和審批程序已比以往熟悉，所以安排上亦比以往暢順。活動完結後，我們收到主辦機構的感謝函，反映雙方在確保安全的大前提下，彼此各司其職，合作無間，讓市民及遊客在節慶假期樂享安全的遊樂節目。

At the same time, we also carried out assessment of the competent persons employed by the organiser, who were responsible for the maintenance and safe operation of the amusement rides. For the Carnival in 2018, we managed to issue the "Permit to Use and Operate" for the 32 rides at the venue within just two weeks or so. As the organiser had become more familiar with the relevant statutory safety requirements and vetting procedures in Hong Kong, the arrangements ran smoother than previous years. The organiser sent an appreciation letter to us after the event this year, indicating that with the common goal of ensuring public safety, both the organiser and we have played our part and collaborated well in bringing an enjoyable and safe event to the general public and tourists during the festive holidays.

每年由亞洲不同城市輪流舉行的亞洲遊樂設施博覽會，今年6月在香港灣仔會議展覽中心舉行。博覽會共有393個參展單位，展示最新的主題樂園產品及服務，包括21個機動遊戲機。博覽會可供展品安裝的時間極短，參展商需要在展會前短短三日內完成安裝機動遊戲機，並向我們申請使用和操作相關設施的許可證。在我們團隊盡力支援和協助及參展商的配合下，活動最終得以安全順利地進行。

The Asian Attraction Expo, an annual event that different Asian cities take turns to organise, took place at the Hong Kong Convention and Exhibition Centre in June 2018. The event attracted 393 exhibitors to showcase their latest products and services for theme parks, including 21 amusement rides. As the time available for installation of exhibits was very short, exhibitors had to complete the work for the rides and apply to the EMSD for permits to use and operate within a window of three days prior to the Expo. With full support and facilitation from our team, together with co-operation from the exhibitors, the event was held safely and smoothly.

香港迪士尼樂園的全新重點機動遊戲機「蟻俠與黃蜂女：擊戰特攻！」，已於2019年3月底對外開放。這是樂園近年的多個擴展項目之一，由原址的「巴斯光年星際歷險」改建而成。我們的團隊就這項重大改裝工程如期完成了安全審批，讓新設施可順利啟用。

The new ride "Ant-Man and The Wasp: Nano Battle!" at the Hong Kong Disneyland was opened to the public at the end of March 2019. As one of the theme park's ongoing expansion projects in recent years, the ride was re-developed from the previous "Buzz Lightyear Astro Blasters" in the same location. Our team completed the vetting and approval of this major alteration in line with its launch schedule.

我們為香港迪士尼樂園全新的「蟻俠與黃蜂女：擊戰特攻！」機動遊戲機進行的安全審批工作已順利完成，讓新設施可於2019年3月如期向公眾開放。

The safety approval of the new ride "Ant-Man and The Wasp: Nano Battle!" at the Hong Kong Disneyland was completed smoothly, in line with its launch schedule in March 2019.

新機動遊戲機的所有機械設施都必須經過檢測和審批，才可正式投入運作。

All mechanical devices of the new ride must be tested and approved before commencement of operation.

保障公眾安全
Protecting Public Safety

昂坪360

港珠澳大橋於2018年10月開通後，昂坪360的每日乘客量大幅上升。我們因應系統使用率的增加，加緊了對纜車系統的安全巡查工作，確保營運商按照生產商的要求及本署相關實務守則的指引進行定期維修保養，使系統能暢順穩妥地運作。在2019年1月，營運商順利更換了附設在纜車系統的標號纜索。該標號纜索為飛越上空前往進行拯救工作的飛行服務員作警示用途，防止飛機撞到纜車系統。我們為該標號纜索的新設計進行審批，並派員實地監察更換工程，確保纜車系統安全運作。

Ngong Ping 360

The daily visitor traffic at Ngong Ping 360 rose dramatically following the opening of the Hong Kong-Zhuhai-Macao Bridge in October 2018. In view of the heightened usage of the cable car system, we stepped up the safety inspection of the attraction to ensure that the operator carried out regular maintenance in accordance with the requirements of the manufacturer and the guidelines of the EMSD's code of practice so as to maintain smooth and reliable system operation. In January 2019, the operator successfully replaced the marker cable adjacent to the cable car system. The cable serves the purpose of setting up beacons alerting aircrafts to avoid collision against the cable car system when flying over for rescue services. We vetted and approved the new design of marker cable and sent inspectors to monitor the replacement work onsite to ensure the safe operation of the cable car system.

營運商採用了創新的先進技術，以架空式的自動化機械工作平台取代傳統以人手垂直吊運的方法，大大縮短了更新標號纜索的實地施工時間。

The operator has adopted innovative and advanced technology to replace the traditional manual vertical lifting method with an overhead automated mechanical working platform, which has greatly shortened the time for on-site replacement of the marker cable.

因應昂坪360纜車系統乘客量上升，我們加緊了對系統的巡查工作，以確保其運作保持暢順可靠。

We have stepped up the safety inspections of the Ngong Ping 360 Cable Car System to ensure its smooth and reliable operation in view of its rising visitor traffic.

未來工作

來年的重點工作之一是與市建局及發展局一起推廣優化升降機資助計劃，進一步落實執行細節，鼓勵更多合資格的業主參與計劃。早前我們在多區舉行了11場簡介會，共有一千多人參加。來年我們會繼續舉辦宣傳活動，讓業主加深認識計劃所帶來的益處。

我們會繼續致力於升降機及自動梯的安全規管工作，如監察《實務守則》新版的實施情況和審視其成效，並就第二階段的光纖光柵傳感技術測試申請追加「科技統籌(整體撥款)」資助，務求持續應用嶄新科技，提高自動梯及升降機的安全水平。

The Year Ahead

A key focus for the year ahead is further promoting the LIMSS in conjunction with the Urban Renewal Authority and Development Bureau. Further implementation details will be finalised to encourage eligible property owners to take part in the Scheme. A series of 11 briefing sessions about the LIMSS were held earlier in various districts, attracting more than 1 000 participants. Such promotional activities will continue in the coming year to help property owners better understand the benefits of the LIMSS.

We will also maintain a close watch on the regulation of lift and escalator safety, such as monitoring the implementation of the revised edition of the Works Code, as well as reviewing its effectiveness. We will apply for additional funding under TechConnect (block vote) for phase two testing of the FBG sensing technology, as part of our ongoing efforts to use new technology to enhance lift and escalator safety.

鐵路安全

高鐵香港段順利開通

籌備多年的廣深港高速鐵路(高鐵)香港段於2018年9月正式通車，為香港接通內地高鐵網絡立下重要的里程碑。

由於高鐵涉及香港與內地的鐵路運作，我們早於2018年3月已開始參與香港鐵路有限公司(港鐵公司)為各個系統進行的操作及緊急應變演習，歷時半年，直至9月結束，比一般新鐵路綫開通前所需的約三個月時間多了一倍，其中部分演習涉及兩地和跨部門協作。在多方協調和共同努力下，高鐵香港段終於順利通車。

與本港其他鐵路綫相比，機電署鐵路科對高鐵香港段的監督和支援範圍更為廣闊，有關工作包括就內地營運而須進入香港段的多款高鐵列車進行安全認證、測試不同的車載信號系統，以及就內地高鐵列車車長進入香港段工作和本港高鐵列車車長進入內地段工作進行資格訂定和管理。由於香港與內地的規管體制不同，高鐵香港段在日常營運及維修保養方面均有很多具體細節須由兩地商討和審議。此外，高鐵香港段長約26公里，而內地段則超過100公里，任何路段如因天氣或機件問題而影響列車服務，兩地人員都必須馬上互相通報，進行溝通協調。上述各種安全監管事項，我們都在高鐵香港段開通前與國家鐵路局進行緊密聯繫和磋商，把問題一一解決。

經過今次籌備高鐵香港段的開通工作，我們與國家鐵路局及相關的內地持份者建立了良好工作關係，在維持鐵路安全方面也取得共識，為日後長期合作奠定牢固基礎。

Railway Safety

High Speed Rail Hong Kong Section Opened

The Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong High Speed Rail (HSR) was opened in September 2018 after years of preparation, marking a major milestone in high speed rail connection between Hong Kong and the Mainland.

As the HSR involves railway operations in Hong Kong and the Mainland, we began taking part in the operation and emergency response drills conducted by the Mass Transit Railway Corporation Limited (MTRCL) on all related systems in March 2018. The drills ran for six months until September, doubled the typically required time of three months for opening a new railway line. Some of the drills involved inter-departmental and cross-border collaborations. With the concerted hard work and multi-party co-ordination, the Hong Kong Section of the HSR was opened smoothly.

Compared to other railway lines in the territory, the Hong Kong Section of the HSR involves much broader supervision and support from the Railways Branch of the EMSD, such as safety certification for the high-speed train models deployed by the Mainland on the Hong Kong Section, testing of different train-borne signalling systems, and formulating and managing the qualifications for Mainland drivers operating high-speed trains on the Hong Kong Section, and vice versa. As Hong Kong and the Mainland have different regulatory regimes, many specific details of the daily operation and maintenance of the HSR required joint discussions and deliberations between Hong Kong and the Mainland. The Hong Kong Section of the HSR measures about 26 km, while the Mainland Section stretches more than 100 km. When any section of the railway is affected by weather or mechanical problems, the personnel in both Hong Kong and the Mainland must alert each other for immediate communication and co-ordination. All these safety regulatory issues were resolved one by one, following close communication and discussions with the National Railway Administration (NRA) of the People's Republic of China before the opening of the Hong Kong Section.

Preparations for the opening of the Hong Kong Section also helped us foster a good working relationship with the NRA and other relevant Mainland stakeholders. We built a consensus with the Mainland on maintaining railway safety, thus laying a strong foundation for long-term co-operation in the future.

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高鐵香港段自2018年9月正式啟用後運作大致暢順。圖為港鐵公司石崗列車停放處的高鐵列車。

The operation of the HSR Hong Kong Section has been largely smooth since its opening in September 2018. Picture shows HSR rolling stock at the Shek Kong Stabling Sidings of the MTRCL.

高鐵香港段設有高效的安全檢測和事故處理措施，以預防和應對高鐵事故。

Effective safety inspection and remedial measures are in place to prevent and resolve incidents on the HSR Hong Kong Section.

機電工程署同事檢測高鐵列車控制室儀器。高鐵香港段開通前，我們與內地的鐵路機構進行了大量協調和聯合籌備工作。

An EMSD colleague inspecting equipment in HSR train control room. Much co-ordination and joint preparations with the Mainland railway authorities were conducted before the opening of the HSR Hong Kong Section.

高鐵香港段於設計時已考慮到應對各類事故及緊急情況的方案和所需設施。香港段於開通後雖曾發生數宗事故，但在各方充分協調和準備下，事故均得到妥善處理，未有對列車安全造成影響。高鐵香港段開通至今營運大致暢順，足見兩地在事前的協作和演習卓有成效。

The design of the Hong Kong Section has taken into account the solutions and facilities required for dealing with all types of incidents and emergencies. Though several incidents occurred after the Hong Kong Section was opened, they were well resolved thanks to adequate co-ordination and preparation by all parties concerned, without affecting railway safety. The operation of the Hong Kong Section has been largely smooth since its opening, reflecting the efficacy of the co-ordination and drills between Hong Kong and the Mainland during the preparations.

加強港鐵公司的安全及資產審核

過去一年，我們透過更主動和全面的方式審核港鐵公司各個管理系統，以便及早找出潛在問題，減低發生鐵路事故的風險，提高鐵路安全水平。2018年，鐵路科同事對港鐵公司的資產管理系統及安全管理系統進行全面和直接審核，在三個月的審核過程中，依據鐵路事故記錄和以風險為本方式，實地抽查鐵路系統安全關鍵部件的維修工序和記錄，找出潛在問題和可能引致事故的成因，並提出改善建議，以提升鐵路安全水平。

此外，我們亦分別就港鐵公司的資產管理系統及安全管理系統進行「主動全面審核」。我們委託了兩家獨立顧問公司，分別在資產管理方面審核港鐵公司的信號系統和供電系統，並在安全管理方面審核輕鐵列車車長的應急能力。顧問公司也從宏觀的角度，檢視各個重要鐵路系統的狀況，包括信號系統、軌道、供電系統及鐵路列車，並提出相應的改善建議。

鐵路科增加人手編制

鑑於近年港鐵公司的部分鐵路及相關設施，例如信號系統、冷氣系統、閉路電視系統等，已進入更換周期，加上《鐵路發展策略2014》所展望的未來鐵路發展正持續推展，鐵路科年內獲批准增聘20名人員，以加強鐵路安全規管和進行額外審核工作。

Stepping Up MTRCL's Safety and Asset Audits

In the past year, we took a more proactive and holistic approach to audit the various management systems of the MTRCL, in a bid to identify potential issues early on to lower the risk of railway incidents and enhance railway safety. In 2018, our Railways Branch carried out thorough and direct audits of the MTRCL's Asset Management System (AMS) and Safety Management System (SMS). Using the MTRCL's incident records and a risk-based approach as our basis, we conducted on-site spot checks of the Corporation's maintenance procedures and records of parts and components critical to railway safety in the various systems during the three-month audit. The process enabled us to identify potential problems and probable causes that might lead to incidents, and recommended improvement measures to enhance railway safety.

We also conducted a "proactive comprehensive audit" of the MTRCL's AMS and SMS. Two independent consultants were appointed to audit the MTRCL's signalling and power supply systems under the AMS and the ability of its light-rail train captains to respond to emergency situations under the SMS. The consultants also took a macro look at the condition of all major railway systems, including signalling, tracks, power supply and rolling stock, and made improvement recommendations accordingly.

Expanding our Teams

In recent years, respective railways and related facilities such as signalling, air-conditioning and CCTV systems of the MTRCL have entered their replacement age. Future railway developments envisioned in the Railway Development Strategy 2014 are also underway. In this connection, the Railways Branch obtained approval during the year to recruit 20 extra staff members to enhance our regulatory work in railway safety and conduct additional inspections.

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新增編制包括專業工程師和輔助人員。新團隊會全面審核港鐵公司的資產管理系統和安全管理系統、監察大型鐵路資產更換工程及其他相關鐵路項目，包括香港國際機場第三跑道旅客捷運系統的安全規管等。我們預計於五年內完成對港鐵公司所有鐵路綫及相關系統的第一輪全面和直接審核，進一步加強鐵路安全。

The additional establishment includes professional engineers and supporting staff. The new teams will audit the MTRCL's AMS and SMS in a comprehensive manner, monitor major railway asset replacement projects and other related railway projects including regulating the safety of the Automated People Mover (APM) at the third runway of the Hong Kong International Airport. We anticipate that the first round of comprehensive direct audits of all the MTRCL railway lines and related systems will be completed in five years, further augmenting railway safety.

於屯門車廠為輕鐵新列車進行安全測試。
Safety testing of a new Light Rail train at the Tuen Mun depot.

同事在屯門車廠測試輕鐵新列車的安全操作。
Testing the safe operation of a new Light Rail train at the Tuen Mun depot.

以創科推動鐵路安全

機電署近年大力推動創新科技(創科)，鐵路科也不例外，積極推動並促成鐵路業界引進更多創科解決方案以提升安全水平。我們鼓勵港鐵公司把創科解決方案的願望清單上載至去年推出的「機電創科網上平台」，至今已有初創企業就願望清單上的數個項目提出建議方案。

我們的同事更身體力行，以「推動創科，提升鐵路安全」為題，參加2019年公務員優質服務獎勵計劃，並獲得「特別嘉許(創科應用)」獎項。得獎的創科解決方案是「建築信息模擬 — 資產管理 — 鐵路安全」，運用建築信息模擬技術協助管理鐵路資產。機電署近年一直發展建築信息模擬技術，並向機電業界推廣以此技術進行資產管理。我們十分支持鐵路業界採用這新技術提升安全水平。

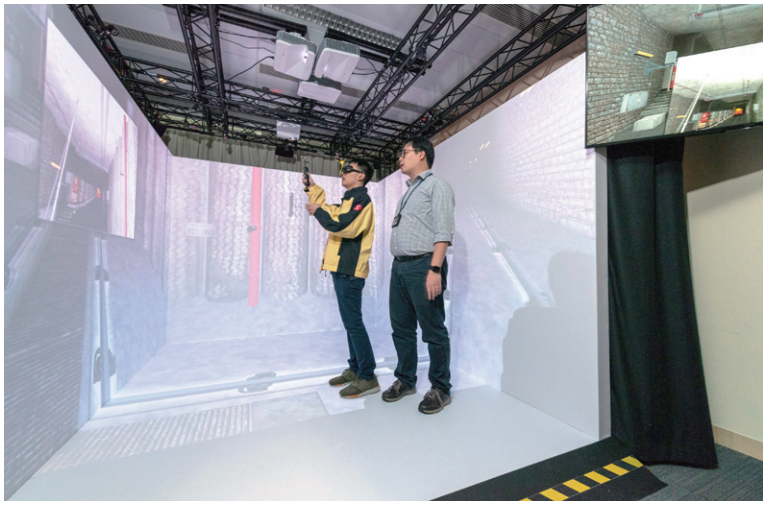
Leveraging I&T for Railway Safety

The EMSD has been promoting innovation and technology (I&T) in recent years and the Railways Branch is no exception. We are actively encouraging and facilitating the adoption of more I&T solutions by the railway sector to enhance safety. We encouraged the MTRCL to upload its wish list of I&T solutions on our E&M InnoPortal introduced last year. A few items on its wish list have already prompted start-ups to propose solutions.

Our colleagues also walked the talk and came up with a submission with the theme "Raising Railway Safety by Promoting I&T" for the Civil Service Outstanding Service Award Scheme 2019, which was awarded a "Special Citation for Application of Innovation and Technology". The award-winning I&T solution, "Building Information Modelling — Asset Management — Railway Safety" (BIM-AM-RS), uses BIM technology to assist in managing railway assets. The EMSD has been developing and promoting BIM for asset management to the E&M trade, and fully supports the railway industry to deploy this new technology to enhance safety.

我們根據真實事故個案，與培訓機構合作製作了四個虛擬實境的模擬三維立體培訓單元，供港鐵公司用以培訓員工，讓他們能正確處理突發事故。

We co-developed with training organisations four 3D VR training modules based on actual incidents for staff training by the MTRCL so that its staff can respond properly to emergency incidents.



我們的同事協助港鐵職員使用虛擬實境培訓教材。

Our colleague assisting an MTRCL staff member in using the VR training modules.

另外，我們也鼓勵港鐵公司運用虛擬實境技術加強員工培訓。年內，我們伙拍培訓機構根據真實事故個案，以虛擬實境模擬三維立體情境，製作了四個培訓單元，指導港鐵員工在發生緊急事故時應如何按正確程序處理。舉例來說，其中一個單元是模擬2018年發生的一宗工程人員因未有遵守安全工作程序而被電擊的事故。學員在受訓時置身虛擬的實境中，如遵照正確的程序，便會順利完成任務，但倘在過程中出錯，學員身穿的虛擬實境觸覺服即會產生輕微震動，使人感覺猶如被電擊，藉此加深學員的觸感記憶，緊記適當的安全程序。

We have encouraged the MTRCL to use virtual reality (VR) technology to strengthen staff training. During the year, we developed in partnership with training organisations four 3D VR training modules based on actual incidents. The training kits aim to help the MTRCL staff to respond to emergency incidents with the proper procedures. For example, one of the units simulates an incident in 2018 when an engineering staff member suffered an electric shock arising from not adhering to safe working procedures. During the VR training, the trainees who follow the correct procedures will complete the mission successfully. However, if any trainee makes a procedural error, the haptic suit of the VR programme will produce a light vibration to simulate an electric shock, which helps reinforce the trainee's sensory memory and strengthen his recall of the proper safety procedures.

鐵路系統也可運用創科以提升安全水平。舉例來說，我們早於2017年已向港鐵公司建議，在列車或車站安裝攝錄機，以監察集電弓破損、電弧或極高溫等異常情況。當發現問題時，有關系統便自動發出預警信號，提醒進行維修工作，防患於未然，而港鐵公司也隨即採納建議。在2019年，港鐵公司將引進功能更強的人工智能監察系統。該系統除可監察架空電纜外，亦可檢視支架有否出現異常或損壞。這些都是應用創科解決方案提升安全水平的好例子。

I&T can also be leveraged to enhance railway safety. For instance, we proposed to the MTRCL as early as in 2017 that cameras should be installed on trains or at stations to detect abnormalities such as damage to pantographs, arcing or excessively high temperatures. The system will automatically send out alert signals when abnormalities are identified so that maintenance work can be carried out before an incident occurs. The MTRCL promptly adopted the recommendation. In 2019, the MTRCL will introduce a more powerful monitoring system using artificial intelligence. Apart from monitoring overhead cables, it can also check the status of the supporting frames for any abnormalities or damages. These are the outstanding examples of how I&T solutions are being applied to improve safety.

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促進國際及大灣區交流

我們非常重視與世界各地的鐵路規管機構、營運機構、鐵路專家及學者進行交流。2018年10月，助理署長/鐵路遠赴都柏林參加「國際鐵路安全議會」周年會議和主持核心小組會議，並出席在巴黎舉行的「智慧鐵路及通訊為本列車控制」世界會議。

鐵路科也定期參與國際鐵路展覽，例如2019年3月在香港舉行的「2019年亞太鐵路會議」。我們在展覽攤位跟各地同業分享了獲獎的「建築信息模擬 — 資產管理 — 鐵路安全」系統，推廣以創科促進鐵路安全的訊息。

除了繼續與國家鐵路局及中國國家鐵路集團有限公司等內地機構維持良好的工作關係外，我們也積極開拓粵港澳大灣區的聯繫機遇，尋找合作空間。舉例來說，我們在2019年4月初與澳門運輸基建辦公室舉行會議，交流兩地工作概況和了解澳門第一個鐵路項目的進展。內地在鐵路建設及營運方面的經驗相當豐富，我們期望日後繼續與大灣區不同城市就鐵路事務進行交流互訪。

來年工作

在新鐵路綫方面，明年的工作重點是為屯馬綫一期的開通進行各項系統的安全測試、巡查及演習。我們亦會繼續就《鐵路發展策略2014》內其他新鐵路綫項目和機場第三跑道項目的旅客捷運系統進行安全規管工作，以及就港鐵公司的資產管理系統及安全管理系統進行全面和直接審核。

Fostering International and Greater Bay Area Exchange

International exchange with railway regulators, operators, railway experts and the academia is very important to us. In October 2018, our Assistant Director/Railways attended the annual meeting of the International Railway Safety Council in Dublin and chaired a core group meeting. He also attended the SmartMetro and Communication-based Train Control World Congress in Paris in the same month.

The Railways Branch takes part in international railway exhibitions regularly, such as the Asia Pacific Rail 2019 held in Hong Kong in March. We showcased our award-winning BIM-AM-RS at our booth to share with the trade and promote the message of using I&T to promote railway safety.

While we continued to maintain a good working relationship with Mainland organisations such as the NRA and China Railway, we also actively explored opportunities for networking and collaboration in the Guangdong-Hong Kong-Macao Greater Bay Area. In early April 2019, for example, we held a meeting with the Transportation Infrastructure Office of Macao to discuss work in general in the two cities. We were also briefed on the progress of the first railway project in Macao. The Mainland has rich experience in railway construction and operations, and we hope to continue such visits and exchange activities with more cities in the Greater Bay Area.

The Year Ahead

In regard to new railway lines, our key focus in the coming year is safety testing, inspection and drills of all the associated systems in Phase 1 of the Tuen Ma Line in preparation for its opening. We will also continue to regulate the safety of other new railway projects under the Railway Development Strategy 2014 and the APM in the airport's third runway project, and work further on the comprehensive direct audits of the MTRCL's AMS and SMS.

開展高鐵動車組司機的安全規管工作
Embarking on the Safety Regulation of High-Speed Rail Drivers

為了加深了解內地動車組司機的培訓及相關考核程序，以開展對廣深港高鐵香港段動車組司機的安全規管工作，鐵路科工程師朱嘉輝先生於2018年年底參加了由中國鐵路總公司武漢高鐵職業技能訓練段舉辦的「高鐵動車組司機資格性理論培訓」，與百多名來自內地各鐵路局的準高鐵動車組司機一同接受為期30天的培訓。

To better understand the training and relevant assessment procedures of high-speed rail drivers in the Mainland so as to carry out safety regulation of drivers of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong High Speed Rail (HSR), Mr Chu Ka-fai, John, Engineer of the Railways Branch, joined the high-speed rail drivers training programme organised by the Wuhan High-speed Railway Vocational Skills Training Base of China Railway Corporation in late 2018, where he received 30 days of training together with more than 100 potential high-speed rail drivers from various railway bureaux in the Mainland.

嘉輝在鐵路科的工作之一，是協助制訂高鐵香港段動車組司機的安全監管標準。他說：「我們過去主要規管鐵路的機電設施和系統安全，但由於高鐵動車組的特性，動車組司機的駕駛作業對鐵路安全十分重要。因應高鐵香港段於2018年開通，我們開展了對高鐵動車組司機駕駛操作的安全規管工作，以保障高鐵香港段的鐵路安全。」

「內地高鐵動車組司機的理論培訓內容十分豐富，除了各種理論性知識外，亦會透過模擬駕駛室，讓學員學習操控不同型號的高鐵動車組，了解其作業程序及駕駛室的實際設備和布局。」嘉輝回港後隨即為鐵路科同事舉行分享會，詳細講述所學到的知識，包括高鐵司機室的設備、布局、安全守則、運作程序等，並於港鐵的高鐵動車組為同事進行實地培訓。此外，嘉輝和負責監管高鐵安全的同事共同商討各項安全注意事項和細則，為高鐵香港段動車組司機制訂了一系列作業檢測表和標準化檢測流程，作為高鐵動車組司機的安全監管標準。

自此，鐵路科同事已多次登上在香港段營運的高鐵動車組駕駛室，執行高鐵動車組司機作業檢查，以確認司機的作業程序符合相關的安全要求。嘉輝表示，鐵路科日後會繼續為同事進行培訓，協助他們掌握作業檢查的要點，務求能更靈活調配內部資源，持續進行高鐵動車組營運監管，以保障高鐵香港段的鐵路安全。

One of John's duties in the Railways Branch is to assist in formulating the safety regulatory standards for high-speed rail drivers of the HSR Hong Kong Section. "In the past, we mainly regulated the safety of railways' E&M facilities and systems. However, the unique characteristics of the HSR make the driving practice of high-speed rail drivers critical to railway safety. Following the commissioning of the HSR Hong Kong Section in 2018, we embarked on the safety regulation of high-speed rail drivers' operation to ensure the safety of the HSR Hong Kong Section," he said.

"The Mainland's high-speed rail drivers training programme covers a wide range of contents. Besides theoretical knowledge, participants learnt to operate different models of high-speed trains in a simulated driver's compartment and became familiar with the operating procedures as well as the actual equipment and set-up in the driver's compartment." After returning to Hong Kong, John organised sharing sessions in which he explained to colleagues of the Railways Branch in detail the knowledge he had acquired, including the equipment and set-up in a high speed train driver's compartment, safety rules and operating procedures, etc. He also conducted training for colleagues on board a high speed rail train of the MTRCL. In addition, John and colleagues in charge of regulating high speed rail safety discussed together various safety guidelines and rules, and drew up a series of operation checklists and standardised testing procedures for train drivers of the HSR Hong Kong Section, which serve as the safety regulatory standards for high-speed rail train drivers.

Since then, colleagues of the Railways Branch have repeatedly boarded the drivers' compartments of high speed rail trains operating in the HSR Hong Kong Section to conduct inspections of the operations of high speed train drivers in order to confirm that they are operating in line with the relevant safety requirements. According to John, the Railways Branch will continue to provide training for colleagues in the future to acquaint them with the key elements of operational inspections. This will enable more flexible deployment of internal resources to carry out regular monitoring of high speed rail operations, thus ensuring the safety of the HSR Hong Kong Section.

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

根據強制性能源效益標籤計劃第三階段，電視機也涵蓋於計劃內。計劃的第三階段已於2018年6月開始生效，並將於2019年12月全面實施。

Televisions are covered under the third phase of the Mandatory Energy Efficiency Labelling Scheme, which took effect in June 2018 and will be fully implemented in December 2019.

我們的團隊巡查零售店，確保相關電器按《能源效益（產品標籤）條例》的要求，展示正確的能源標籤。

Our team inspecting retail shops to ensure the display of proper energy labels on the relevant appliances according to the requirements of the Energy Efficiency (Labelling of Products) Ordinance.

全面實施強制性能源效益標籤計劃第三階段

年內的重要發展之一，是實施強制性能源效益標籤計劃（強制性標籤計劃）第三階段。立法會於2018年5月通過《能源效益（產品標籤）條例》的修訂建議後，強制性標籤計劃第三階段隨即於同年6月開始生效，並設有18個月寬限期讓業界做好準備，以便由2019年12月1日起全面實施。強制性標籤計劃第三階段涵蓋三類新增的電氣產品，即電視機、儲水式電熱水器及電磁爐，同時亦把強制性標籤計劃兩類現有訂明產品的涵蓋範圍擴大，包括有冷暖功能空調機的供暖部分和洗衣量超過7公斤但不超過10公斤的洗衣機。

強制性標籤計劃三個階段合共規管八類家用電器，佔全港每年住宅用電量約七成。強制性標籤計劃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。

Full Implementation of the Third Phase of the Mandatory Energy Efficiency Labelling Scheme

One of the important developments of the year was the implementation of the third phase of the Mandatory Energy Efficiency Labelling Scheme (MEELS). Upon approval by the Legislative Council of the proposed amendments to the Energy Efficiency (Labelling of Products) Ordinance in May 2018, the third phase of the MEELS took effect in June the same year, with an 18-month grace period for the trade to prepare for full implementation which will take place on 1 December 2019. The third phase of the MEELS covers three additional types of electrical products, namely televisions, storage type electric water heaters and induction cookers. It also expands the scope of two types of existing prescribed products covered by the MEELS to include the heating performance of room air-conditioners with both cooling and heating functions, and washing machines with a rated washing capacity exceeding 7 kg but not more than10 kg.

The three phases of the MEELS regulates eight types of household electrical appliances, which account for about 70% of the annual residential electricity consumption in Hong Kong. It is estimated that after the full implementation of the third phase of the MEELS, there will be an annual energy saving of about 150 million kWh, which is equivalent to an annual reduction of 105 000 tonnes of carbon dioxide emissions.

推廣可再生能源

隨着兩家電力公司實施上網電價計劃，我們已於2018年5月推出一站式熱線，方便市民查詢根據上網電價計劃裝設太陽能板可再生能源系統的資訊及解答相關問題。截至2019年3月底，有關熱線已接獲超過1 100宗查詢。

我們亦更新了「香港可再生能源網」，加入上網電價計劃及可再生能源證書的最新資訊，例如太陽能光伏系統承辦商的參考名冊，以方便市民參與上網電價計劃。此外，我們於2018年10月推出了《太陽能光伏系統安裝指南》，讓市民了解在村屋天台安裝太陽能光伏系統的技術要求，以及申請上網電價的程序等。市民和承辦商亦可參閱該網站的《可再生能源發電系統與電網接駁的技術指引》，了解小型可再生能源裝置與電網接駁的相關技術和申請程序。

上網電價計劃亦是提升業界可再生能源技術水平的好機會。由2018年6月至2019年3月底，機電署共舉辦和參與了31場研討會和簡介會，向供應商、承辦商及公眾講解接駁電網的裝置要求，鼓勵業界向用戶提供優質的可再生能源裝置，共有超過5 600人參加，反應踴躍。

Promoting Renewable Energy

Subsequent to the introduction of the Feed-in Tariff (FiT) Scheme by the two power companies, we launched a one-stop hotline in May 2018 to provide information to the public and handle their enquiries about the installation of solar photovoltaic (PV) renewable energy systems. As of end March 2019, the hotline received more than 1 100 enquiries.

We have also updated the HK RE Net website to include the latest information on the FiT Scheme and Renewable Energy Certificates, such as the reference list of contractors of solar PV systems to facilitate public participation in the FiT Scheme. Besides, the Guidance Notes for Solar Photovoltaic (PV) System Installation was published in October 2018 to inform the public of the technical requirements for the installation of solar PV systems on rooftops of village houses and application procedures of the FiT Scheme. The general public and contractors can also refer to the Technical Guidelines on Grid Connection of Renewable Energy Power Systems on the HK RE Net website to learn more about the technical issues and application procedures related to the grid connection of small-scale renewable energy installations.

The FiT Scheme also provides a good opportunity for the trade to raise their renewable energy technical standards. From June 2018 to end of March 2019, the EMSD held and participated in a total of 31 seminars and briefing sessions to explain to suppliers, contractors and the public the installation requirements for grid connection and encourage the trade to provide high-quality renewable energy equipment to customers. The events were well received, attracting more than 5 600 attendees.

我們的同事與講者於上網電價計劃研討會合照。該系列的研討會和簡報會共吸引了5 600多名機電業界人士和市民參與。

Our colleagues are pictured with speakers at a Feed-in Tariff Scheme seminar. The series of seminars and briefings attracted over 5 600 attendees from the E&M trade and the public.

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

「採電學社」計劃是政府推動公眾採用可再生能源的另一新猷。機電署與環境局於2019年3月推出「採電學社」，為合資格的非官立和非牟利中、小學與幼稚園，以及獲社會福利署津助的非政府福利機構提供一站式服務，協助它們在其處所安裝小型太陽能光伏系統，從而能申請參加本地兩間電力公司推行的上網電價計劃。在「採電學社」下，機電署會跟進整個安裝太陽能光伏系統的過程（包括進行實地視察和技術評估、擬定太陽能光伏系統的設計、採購和安裝設備，以及進行系統測試等），而相關工作的開支將由「採電學社」支付。

Solar Harvest is another new government initiative to encourage the public to adopt renewable energy. Jointly launched by the EMSD and the Environment Bureau (ENB) in March 2019, the programme provides one-stop service to help eligible non-government and non-profit-making kindergartens, primary and secondary schools and welfare non-governmental organisations (NGOs) subsidised by the Social Welfare Department install small-scale solar PV systems in their premises so that they can apply to join the FiT Scheme operated by the two power companies. Under Solar Harvest, the EMSD will follow through the entire process of solar PV system installation (including conducting site visits and technical assessments, drawing up the design of solar PV systems, procuring and installing equipment, and conducting system testing, etc.), and all the associated expenses will be fully covered by Solar Harvest.

「採電學社」擬於2019-20至2023-24財政年度推行，為期五年。在2019-20年度，我們依據實地視察及評估結果，選出約50間學校和機構，在其處所安裝太陽能光伏系統。為使受惠學校和機構了解該計劃的詳情及目標，「採電學社」團隊於本年3月舉行多場簡介會，向有意參加的學校和機構講解有關細節。「採電學社」於2019年5月底截止申請時，共接獲超過200份申請，反應踴躍。首批參與學校和機構已於2019年8月底開始安裝工程。

Solar Harvest is planned to last for five years from the financial year 2019-20 to 2023-24. Fifty schools and organisations will be selected in 2019-20, based on the results of site visits and assessments, to have solar PV systems installed in their premises. To familiarise potential beneficiary schools and organisations with the programme details and objectives, the Solar Harvest team held several briefing sessions in March 2019 to explain the details to the interested schools and organisations. Response to the programme was enthusiastic, with over 200 applications received when the application period closed at end of May 2019. The first batch of participating schools and organisations began installation work in late August 2019.

我們相信通過政府、電力公司、學校和非政府福利機構的協作，可鼓勵學生和青少年近距離認識可再生能源，一起「種電採電」。我們同時希望學校可以利用新安裝太陽能光伏系統輔助STEM（科學、科技、工程及數學）及環保方面的教學，提升學生和青少年對探索科學的興趣，並推廣低碳生活，以應對氣候變化。

We believe that through the collaboration among the Government, power companies, schools and welfare NGOs, we can encourage students and young people to get a better understanding of renewable energy, and to "cultivate" and "harvest" electricity together. We also hope that schools can make good use of the newly installed solar PV systems to enrich the teaching of STEM (science, technology, engineering and mathematics) and environmental protection education, with a view to fueling the interest of students and young people in exploring science and promoting low-carbon living to combat climate change.

以創科推動能源效益、節能及可再生能源

Leveraging I&T to Promote Energy Efficiency, Energy Conservation and Renewable Energy

發展創新及科技（創科）是全球趨勢，機電署近年亦大力推動以創科提升公共服務質素，例如成立創新辦公室、推出「機電創科網上平台」，以及在機電署總部或其他合適的政府建築物提供場地，讓初創企業及大學測試創科方案的產品原型等，使政府部門和公營機構能更快獲得可行的創科方案。

In step with the global trend of innovation and technology (I&T) development, the EMSD has been promoting the use of I&T to raise public service quality, such as setting up the Inno-Office and launching the E&M InnoPortal. We also make available the EMSD Headquarters Building and other suitable government buildings for start-ups and universities to test the prototypes of their I&T solutions. The aim is to enable government departments and the public sector to access viable I&T solutions more quickly.

此外，我們也積極探求可以推動能源效益、節能及可再生能源的創科方案。舉例來說，通過機電署與香港科技園公司於2018年6月舉行的「創新科技日2018」，我們為政府部門及初創企業成功配對了11個有利能源效益、節能及可再生能源發展的創科方案，而有關項目現正進行測試和驗證。

Besides, we also actively explore I&T solutions that can promote energy efficiency, energy conservation and renewable energy. For example, we co-organised with the Hong Kong Science and Technology Parks Corporation the Innovative Technology Day 2018 in June 2018 where we successfully matched for government departments and start-ups 11 I&T solutions that benefit energy efficiency and conservation and renewable energy development. Testing and verification of these solutions are now in progress.

年內，我們的同事亦積極探討創新科技，其中能源效益事務處的兩位同事與另一部別的同事研發了一套名為「智能眼碌碌」的空調控制系統，透過影像分析技術收集人流數據，以及根據人流的前後變化自動調校空調風速，讓市民可在更舒適的室內環境活動，長遠亦可提升空調系統的能源效益。有關項目更贏得「香港工程師學會青年會員創意獎2019（組別II — 創新應用）優異獎」。

During the year, our colleagues actively explored I&T too. Two colleagues from the Energy Efficiency Office collaborated with a colleague from another Division to create the NeuroSmart Eyes Air-conditioning Control System which uses video analytics technology to collect data on people flow and adjust the air flow rate according to changes in the crowd density, thus providing a more comfortable environment for the public to enjoy indoor activities. In the long run, the solution can also enhance the energy efficiency of air-conditioning systems. The project won a merit award in the Hong Kong Institution of Engineers Innovation Awards for Young Members 2019 (Category II — An Innovative Application of Engineering Theories).

全民節能新動向

政府近年大力推動公眾參與節能減排活動，並視公眾參與為應對氣候變化、推動低碳轉型的重要部分。政府承諾以2005年水平為基準，於2025年將能源強度降低40%，以及於2030年將碳強度降低65%至70%。截至2017年，本港的能源強度已降低達31%，進展良好。

Updates on Energy Saving for All Campaign

In recent years, the Government has been vigorously promoting public participation in energy saving and emission reduction activities as a key element in combating climate change and transforming our lifestyle into a low-carbon one. The Government's commitment is to reduce Hong Kong's energy intensity by 40% by 2025 and carbon intensity by 65% to 70% by 2030, with 2005 as a baseline. As of 2017, Hong Kong's energy intensity was reduced by 31%, representing good progress.

環境局和機電署合辦的「全民節能」運動，是為市民和各界機構而設的每年一度旗艦綜合活動。一如往年，「全民節能2019」包括《節能約章》、《4T約章》及「慳神大比拼」，而這三項活動都有新發展。

The Energy Saving for All Campaign, jointly organised by the ENB and the EMSD, is an annual flagship programme tailored for the general public and organisations from different sectors. As in past years, the 2019 Campaign consists of the Energy Saving Charter, the 4T Charter and the Energy Saving Championship Scheme, with new developments in all three activities.

環境局和機電工程署代表出席「全民節能」運動啟動典禮。這是環境局和我們合辦的每年一度旗艦綜合活動，目的是向市民和來自多個界別的機構推廣節能。

Representatives of the ENB and the EMSD at the launching ceremony of the Energy Saving for All Campaign, which is an annual flagship programme jointly organised by the ENB and the EMSD to promote energy saving to the public and organisations from a wide variety of sectors.

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

繼約3 600個機構於2018年簽署《節能約章》後，在2019年簽署《節能約章》的機構有3 800多 個。各機構承諾在夏季（即6月至9月）把旗下物業維持在適當的室內溫度、關掉無需使用的電器，以及選購一級能源標籤的高能效產品。當中有12間機構獲頒發嘉許獎狀，以表揚它們為《節能約章》招募參與者所作的努力。

Subsequent to the signing of the Energy Saving Charter by about 3 600 organisations in 2018, over 3 800 organisations signed up to the same in 2019. The signatories pledged to maintain an appropriate average indoor temperature in their premises during the summer months from June to September, switch off electrical appliances when not in use and procure energy-efficient products that have Grade 1 energy labels. Among them, twelve were awarded appreciation certificates in recognition of their efforts in recruiting participants for the Charter.

就《4T約章》而言，已有超過1 500個場所參與，承諾訂立節能目標（target），為此制訂行動時間表（time-line），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）制訂及落實4T節能行動。

With regard to the 4T Charter, more than 1 500 premises have joined and pledged to implement the 4T principles by 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.

至於「慳神有計大比拼2018」，比賽鼓勵不同界別的機構在節能及可再生能源方面採用創科，以推動各業界節能。比賽亦新增了學生組別，以鼓勵青少年在節能和可再生能源發展方面發揮創意和想像力。新增組別的反應熱烈，共收到745份申請。

As for the Energy Saving Championship Scheme 2018, the event encouraged organisations from different sectors to adopt I&T applications in energy saving and renewable energy to promote energy conservation among various sectors. A new category for students was added to the 2018 championship to inspire the creativity and imagination of young people about energy saving and renewable energy development. The new category received enthusiastic response with 745 applications.

「慳神重新校驗大比拼2019」於2019年7月5日啟動，比賽加入新環節，推動業界推廣和採用「重新校驗」為既有建築物節能，而「新世代慳神大比拼2.0」則鼓勵青年發揮創意，就節能及可再生能源概念和技術提出新構思。

The Energy Saving Championship Scheme 2019 kicked off on 5 July 2019, adding new elements to encourage the adoption of retro-commissioning in existing buildings to save energy, while the student category aims to inspire the creativity of young people in energy saving and application of renewable energy.

《建築物能源效益守則》和《能源審核守則》最新版本

Latest Versions of the Building Energy Code and Energy Audit Code

根據《建築物能源效益條例》而制訂的《建築物能源效益守則》和《能源審核守則》2018年最新版本已於2018年11月刊憲，並分別於2019年5月和8月生效，以進一步提升建築物的能源效益。

The latest 2018 versions of the Building Energy Code (BEC) and the Energy Audit Code (EAC), which were enacted under the Buildings Energy Efficiency Ordinance (BEEO), were gazetted in November 2018 and took effect in May and August 2019 respectively to further enhance the energy efficiency of buildings.

這兩份實務守則均隨着《建築物能源效益條例》於2012年首次頒布而制訂，我們會每三年與業界進行檢討。2018年版是繼2015修訂版之後的最新版本，我們在修訂過程中已充分諮詢專業團體、業界組織、學術界及相關政府部門等各持份者的意見，也參考了最新科技及國際能源效益標準等的發展。

The BEC and the EAC were formulated along with the BEEO which was first promulgated in 2012, and they are reviewed every three years in consultation with the trades. The 2018 version, which is the latest update of the 2015 edition, was revised after full consultation with stakeholders such as professional groups, trade organisations, academia and relevant government departments. Reference to the latest technological developments and the international energy efficiency standards, etc. were made during the review process.

為政府建築物率先進行重新校驗

近年我們積極推動重新校驗，並在政府建築物率先進行，既為社會帶來示範作用，也讓政府建築物透過重新校驗而能持續慳電。

重新校驗旨在為現有的建築物「驗身」和作出各種系統調校，使屋宇裝備和機電設施以更高效和節能的模式運作，持續改善能效表現，締造成本及環保效益。繼2017年6月推出香港首份《重新校驗技術指引》後，我們於2018年12月發出《重新校驗技術指引2018》增訂版本，內容加入重新校驗的事前準備、數據管理和中央控制管理系統要求、用於持續校驗的關鍵效能指標，以及更詳細的執行測量和驗證方法。

此外，我們於2018年11月推出了全新的重新校驗資源中心網站，從多個渠道為建築物擁有人提供重新校驗的實用資訊，包括屋宇裝備系統問題的診斷技術指導說明和中央控制管理系統數據範本。資源中心提供了一個平台，讓建築物擁有人和相關持份者就重新校驗分享經驗和知識。

此外，由2019年起，我們為政府建築物率先進行重新校驗，以支持政府要在五年內節省5%用電量的目標。在未來七年，我們會為200多幢政府建築物進行重新校驗，以助進一步提升政府建築物的能源效益。

Retro-commissioning Pilots in Government Buildings

We have been actively promoting retro-commissioning (RCx) in recent years and took the lead to conduct RCx pilots in government buildings. The trials not only set an example for the community, but also enable government buildings to enjoy sustained energy savings through RCx.

The purpose of RCx is to conduct a "health checkup" for existing buildings and fine-tune various systems so that the building services and E&M facilities can operate at a more efficient and energy-saving mode and achieve continuous improvement in energy performance for cost efficiency and environmental benefits. Further to the introduction of Hong Kong's first Retro-commissioning Technical Guidelines in June 2017, we issued the Retro-commissioning Technical Guidelines 2018 Supplement in December 2018, with new information on the preparation of RCx, data management and Central Control and Monitoring System (CCMS) requirements, key performance indicators for continuous RCx as well as more detailed measurement and verification methods.

Besides, we inaugurated a Retro-commissioning Resource Centre website in November 2018 to provide multiple channels for building owners to access practical RCx information, including technical guidance notes on building services system diagnosis and CCMS data samples. The website serves as a platform for building owners and relevant stakeholders to share RCx knowledge and experiences.

Starting from 2019, we also took the lead to begin RCx work in government buildings to support the Government's target of reducing 5% energy consumption in government buildings over five years. In the next seven years, we aim to conduct RCx in more than 200 government buildings to further enhance the energy efficiency of government buildings.

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

向粵港澳大灣區推廣重新校驗

鑑於重新校驗有巨大節能潛力，機電署於2018年11月牽頭與六個來自香港、澳門及大灣區其他城市並涉及綠色建築、節能科研和屋宇裝備維修工作的重要機構，簽署《粵港澳大灣區建築物重新校驗（再調適）合作備忘錄》，承諾互相分享知識及經驗、合作進行培訓，以及鼓勵業界以重新校驗作為提升建築物能源效益的新方案，日後並會逐步把重新校驗推廣至內地更多城市。

簽署機構於2019年3月在北京舉行首次全體工作會議，成立了三個分別處理技術發展、人才培訓及推廣宣傳事宜的專責小組，並已開展工作。

Promoting RCx in the Greater Bay Area

In view of the tremendous energy-saving potential of RCx, the EMSD took the lead to sign a Memorandum of Co-operation (MoC) on Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area with six key organisations in Hong Kong, Macau and other cities of the Greater Bay Area that involved in green building, energy conservation research and building services maintenance. The parties pledged to share knowledge and experiences, co-operate on training, and encourage the trades to adopt RCx as a new solution for achieving higher building energy efficiency. They also agreed to gradually promote RCx to more Mainland cities.

The MoC signatories held the first plenary meeting in Beijing in March 2019, at which three working groups were set up for technical development, capacity building and publicity matters respectively. The working groups have already come into operation.

啟德區域供冷系統（北廠）外觀。這供冷系統在2025年全面落成啟用後，會連接和服務啟德發展區內約50幢樓宇。

Exterior of the Kai Tak District Cooling System (North Plant). When this District Cooling System is fully commissioned in 2025, it will be connected to and serve about 50 buildings in the Kai Tak Development area.

為北廠內的製冷設備進行定期檢查和維修保養。
Regular inspection and maintenance of chiller equipment inside the North Plant.

同事全面監察北廠的操作情況。
Our colleague monitoring all aspects of the North Plant's operation.

擴充啟德區域供冷系統

經過多年努力，能源效益事務處為啟德發展區設計和建造的區域供冷系統已陸續投入服務，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。

此外，由於區內發展密度不斷提高，例如啟德體育園及新急症醫院的發展規模均已擴大，對供冷量需求亦大幅增加，我們計劃為啟德發展區新增一個供冷量約為178兆瓦的區域供冷系統，以滿足額外需求。待立法會財務委員會審批撥款後，期望可於2020年初動工，為2022年啟用的啟德體育園供應冷凍水。

我們亦正研究為洪水橋新發展區、古洞北新發展區及東涌新市鎮擴展等提供區域供冷系統，規劃總面積超過967公頃。

Expanding the Kai Tak District Cooling System

After years of efforts, the District Cooling System (DCS) designed and constructed by the Energy Efficiency Office at Kai Tak Development has begun operating by phases and is supplying chilled water for air-conditioning in buildings connected to the DCS. When the existing DCS is fully completed in 2025, it will be connected to about 50 buildings in the district to achieve energy savings of about 85 million kWh every year, equivalent to an annual reduction of 59 500 tonnes of carbon dioxide emissions.

Besides, as the development density in the district continues to increase, e.g. the expansion of development of the Kai Tak Sports Park and a new acute hospital, the demand for cooling capacity will also increase significantly. We plan to build a new DCS at Kai Tak Development that will provide 178-megawatt cooling capacity to meet additional demand. Pending funding approval by the Finance Committee of the Legislative Council, the work on the new DCS is expected to begin in early 2020 for supply of chilled water to the Kai Tak Sports Park to be opened in 2022.

We are also conducting studies on the provision of DCSs for Hung Shui Kiu New Development Area, Kwu Tung North New Development Area and Tung Chung New Town Extension, etc. The total planning area exceeds 967 hectares.

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

區域供冷系統首個開放日

區域供冷系統首個開放日已於2018年5月舉辦，向參觀者介紹區域供冷系統的能源效益及對啟德社區的益處。我們邀請了學校、青少年中心、長者中心、非政府機構、觀塘區議員及公眾人士參觀，深入了解區域供冷系統的廠房及設施，共有850多人參與。

First DCS Open Day

The first DCS Open Day was held in May 2018 to showcase to participants the energy efficiency of the DCS and its benefits to the Kai Tak community. We invited schools, youth centres, elderly centres, NGOs, Kwun Tong District Councillors and the public to join the Open Day for in-depth tours of the DCS plants and facilities. More than 850 visitors attended the event.

2018年5月，機電工程署與環境局在香港合辦亞太經合組織能源工作組第55次會議和相關會議。左圖為機電工程署署長薛永恆向全體與會人士闡述香港的能源效益工作。

The EMSD hosted the 55th APEC Energy Working Group and Associated Meetings in Hong Kong in May 2018, in conjunction with the ENB. Picture on the left shows the Director of Electrical and Mechanical Services, Mr Alfred Sit, elaborating to all participants the energy efficiency work of Hong Kong.

我們也於2019年3月在香港舉辦亞太經合組織能源效益及節能專家小組第53次會議、新能源及可再生能源技術專家小組第52次會議和相關研討會。

The EMSD also hosted in March 2019 the 53rd meeting of the APEC Expert Group on Energy Efficiency and Conservation (EGEE&C), the 52nd meeting of the Expert Group on New and Renewable Energy Technologies (EGNRET) and related seminars.

拓展區域合作

機電署一直很重視在能源效益及節能方面的區域和國際合作，以提升香港在促進能源效益工作上的實力和形象。機電署於2018年5月與環境局合作，在香港舉辦亞太經濟合作組織（亞太經合組織）能源工作組第55次會議和相關會議，有來自19個亞太經合組織成員經濟體的180多名代表參與，這是有關會議第三次在香港舉辦。此外，機電署於2019年3月在香港舉辦亞太經合組織能源效益及節能專家小組第53次會議、亞太經合組織新能源及可再生能源技術專家小組第52次會議，以及相關研討會，有來自12個亞太經合組織成員經濟體的約90名政府官員和專家出席。

此外，機電署一位助理署長於2019年3月獲選為能源效益及節能專家小組的主席，機電署因而負起有關專家小組的秘書處工作，包括各種行政和政策制訂工作，以及為能源工作組和能源效益及節能專家小組的成員提供各種意見和後勤支援等。這是機電署首次有代表晉身亞太經合組織能源工作組轄下專家小組的領導崗位，實是拓展部門視野和區域聯繫的寶貴機會。

與內地合作方面，除了簽署上文所述的《粵港澳大灣區建築物重新校驗（再調適）合作備忘錄》外，機電署亦於2018年8月與廣東省科學技術協會和廣東省住房和城鄉建社廳簽訂合作備忘錄，日後將加強與大灣區內各主要持份者溝通，並把握每個機會與內地合作，推動採用創科提高區內的能源效益。

來年展望

我們在未來一年的工作重點除了繼續推行現有的各種節能計劃外，還會開始為「採電學社」計劃進行工程、進一步推廣上網電價計劃和重新校驗、展開為多幢政府建築物落實重新校驗的工作，以及為新的區域供冷系統積極進行規劃、設計和相關工作。能源效益事務處年內已進行內部調動，新增兩組人手以應付未來的工作。

Expanding Regional Collaboration

The EMSD has always attached great importance to regional and international collaboration on energy efficiency and conservation to enhance the capability and boost the image of Hong Kong in promoting energy efficiency. In May 2018, we hosted the 55th Asia-Pacific Economic Cooperation (APEC) Energy Working Group (EWG) and Associated Meetings (EWG55) in Hong Kong, in conjunction with the ENB. It was the third time Hong Kong hosted the meetings, and more than 180 representatives from 19 APEC member economies attended the meetings. Besides, we also hosted the 53rd meeting of the Expert Group on Energy Efficiency and Conservation (EGEE&C), the 52nd meeting of the Expert Group on New and Renewable Energy Technologies (EGNRET) and related seminars in March 2019, which were attended by about 90 government officials and experts from 12 APEC member economies.

Furthermore, an assistant director of the EMSD was elected as the chairperson of the EGEE&C in March 2019. Hence the EMSD has become the Secretariat of the expert group, and is responsible for such duties as handling various administrative and policy-making tasks, providing advice and logistic support for members of the EWG and the EGEE&C. This is the first time an EMSD official has taken a leadership role in an expert group under the EWG of APEC, giving the EMSD a valuable opportunity to broaden its perspectives and expand its regional connections.

As for collaboration with the Mainland, apart from the above-mentioned MoC on Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area, the EMSD also signed MoCs with the Guangdong Provincial Association for Science and Technology and the Guangdong Department of Housing and Urban-Rural Development in August 2018. In the future, we will enhance communication with key stakeholders in the Greater Bay Area and make use of every opportunity to collaborate with the Mainland in promoting the use of I&T to enhance energy efficiency in the Greater Bay Area.

The Year Ahead

In addition to continuing with the various ongoing energy saving schemes, the focus next year is to begin the construction works for Solar Harvest, further promote the FiT Scheme and RCx, kick off RCx work in a number of government buildings, and actively pursue the planning, design and related work for the new DCSs. During the year, the Energy Efficiency Office has undergone internal manpower reshuffle, with two new teams created to take on these tasks in the days to come.

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

「智能眼碌碌」提升能源效益
NeuroSmart Eyes Enhance Energy Efficiency

能源效益事務處工程師彭家敏女士與兩位來自其他部別的同事，一同構思出創新的能源方案，利用影像分析技術優化大型公眾場地(例如博物館等)的空調系統，隨着人流變化而快速調節室內溫度，為參觀人士提供舒適的環境，同時提升能源效益。

Miss Pang Ka-man, Karman, Engineer at the Energy Efficiency Office, worked with two colleagues from other divisions to devise an innovative energy proposal which can optimise air-conditioning systems at large public venues (such as museums, etc.) using video analytics technology. The system can adjust indoor temperatures quickly according to changes in the crowd density, providing a comfortable environment for visitors while improving energy efficiency.

這個名為「智能眼碌碌」的空調控制系統意念方案，首先參加了機電署在2018年8月首次舉辦的內部「Inno@E&M創新科技挑戰賽」，成功進入第二階段(實踐方案)，並成立相關的「創新小隊」，其後再於2019年3月挑戰「香港工程師學會青年會員創意獎2019」，在「組別II — 創新應用」贏得優異獎。

The idea proposal of NeuroSmart Eyes, an air-conditioning control system, first participated in the EMSD's internal Inno@E&M Challenge held for the first time in August 2018. The project successfully entered the second phase (proposal realisation), with a relevant InnoTeam formed. The proposal was later submitted for consideration in the Hong Kong Institution of Engineers Innovation Awards for Young Members 2019 held in March 2019, and won a Merit Award in Category II - An Innovative Application of Engineering Theories.

家敏說：「影像分析系統一般用於點算人流或人群管理。我們認識這項技術後忽發奇想—可否利用影像技術去調節室內空氣，以解決現時空調系統往往不能跟隨室內短暫的人流改變而迅速調節溫度的問題呢？」

Karman said: "Video analytics systems are commonly used for people counting and crowd management. We suddenly had an idea after learning about this technology – can we use video analytics to adjust indoor air so as to solve the existing problem of air-conditioning systems being unable to adjust temperatures quickly according to temporary changes in the crowd density?"

團隊的方案是透過閉路電視系統，觀察不同空間的人流密度，實時收集人流數據，把數據分析系統與空調系統連接，然後根據不同區域的人流，快速地自動調控空調系統輸出的冷空氣流量。系統會在人多時調高空調風速或調低溫度，人少時則把空調減弱，調控的速度較傳統被動式調節的空調系統更快，既可為使用者打造溫度宜人的空間，亦有助提升空調系統的能源效益。系統更能顯示場所內每個區域的人流數量，有助進行人流管理。

The team's proposal is to observe the crowd density at different locations through the CCTV systems and collect in real time the data on people flow. The data analysis system is linked with the air-conditioning system, enabling quick and automatic adjustment of cold air output from the air-conditioning system according to people flow in different areas. When a zone has more people, the system will increase the air flow rate or lower the temperature, and vice versa. The speed of adjustment is much faster than that by conventional means of passive adjustment. This not only creates a pleasant space with suitable temperatures for visitors, but also helps enhance the energy efficiency of air-conditioning systems. The system can also show the number of people in each area of the venue, thus facilitating crowd management."

「智能眼碌碌」空調控制系統獲獎後，現已進入第二階段，在部分政府場地率先實施和進行測試。目前，家敏除了處理日常的能源效益標籤計劃工作外，更負責實施「智能眼碌碌」項目。她說：「我們期待方案獲廣泛採納實行，在另一個層面促進社會的能源效益。」

After winning the awards, the NeuroSmart Eyes Air-conditioning Control System has progressed to the next phase of implementation and testing at selected government venues. At present, Karman has taken on the additional task of implementing the NeuroSmart Eyes project on top of her regular duties on the Energy Efficiency Labelling Scheme. "We hope that the proposal will be widely adopted and implemented to help promote energy efficiency in the society on a different dimension," she said.

區域供冷系統助理工程師
Assistant Engineer of the District Cooling System

榮獲首屆「建造業議會可持續建築大獎 — 年青從業員卓越獎」
Received the First CIC Sustainable Construction Award - Young Practitioner (Excellence Award)

羅婷丰女士於2016年完成機電署的見習工程師訓練後，加入能源效益事務處，參與實施啟德發展區區域供冷系統的工作。在機電署推薦下，她於2018年參加首屆「建造業議會可持續建築大獎」，並贏得「年青從業員卓越獎」，肯定了她在推動可持續發展方面的表現和努力。

Upon completion of the EMSD's engineering graduate training in 2016, Miss Law Ting-fung, Michelle, joined the Energy Efficiency Office and was involved in the implementation of the District Cooling System (DCS) at Kai Tak Development (KTD). She was nominated by the Department for and won the Young Practitioner (Excellence Award) of the first CIC Sustainable Construction Award, recognising her performance and efforts in promoting sustainable development.

婷丰加入能源效益事務處的啟德發展區區域供冷系統團隊後，跟隨資深工程師管理製冷機組承辦工程，同時負責準備承辦商招標文件和合約，並協助撰寫提交立法會申請撥款的文件，詳述啟德發展區區域供冷系統工程的背景和申請撥款的理據。

After joining the DCS team of the Energy Efficiency Office, Michelle worked together with experienced engineers to administer contracted works for chillers. She was also responsible for preparing tender documents and contracts, and assisted in drafting papers for submission to the Legislative Council to seek funding approval, detailing the background of the DCS project at KTD and the justifications for funding application.

她說：「區域供冷系統是大型空調系統，通過地下配水管道網絡把中央供冷站的冷凍水輸送到用戶樓宇，以滿足其空調系統的冷卻需求。系統由兩個中央供冷站、海水泵房和地下冷凍水配水管道網絡組成，優點是十分節能。此外，使用區域供冷服務的用戶無須自行安裝製冷機組和相關的機電設備，不但節省空間，也免去日後的操作和維修保養問題。」

"The DCS is a large-scale centralised air-conditioning system which distributes chilled water from the central chiller plant to user buildings through an underground water distribution pipe network to meet the cooling demand of the air-conditioning systems of such buildings. The system comprises two central chiller plants, a seawater pump room and an underground chilled water distribution pipe network, and is highly energy efficient. Besides, DCS users do not need to install their own chillers and associated E&M equipment. This not only saves space, but also avoids future operation and maintenance problems," she said.

婷丰更率先在啟德發展區區域供冷系統採用「建築信息模擬 — 資產管理」系統。政府自2018年1月1日起在主要基本工程項目採用「建築信息模擬」系統。由於啟德發展區區域供冷系統的工程在2018年前開展，其實並非必須採用「建築信息模擬」系統，但婷丰認為該系統可從三維角度掌握設施的設計準繩，能及早察覺結構性問題，例如喉管之間的距離是否足夠，有助減低在施工階段出錯的風險；而其資產管理工具更可匯集維修記錄、零件更換日期等資訊，利便日後的設施管理和維修保養工作。

Michelle also took the lead to adopt the Building Information Modelling-Asset Management (BIM-AM) system in the DCS at KTD. The BIM system has been adopted in major government capital works projects since 1 January 2018. As the DCS project at KTD commenced before 2018, it was not mandatory to adopt the BIM system. However, Michelle believed that the system can provide the design parameters of facilities from a three-dimensional perspective so that any structural problems can be detected early, such as whether pipes are sufficiently spaced apart, which helps reduce the risks of mistakes at the construction stage. The asset management tools of the system can pool together information such as maintenance records and replacement dates of parts to facilitate facility management and maintenance work in future.

婷丰已把機電署研發的「建築信息模擬 — 資產管理」系統的要求，加入由她統籌的啟德發展區區域供冷系統製冷機組招標工程的合約條款，為優化區域供冷系統的工作踏出新一步。

Michelle has already included the requirements of the BIM-AM system in the terms and conditions of the tender for the provision of chillers in the DCS at KTD under her co-ordination, which marks a new step forward in optimising the DCS.

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

規管服務致力透過宣傳和公眾教育，推廣和提高市民對機電安全和節能的意識，防患於未然。我們多年來分別為業界和市民推出了多種宣傳教育活動和計劃，近年更引入創新科技以提高這些工作的成效，並加強國際和區域合作及聯繫。

Our Regulatory Services is committed to promoting and enhancing public awareness of electrical and mechanical (E&M) safety and energy conservation through publicity and public education, as prevention is better than cure. Over the years, we have implemented a diverse range of promotional and education activities and schemes for the trade and the general public. We have also adopted innovative technology in recent years to enhance the efficacy of these initiatives while strengthening international and regional collaboration and connections.

國際和區域交流

作為多個推廣機電安全及能源效益的國際機構的成員，機電署除了參與和舉辦國際和區域會議之外，還積極承擔這些機構轄下委員會的領導工作。我們希望藉此提升香港在機電安全和能源效益方面的國際形象，向海外對口單位學習、拓闊視野，建立更廣泛的區域和國際聯繫，以提升規管服務的實力。

International and Regional Exchange

As a member of various international organisations promoting E&M safety and energy efficiency, the EMSD not only participates in or hosts international and regional conferences but also actively takes on leadership roles in committees of these organisations. We hope that by elevating Hong Kong's international profile in the arena of E&M safety and energy efficiency, we can learn from our overseas counterparts, widen our perspectives and extend our regional and international connections to enhance the capabilities of our Regulatory Services.

年內的重點交流活動之一，是2018年5月與環境局合辦亞太經濟合作組織(亞太經合組織)能源工作組第55次會議和相關會議，共有九個亞太經合組織成員經濟體的180多名代表出席。這是香港第三次舉辦有關會議，並首次於會議期間舉行「年輕人與亞太經合組織專家交流會」，讓本地中學生跟國際專家在台上交流。

A major exchange event for the year was the 55th Asia-Pacific Economic Cooperation (APEC) Energy Working Group (EWG) and Associated Meetings jointly hosted by the Environment Bureau and the EMSD in May 2018, with attendance by more than 180 delegates from nine APEC member economies. It was the third time Hong Kong organised the meetings. Besides, the "Youth Dialogue with APEC Experts", an on-stage exchange between young people and APEC representatives, was held for the first time during the EWG meetings to let local secondary students exchange their views with international experts.

2018年5月亞太經合組織能源工作組第55次會議和相關會議進行期間，我們舉行了首個「年輕人與亞太經合組織專家交流會」，讓本地中學生跟亞太經合組織代表和國際專家在台上交流。

During the 55th APEC Energy Working Group and Associated Meetings in May 2018, we held for the first time the "Youth Dialogue with APEC Experts", an on-stage exchange between local secondary students and APEC representatives and international experts.

多位講者、學者、規管機構人員、業界代表、政府官員和商界領袖於2018年5月在香港舉辦的亞太經合組織能源工作組第55次會議和相關會議的開幕典禮上合照。

Speakers, academics, regulators, trade representatives, government officials and business leaders at the opening ceremony of the 55th APEC Energy Working Group and Associated Meetings held in Hong Kong in May 2018.

2019年3月，我們在香港舉辦亞太經合組織能源效益及節能專家小組第53次會議、亞太經合組織新能源及可再生能源技術專家小組第52次會議，以及相關研討會，有來自12個亞太經合組織成員經濟體的約90名政府官員和專家出席。

In March 2019, we hosted the 53rd meeting of the APEC Expert Group on Energy Efficiency and Conservation (EGEE&C), the 52nd meeting of the APEC Expert Group on New and Renewable Energy Technologies (EGNRET) and related seminars, which were attended by about 90 government officials and experts from 12 APEC member economies.

我們的助理署長/電力及能源效益於2019年3月獲選為亞太經合組織能源效益及節能專家小組的主席，機電署因而擔當有關專家小組的秘書處，負起各項行政和政策制訂工作，以及為能源工作組和能源效益及節能專家小組的成員提供各種意見和後勤支援等。這是機電署首次有代表晉身亞太經合組織能源工作組轄下專家小組的領導崗位。

In March 2019, our Assistant Director/Electricity and Energy Efficiency was elected as the chairperson of the EGEE&C. Since then, the EMSD has been serving as the Secretariat for the expert group, taking charge of various administrative and policy-making duties, as well as providing advice and logistic support for members of the EWG and the EGEE&C. This is the first time an EMSD official has taken on a leadership role in an expert group under the EWG of APEC.

與內地合作

Collaboration with the Mainland

在鐵路安全方面，我們與國際和內地的對口單位保持頻繁交流。2018年10月，助理署長/鐵路出席在柏林舉行的「國際鐵路安全議會」周年會議和核心小組會議，以及在巴黎舉行的「智慧鐵路及通訊為本列車控制」世界會議。至於內地方面，我們在籌備廣深港高速鐵路(高鐵)香港段於2018年9月開通的工作期間，與國家鐵路總局及其他持份者建立了良好的合作關係和共識。這個持續的合作關係對保持高鐵香港段的安全十分重要。

On railway safety, we maintain frequent communication with international and our Mainland counterparts. In October 2018, our Assistant Director/Railways attended the annual conference and core group meetings of the International Railway Safety Council in Berlin, and the SmartMetro and Communication-based Train Control World Congress in Paris. As for the Mainland, we established a good working relationship and understanding with the National Railway Administration and other stakeholders during the preparation for the opening of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong High Speed Rail (HSR) in September 2018. Our ongoing partnership is vital for maintaining the safety of the Hong Kong Section of the HSR.

為了更深入了解內地高鐵司機的工作，鐵路科兩位同事年內分別前往武漢及成都，參與內地高鐵司機的培訓課程。相關的知識有助我們加強高鐵香港段的安全規管工作。

During the year, two colleagues from our Railways Branch attended high-speed rail driver training programmes in Wuhan and Chengdu respectively to better understand the duties of Mainland high-speed rail drivers. The knowledge will help enhance our safety regulatory work of the HSR Hong Kong Section.

年內，我們指派兩名同事分別前往武漢及成都參加高鐵司機培訓課程，以深入了解內地高鐵司機的工作。他們從中獲得的新知識，將有助我們加強高鐵香港段的安全規管工作。

During the year, we assigned two colleagues to attend high-speed rail driver training programmes in Wuhan and Chengdu respectively to gain a deeper understanding of the duties of Mainland high-speed rail drivers. Their newly acquired knowledge will help enhance our safety regulatory work of the Hong Kong Section of the HSR.

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

至於我們的規管服務與內地的全國性交流合作，我們早於2003年已與前國家質量監督檢驗檢疫總局(國家質檢總局)簽訂合作協議，在機電安全和能源效益方面的安全推廣、經驗交流、事故通報和人才培訓事宜持續合作達15年。由於國家質檢總局自2018年3月起已併入海關總署，機電署於2018年9月在重慶與海關總署簽訂了新的合作協議，訂明雙方會在家用電氣產品、氣體爐具、升降機及自動梯的安全，以及能源效益這四方面繼續緊密合作。

Our Regulatory Services began nationwide exchanges with the Mainland as early as 2003 when we signed a co-operation agreement with the former General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ). The collaboration, which lasted for 15 years, covered joint safety promotions, experience sharing, incident alerts and talent training in E&M safety and energy efficiency. Following the integration of the 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 September 2018 in Chongqing to continue the close collaboration in four areas, namely safety of household electrical appliances, gas appliances and lifts and escalators, and energy efficiency.

粵港澳大灣區亦為我們帶來不少與內地合作的新機會。年內，我們與香港及大灣區多個機構(包括六個來自香港、澳門及內地其他城市，專注於綠色建築、節能科研和屋宇裝備維修工作的主要機構)簽訂合作備忘錄。2018年11月，我們與這六個機構簽署《粵港澳大灣區建築物重新校驗(再調適)合作備忘錄》，鼓勵業界在香港和內地推廣重新校驗、互相分享相關知識和經驗，以及合作進行培訓。

The Guangdong-Hong Kong-Macao Greater Bay Area (GBA) also brought us new collaboration opportunities with the Mainland. During the year, we signed several memoranda of co-operation (MoCs) with various Hong Kong and GBA organisations, including six leading entities from Hong Kong, Macao and other Mainland cities that focus on green building, energy conservation research and building services maintenance. In November 2018, we signed an MoC on Retro-commissioning of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area with the six organisations to encourage the trade to promote retro-commissioning in Hong Kong and the Mainland, share relevant knowledge and experiences, and collaborate on training.

機電署一向十分重視培訓。我們分別於2018年6月及11月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，以加強兩地的機電業人才培訓合作，共同提升業界技術水平。我們亦計劃與廣東省科學技術協會及廣東省生產力促進中心分別簽署合作備忘錄，以推動兩地在創新及科技(創科)發展方面的協作。粵港兩地在創科人才培訓上的合作，以及資源、產品和服務方面的協作和交流，均有利我們的規管服務和香港機電業的發展，我們期待在這些範疇有更具體的合作。

Training has been an important focus area for us. We signed two MoCs with the Guangzhou Industry and Trade Technician College and the Guangzhou Human Resources and Social Security Bureau in June and November 2018 respectively to step up joint training for E&M talents and elevate the technical standards of the trade. We also plan to sign MoCs with the Guangdong Provincial Association for Science and Technology and the Guangdong Productivity Centre respectively to promote collaboration on innovation and technology (I&T) development in Hong Kong and Guangdong. Co-operation between Guangdong and Hong Kong in I&T talent training, as well as collaboration and exchange in resources, products and services will be beneficial to the development of our Regulatory Services and the local E&M trade. We look forward to more specific co-operation in these areas.

至於港澳合作方面，鐵路科在年內與澳門的運輸基建辦公室舉行了首次交流會議。機電署亦與澳門的牌照及稽查廳建立了新的合作關係，雙方會就不安全的家用電氣產品及氣體爐具互作通報，加強信息互通。

As to collaboration between Hong Kong and Macao, the Railways Branch and Macao's Transportation Infrastructure Office held the first-ever exchange meeting during the year. The EMSD and Macao's Licensing and Inspection Department also formed a new partnership on mutual notification of unsafe household electrical and gas appliances, aiming to foster information exchange.

與業界溝通的新發展

一如以往，我們繼續就有關機電安全和能源效益的各項法例、工作守則和最佳作業模式，舉辦業界簡報會、研討會、論壇及諮詢會，務求從多渠道向業界發布最新的機電安全和節能資訊，同時了解業界的需要和意見，以作參考。

New Developments in Trade Communication

As in past years, we continued to organise trade briefings, seminars, forums and consultation sessions related to various legislations, codes of practice (CoPs) and best practices on E&M safety and energy efficiency. The objective was to disseminate the latest information on E&M safety and energy saving to the trade through multiple channels, and to understand their needs and opinions for our reference.

我們亦定期就業界運作的新趨勢進行針對性的宣傳和公眾教育工作。舉例來說，由於越來越多小商戶兼售拖板、萬能插蘇和小型家用電氣產品，我們已透過外展計劃主動派員接觸這類小商戶，講解出售電氣產品所須符合的法例要求。同時，為了避免氣體喉管及供電電纜受第三者損壞，我們亦已加強對工程承辦商的宣傳和教育工作，以及調派督察到工地，向前線工程人員講解實務守則修訂本的最新規定。我們亦派發以漫畫形式製作的單張和載有安全資訊的貼紙，以提醒工程人員安全施工。

We regularly carry out targeted promotions and public education in response to emerging trends in the trade. For instance, as more and more small retailers are carrying electrical products such as extension units, adapters and small household electrical appliances in their product lines, we have initiated an outreach programme to connect with them and explain to them the statutory requirements for selling electrical products. Meanwhile, in order to prevent third-party damage to gas pipes and electricity supply lines, we have strengthened promotions and education for building contractors and deployed inspectors to work sites to explain to frontline workers the latest stipulations of the revised CoP. We also distributed leaflets featuring comic strips and stickers with safety tips to remind workers to always work safely.

為了加強升降機工程人員的安全培訓，我們與電梯業協會和職業訓練局合作，開發了一套應用虛擬實境技術的培訓教材。首個虛擬實境培訓單元已於2019年3月推出，內容涵蓋進入和離開升降機機廂頂及在升降機機廂頂工作的正確程序。此類虛擬實境培訓讓學員在安全的情況下體驗這些情境和熟習正確的安全程序。我們亦舉辦了一項以升降機和自動梯安全為主題的短片比賽，以提升前線人員的職業安全意識。比賽的頒獎典禮已於2019年3月舉行。

To enhance the safety training for lift workers, we collaborated with the Lift and Escalator Contractors Association and the Vocational Training Council to develop a set of virtual reality (VR) training materials. The first VR training module, introduced in March 2019, covers the proper procedures for entering, leaving and working on the top of a lift car. It provides a safe environment in which trainees can experience these scenarios and practise the proper safety procedures. We also held a video competition with the theme of lift and escalator safety to enhance frontline workers' awareness of occupational safety. The award presentation ceremony of the competition was held in March 2019.

我們與電梯業協會和職業訓練局合作，推出一系列虛擬實境培訓教材。首個培訓單元是關於進入和離開升降機機廂頂及在升降機機廂頂工作，讓學員熟習相關的正確程序。

We collaborated with the Lift and Escalator Contractors Association and the Vocational Training Council to develop a series of VR training materials. The first module familiarises trainees with the proper procedures for entering, leaving and working on the top of a lift car.

虛擬實境培訓教材的模擬情境。

A simulated scenario in the VR training material.

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

2018年度的「慳神大比拼」啟動典禮。「慳神大比拼」是一年一度「全民節能」運動的重要項目之一，2018年的比拼以創科為重點。
Launching ceremony of the Energy Saving Championship Scheme 2018. As one of the key programmes of the annual Energy Saving for All Campaign, the Scheme had a focus on I&T in its 2018 competition.

在能源效益及節能方面，我們繼續與環境局合辦一年一度的「全民節能」運動，而其中的「慳神有計大比拼2018」更引入了一項新的創科比賽。比賽要求參賽者提出節能和創新的解決方案，同時鼓勵業界為節能作出貢獻。「慳神有計大比拼」也新增了學生組別，讓小學、中學和大專學生參加，以鼓勵年輕人在節能和可再生能源發展方面發揮創意和想像力。

On energy efficiency and conservation, we continued to organise the annual Energy Saving for All Campaign in conjunction with the Environment Bureau. A new I&T competition was introduced in the Campaign's Energy Saving Championship Scheme 2018. Contestants were challenged to propose energy-efficient and innovative solutions while the trade was encouraged to contribute to energy conservation through the competition. A new category was also added to the Energy Saving Championship Scheme for students at primary, secondary and tertiary levels to encourage young people to express their creativity and imagination about energy conservation and renewable energy development.

機電工程署由2018年6月至2019年3月底，共舉辦和參與了31場有關上網電價計劃的研討會和簡介會，向供應商、承辦商及公眾講解有關計劃的接駁電網裝置要求。

From June 2018 to end of March 2019, the EMSD held and participated in a total of 31 seminars and briefing sessions to explain to suppliers, contractors and the public the installation requirements for grid connection under the Scheme.

為推動使用可再生能源，我們因應兩家電力公司於2018年推出的上網電價計劃，在2018年6月至2019年3月期間，為太陽能光伏系統供應商及承辦商舉辦了30多場簡報會。講者向業界闡述相關的規定和技術要點，並鼓勵業界為參加上網電價計劃的市民提供安全優質的可再生能源裝置。

To promote renewable energy use and in response to the Feed-in Tariff (FiT) Scheme introduced by the two power companies in 2018, we held more than 30 briefing sessions between June 2018 and March 2019 for photovoltaic system suppliers and contractors. Speakers outlined the relevant regulations and important technical details to the trade and encouraged them to provide high-quality and safe renewable energy installations to members of the public who participate in the FiT Scheme.

目標為本的公眾教育

向市民大眾進行宣傳教育是規管服務的重要工作之一。事實證明，宣傳工作如以目標為本兼有清晰對象，往往能取得更佳成果。因此，除了舉辦研討會和論壇、派發宣傳單張、小冊子、海報，以及製作電視宣傳短片外，我們的機電安全大使團隊亦全年無間斷地前往全港幼稚園、小學、中學、大專院校、老人院和長者中心作外展探訪，為年輕人和長者舉辦講座和展覽，以深入淺出的方式向他們講解機電安全和節能的基礎知識，以收聚焦宣傳之效。

Goal-oriented Public Education

Conducting public education and publicity is one of the key duties of our Regulatory Services. Goal-oriented publicity with clear target audiences has proven to be useful in delivering better results. Therefore, besides holding seminars and forums, distributing promotional leaflets, pamphlets and posters, as well as producing TV announcements, our team of E&M safety ambassadors runs an outreach programme to visit kindergartens, primary and secondary schools, tertiary institutions, elderly homes and elderly centres throughout the year. The safety ambassadors hold talks and exhibitions for both the young and elderly people on the basics of E&M safety and energy conservation in an easy-to-understand manner, for highly focused publicity.

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

香港的少數族裔人口持續上升，當中包括不少外籍家庭傭工。礙於語言限制，他們未必容易接收到有關機電安全的資訊。我們已從氣體安全着手，向他們傳達信息。年內，我們製作和派發印尼文及泰文的宣傳單張，又以泰語、尼泊爾語和印尼語，透過少數族裔電台廣播頻道廣播語音信息，與外籍家庭傭工分享氣體安全貼士。我們亦繼續進行街頭外展宣傳工作，由我們的氣體安全大使於星期日走進外籍家庭傭工休假聚集的熱門地點，親身分享氣體安全貼士(包括正確使用住宅式氣體用具的建議)。此外，我們亦與以外籍家庭傭工為服務對象的團體協作，向外籍家庭傭工群體發放氣體安全資訊，使宣傳工作更到位有效。

The population of ethnic minority groups in Hong Kong continues to grow, and among them many are foreign domestic helpers. Due to language barriers, they may not have easy access to information about E&M safety. We have initiated communication with these groups, starting with gas safety. During the year, we shared gas safety tips with foreign domestic helpers by producing and distributing leaflets in Bahasa Indonesia and Thai, and broadcasting audio messages in Thai, Nepali and Bahasa Indonesia via radio channels for ethnic minority groups. We also continued to conduct outreach promotions on the street, with our gas safety ambassadors sharing gas safety tips (including advice about the correct handling of domestic gas appliances) with domestic helpers in person at their popular gathering points on Sundays. Furthermore, we collaborated with service organisations targeting foreign domestic helpers to disseminate gas safety information to their communities for greater impact.

我們的同事擔任氣體安全大使，於星期日到訪外傭休假聚集的熱門地點，講解正確使用家居氣體用具及卡式氣體爐具的知識，並派發以印尼文及泰文等印製的宣傳單張。

Our colleagues reach out to foreign domestic helpers as gas safety ambassadors on Sundays at their popular gathering places to explain the proper use of domestic gas appliances and portable cassette cookers, and distributed to them Leaflets in Bahasa Indonesian and Thai, etc.

由於香港的電視制式已更新，舊有的4:3制式電視宣傳短片去年已不再適用，由一系列16:9制式的電視宣傳短片取代，其中有一套新的短片提醒市民電氣產品需要經常妥善維修保養和安全使用。今年，我們會繼續製作更多有關機電安全和節能的電視宣傳短片。除了傳統的播放渠道外，我們亦會在YouTube等新媒體播放宣傳短片。

As TV formats in Hong Kong have been updated, old TV announcements in the 4:3 format were no longer applicable last year and replaced by a series of new TV announcements in the 16:9 format. These included announcements reminding the general public about the constant need for proper maintenance and the safe use of electrical products. This year, we will continue to produce more TV announcements about E&M safety and energy efficiency to be aired on new media channels such as YouTube, in addition to traditional broadcast channels.

我們亦繼續向升降機及自動梯的負責人宣傳，以鼓勵他們進行升降機及自動梯優化工程，從而提升升降機及自動梯的安全水平、可靠度和舒適度。在2019年3月底，由政府與市區重建局(市建局)共同推出的優化升降機資助計劃開始接受申請。就此，我們聯同市建局舉行了11場大型簡介會，向目標樓宇的業主宣傳和講解資助計劃。此外，我們亦在資助計劃推出之前，製作和播放該計劃的電視宣傳短片和電台聲帶，以及印製和派發該計劃的海報和小冊子，以確保全方位傳播有關信息。我們亦已製作一套有關優化自動梯的宣傳短片，讓相關負責人了解更多有關優化工程的好處。

We also continued to conduct promotions to Responsible Persons (RPs) of lifts and escalators to encourage the modernisation of their lifts and escalators for greater safety, reliability and comfort for users. The Lift Modernisation Subsidy Scheme (LIMSS), jointly introduced by the Government and the Urban Renewal Authority (URA), opened for application in late March 2019. In this regard, we initiated 11 large-scale briefing sessions in partnership with the URA to promote and explain the LIMSS to owners of targeted buildings. Additionally, before the implementation of the LIMSS, we produced and aired TV and radio announcements on the LIMSS, and distributed posters and pamphlets concerning the LIMSS to ensure the message reached a wide spectrum of the community. We also produced a promotional video about escalator modernisation to help RPs understand more about its benefits.

我們聯同市建局就「優化升降機資助計劃」舉行了11場大型簡介會，向目標樓宇的業主宣傳和講解計劃詳情。
We organised 11 large-scale briefing sessions in partnership with the URA to promote and explain the details of the LIMSS to owners of targeted buildings.

機電青少年大使計劃

機電青少年大使計劃於2019年邁進第十個年頭，並於4月在機電署總部大樓舉行周年聚會，有超過100名成員及家長出席。該計劃現有約10 000名成員，我們透過各種活動，例如參觀活動、工作坊和印製會員通訊，增加成員的機電安全和能源效益知識，使他們可以發揮大使的作用，讓身邊的親友更重視機電安全和節能。

年內，超過100名青少年大使和家長參觀了民航處教育徑、青馬管制區和立法會綜合大樓，親身了解在這些政府建築物和設施內所推行的機電安全和能源效益措施。我們亦計劃在今年安排青少年大使參觀中環灣仔繞道、港珠澳大橋、啟德郵輪碼頭，以及翻新後的香港藝術館和香港太空館等。

E&M Young Ambassador Programme

The E&M Young Ambassador (EMYA) Programme entered its 10th year in 2019 and held its annual gathering at the EMSD Headquarters in April, with more than 100 members and their parents attending. With about 10 000 members, the EMYA Programme offers activities such as visits, workshops and publication of newsletters to equip them with knowledge about E&M safety and energy efficiency. They can in turn act as ambassadors to encourage their friends and family members to be more aware of E&M safety and energy conservation.

During the year, more than 100 Young Ambassadors and their parents visited the Education Path at the Civil Aviation Department Headquarters, the Tsing Ma Control Area and the Legislative Council Complex to experience first-hand the E&M safety and energy efficiency measures implemented in these government buildings and facilities. We are also planning visits to such places as the Central-Wan Chai Bypass, Hong Kong-Zhuhai-Macao Bridge, Kai Tak Cruise Terminal, and the refurbished Hong Kong Museum of Art and Hong Kong Space Museum, for our Young Ambassadors this year.

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

在機電青少年大使計劃十周年之際，我們推出了一個以盆栽為創作意念的全新標誌，並展開新一輪會員招募和推薦活動。我們亦在Facebook設立專頁，與年輕人互動。在來年，我們會推出義工計劃，包括大使培訓、星章計劃和在社區宣傳機電安全知識等，讓活動內容更豐富和有意義，有助加強機電署與青少年大使的聯繫。

Riding on the 10th anniversary of the EMYA Programme, we introduced a new logo for the scheme inspired by pot plants and began a new membership drive and referral programme. We also launched a dedicated Facebook page to interact with young people. In the coming year, we will launch an EMYA volunteer programme which includes ambassador training, a badge scheme and promotion of E&M safety knowledge in the community, etc. The enriched line-up of meaningful activities will serve to build stronger connections between the EMSD and our Young Ambassadors.

機電青少年大使計劃定期舉辦參觀活動，提高青少年對機電業的興趣。

Regular visits are organised under the EMYA Programme to enhance young people's interest in the E&M trade.

「樂齡科技顯愛心」再接再厲

繼於2017年與香港社會服務聯會(社聯)首次合作，順利舉辦「樂齡科技顯愛心」比賽後，我們於2018年再與社聯合辦該項比賽。

一如去年，比賽旨在鼓勵青少年運用創意、活用機電、科學及科技知識，設計出適用於長者家居生活的樂齡科技產品。這些產品會在社區和安老院舍使用，以改善長者及其照顧者的生活質素。2018年的「樂齡科技顯愛心」比賽設有小學、初中及高中組，共有來自43間學校的72支隊伍參賽，其中九隊勝出。社聯邀請所有參賽隊伍出席在2018年11月舉行的「樂齡科技博覽暨高峰會」，以及安排了30多場科技相關活動，讓參賽學生了解長者日常起居生活所面對的不便，從中發掘靈感，設計適合長者需要的科技產品。

Encore of Gerontech Youth Challenge

Once again, we co-organised with the Hong Kong Council of Social Service (HKCSS) the Gerontech Youth Challenge in 2018, following our first partnership in the Challenge held successfully in 2017.

As in the previous year, the Challenge aims at encouraging young people to apply their creativity and knowledge in E&M equipment, science and technology to design household products with technology features for the elderly. The products will be used by the community and elderly homes to improve the quality of life of the elderly and their carers. The Challenge in 2018 included categories for primary, junior secondary and senior secondary students. A total of 72 teams from 43 schools took part in the event, and nine were selected as winners. The HKCSS invited all teams to the Gerontech and Innovation Expo cum Summit held in November 2018 and organised more than 30 sessions of technology-related activities for students participating in the Challenge. The activities enabled them to better understand the challenges facing the elderly in daily life and to find inspiration for designing suitable technology products.

我們於2018年再與香港社會服務聯會合辦「樂齡科技顯愛心」比賽，鼓勵年青人關懷長者生活。

The Gerontech Youth Challenge was held in collaboration with the Hong Kong Council of Social Service in 2018 again to promote care for the elderly by the young generation.

參賽隊伍向評審介紹作品的設計概念。

A participating team elaborating the product design concept to the judges.

三組的金獎作品，分別為小學組的「智精齡」、初中組的「長者智慧健康系統」，以及高中組的「iGeri高背椅電動輔助工具及管理系統」。「智精齡」是個智能探測器，能在長者出門前檢查是否已帶齊鑰匙、錢包及手提電話等重要物品，亦能定時監察廚房有沒有關掉爐火，讓獨居長者生活更安全。「長者智慧健康系統」可讓長者在做完運動後，檢查自己的心跳脈搏、血壓、血氧濃度指數及運動時數，是監察身體狀況的有用工具。至於「iGeri高背椅電動輔助工具及管理系統」，則是一台迷你電動叉式起重裝置，其設計靈感來自物流業用於搬動重物的叉式起重車，能協助安老院舍護理人員輕易地移動體積龐大的高背椅。

"Smart Bell", "Smart Healthcheck System", and "iGeri Power-assisted Tool and Management System" won the Gold Award in the primary, junior secondary and senior secondary school categories respectively. The "Smart Bell" is a smart detector designed to ensure the safety of the elderly who live alone. The device can check if its user has taken vital items, such as keys, wallets, mobile phones, etc. before leaving home. It can also periodically check if the stove has been turned off to ensure home safety. The "Smart Healthcheck System", which checks elderly people's heart rate, blood pressure, blood oxygen level and workout duration after they have exercised, is a useful tool to monitor the user's physical condition. The "iGeri Power-assisted Tool and Management System", inspired by forklift trucks used for heavy lifting in the logistics industry, is a mini electric forklift device that can assist carers in elderly homes to move bulky high-back Geri chairs with ease.

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

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。

最近一次傳媒聚會於2018年12月舉行，有20多個傳媒機構派員出席，主題是「同心共創 智慧之都」，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「互動學習中心」和「機電創科專區」。參觀活動旨在展示機電署如何推動機電設施數碼化，以支援政府的智慧城市發展。機電署亦會在內部運作上更廣泛採用科技，例如使用虛擬實境和「洞穴式自動虛擬環境」系統進行員工培訓。我們計劃與所有持份者(包括政府部門和機電業界)緊密合作，迎接未來的機遇。

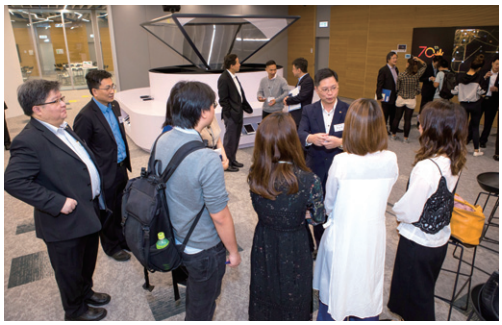
Media Gathering

The EMSD takes media relations seriously. In addition to proactively sharing departmental information with the media and responding to 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.

The latest media gathering was held in December 2018, attended by representatives from more than 20 media organisations. Themed "Co-creating a Smart City", the event was hosted by our Director and senior management who took the media on a tour of our new Interactive Learning Centre and the E&M InnoZone at the EMSD Headquarters. The tour aimed to showcase our initiatives in promoting digitisation of E&M facilities in support of the Government's smart city development. The EMSD will also adopt technology more extensively for internal operations, such as using VR and the Cave Automatic Virtual Environment system to conduct staff training. We plan to work closely with all stakeholders, from government departments to the E&M trade, to embrace future opportunities.

署長聯同高層管理人員於2018年12月舉行傳媒聚會，展示部門如何推動機電設施數碼化，以支援政府的智慧城市發展。

At the media gathering in December 2018, our Director and senior management showcased the EMSD's initiatives in promoting the digitalisation of E&M facilities in support of the Government's smart city development.



來自20多家傳媒機構的記者和編輯出席是次聚會，並參觀機電署總部大樓內新落成的「互動學習中心」和「機電創科專區」。

Journalists and editors from more than 20 media organisations attended the event and took on a tour of our new Interactive Learning Centre and the E&M InnoZone at the EMSD Headquarters.

運用虛擬實境技術 優化升降機人才培訓
Using VR Technology to Strengthen Lift Talent Training

機電署與職業訓練局(職訓局)及機電業界合作，自2017年年底開始籌劃和設計運用虛擬實境技術的升降機培訓項目。參與統籌工作的一般法例部高級工程師賴震暉先生認為，這次難得的合作會為整個業界帶來正面影響，不但可加強培訓行業人才，亦可吸引更多年青人了解和投身機電行業。

The EMSD has collaborated with the Vocational Training Council (VTC) and the E&M trade to plan and design lift training programmes using virtual reality (VR) technology since the end of 2017. Mr Lai Chun-fai, Alex, Senior Engineer at the General Legislation Division who was involved in co-ordinating this initiative, believed that the collaboration would have a positive impact on the entire industry. Not only would this strengthen talent training for the trade, but also attract more youngsters to learn about and join the E&M trade.

機電署、職訓局及升降機業界一直抱有共同目標，希望學徒以至在職升降機工程人員能在安全環境中體驗各種升降機情境、熟習工作安全要點，以及以正確方法應付突發情況，從而提升他們的技術水平及安全意識。

以虛擬實境技術進行升降機工作安全培訓的概念於2017年年底提出，經三方合作，至2018年年中設定八個培訓單元的內容。項目由機電署統籌，職訓局協助編寫程式，並由業界代表分享實戰經驗和意見。

三方一直緊密合作，挑選最令使用者印象深刻的情境及情況，同時取得共識，設定適用於業界各公司的操作程序。這套訓練單元能讓職訓局學員或業界工程人員在高度像真的模擬情境中，體驗安全進出升降機機廂頂的工作程序，甚至應付突發事故及機件故障的情況。

震暉指：「有別於傳統的培訓方式，今次引入虛擬實境技術作培訓，不但增加年青學員的學習興趣，更能突破傳統培訓的局限，讓學員在安全的情況下，透過完成不同情境的任務學習解決問題的方法，加深了解各項工序所需注意的地方。」

升降機工作安全虛擬實境培訓課程的擬備工作已於2019年3月完成，並已交付職訓局及業界作培訓用途。

The EMSD, the VTC and the lift trade have always shared the common goal of creating a safe environment for trainees and existing lift workers to experience various lift scenarios, familiarise themselves with the keys to work safety and deal with emergency situations in the right way, thereby enhancing their technical capability and safety awareness.

The idea of using VR technology to conduct training in respect of lift work safety was proposed in late 2017. Through collaboration of the three parties, the contents of the eight training modules were set in mid-2018. The project was co-ordinated by the EMSD, while the VTC assisted in writing programmes, and trade representatives shared their practical experience and suggestions.

The three parties have been working closely together to select scenarios and situations that are most impressive to users. They have also reached a consensus to set operating procedures that are commonly applicable to companies in the trade. This set of training modules enables VTC trainees and trade workers to experience the safe working procedures of entering and leaving the top of a lift car, or even the situations of dealing with sudden incidents and equipment failure in highly realistic simulated settings.

"Unlike conventional training methods, the introduction of VR technology for training not only enhances young trainees' interest in learning, but also breaks the limitations of conventional training, allowing them to figure out ways to solve the problems and better grasp the details of various work processes by completing tasks under different scenarios in a safe environment," Alex said.

The preparation for the VR lift work safety training programme was completed in March 2019. The modules were delivered to the VTC and the trade for training purposes.

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

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

薛永恒太平紳士
Mr Sit Wing-hang, Alfred, 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)

* 韓志強太平紳士出任發展局常任秘書長(工務)至2018年10月12日
Mr Hon Chi-keung, JP was Permanent Secretary for Development (Works) up to 12 October 2018

* 戴德謙太平紳士出任機電工程署副署長/營運服務至2018年9月11日
Mr Tai Tak-him, JP was Deputy Director/Trading Services, EMSD up to 11 September 2018

* 羅肇嫻女士出任機電工程署主任秘書至2019年2月27日
Ms Lo Siu-han, Cynthia was Departmental Secretary, EMSD up to 27 February 2019

* 湯東成先生出任署理機電工程署主任秘書至2019年3月31日
Mr Tong Tung-shing was Acting Departmental Secretary, EMSD up to 31 March 2019

秘書 SECRETARY

彭耀雄太平紳士
Mr Pang Yiu-hung, JP
機電工程署副署長/營運服務
Deputy Director/Trading Services, EMSD

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

管理委員會
Management Board

主席 CHAIRMAN

1 薛永恒太平紳士
Mr Sit Wing-hang, Alfred, JP

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

成員 MEMBERS

2 彭耀雄太平紳士
Mr Pang Yiu-hung, JP

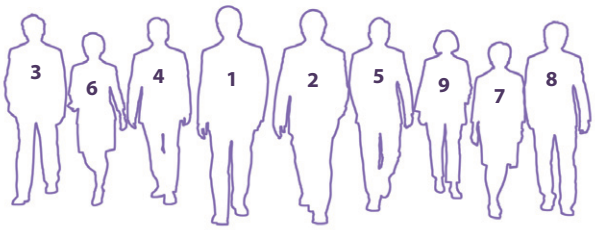
機電工程署副署長/營運服務
Deputy Director/Trading Services, EMSD

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 張遠芳太平紳士
Mr Cheung Yuen-fong, JP

機電工程署助理署長/2
Assistant Director/2, EMSD



秘書 SECRETARY

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
機電工程署財政經理
Finance Manager, EMSD

7 梁淑貞女士
Miss Leung Suk-ching, Olivia
署理機電工程署員工關係主任
Acting Staff Relations Officer, EMSD

8 劉啟燊先生
Mr Lau Kai-sun
署理機電工程署員工關係主任
Acting Staff Relations Officer, EMSD

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

* 戴德謙太平紳士出任機電工程署副署長/營運服務至2018年9月11日
Mr Tai Tak-him, JP was Deputy Director/Trading Services, EMSD up to 11 September 2018

* 王文剛先生出任機電工程署員工關係主任至2018年5月25日
Mr Wong Man-kong was Staff Relations Officer, EMSD up to 25 May 2018

* 羅肇嫻女士出任機電工程署主任秘書至2019年2月27日
Ms Lo Siu-han, Cynthia was Departmental Secretary, EMSD up to 27 February 2019

* 湯東成先生出任署理機電工程署主任秘書至2019年3月31日
Mr Tong Tung-shing was Acting Departmental Secretary, EMSD up to 31 March 2019

業務回顧與前瞻
Operations Review and Outlook

彭耀雄太平紳士
Mr Pang Yiu-hung, JP

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

機電工程營運基金於2018/19年度再次錄得穩定表現，實有賴客戶的信任和員工的努力。年內，我們的業務也有所增長，主要來自服務需求上升，總收入為75.23億港元(2017/18年度：65.11億港元)，而收入回報率亦維持9.2% (2017/18年度：9.6%)的穩定水平。營運基金的業績也顯示，我們的生產力有持續上升的趨勢。

服務智能化

營運基金於2018/19年度有兩項成就尤其突出。首先，我們以更「智能化」的方式為客戶和公眾提供服務。其次，我們與業界和粵港澳大灣區的對口單位建立有效的連繫，並締造和加強具潛力的合作關係，為客戶和香港機電業界增值。

營運基金各方面的運作亦採用「智能化」方式提供服務。我們與客戶合作開發的智能發燒偵測系統和智慧監獄方案均具備創新及科技(創科)元素，正是智能化服務的明顯例子。

除了提供智能方案外，培育「智慧型」的員工團隊和在部門內建立「智慧型」的工作文化也同樣重要。年內，我們在員工培訓課程中新增了多個具備創科元素的單元，包括使用虛擬實境和擴增實境技術的課程單元。部分策略業務單位的辦公室採用嶄新的智能工作空間，以鼓勵員工進行討論、分享和協作。我們還舉辦了首屆「Inno@E&M創新科技挑戰賽」，這個內部比賽鼓勵員工提交創科建議書，而24個優勝項目更獲部門資助，將會落實推行。

The Electrical and Mechanical Services Trading Fund saw another year of steady performance in 2018/19, thanks to the trust from our clients and the commitment of our staff. The year also recorded some business growth, mainly from an increase in service demand. The total revenue was HK$7,523 million (2017/18: HK$6,511 million) while the return on revenue held steady at 9.2% (2017/18: 9.6%). The results have also indicated a continuously rising trend in productivity.

The Smarter Way

Two achievements stood out in 2018/19. First, we were "smarter" in how we provided services to clients and the public. Second, we connected effectively with the trade and our counterparts in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), creating and strengthening links with the potential to add value to our clients and Hong Kong's E&M sector.

The "smarter" way of service provision embraces many aspects of EMSTF operations. Solutions with innovation and technology (I&T) elements, such as the Smart Fever Screening System and the Smart Prison solutions developed with clients, are obvious examples.

Equally important was nurturing a "smart" workforce and a "smart" working culture within the EMSTF. During the year, we added many I&T-inspired modules to our staff training programme, including modules using virtual reality and augmented reality technologies. Several Strategic Business Units (SBUs) created new, intelligent office spaces to encourage staff discussion, sharing and co-working. We also organised the first Inno@E&M Challenge, an internal competition which stimulated I&T proposals from staff, with financial support provided for the implementation of 24 winning proposals.

業務回顧與前瞻
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我們為客戶提供服務的方式也變得更「智能化」。隨着營運基金的新組織架構於2018年10月1日正式生效，工作分配變得更為有效，能達致更佳的協同效應和更以客為本。舉例來說，我們把所有邊境設施和運輸工程歸入同一個策略業務單位，原因是這兩類工程服務息息相關，把兩者合併不但有助提升我們的服務效率，更能為客戶提供一站式便利。

Our service delivery to clients became "smarter" too. As the new EMSTF organisational structure took effect on 1 October 2018, work allocation has been streamlined for better synergy and sharper customer focus. A good example is putting all boundary facilities and transport services under the same SBU. As the two service categories are closely related, this enhances our efficiency and provides one-stop convenience for clients.

在企業層面，我們新推出的「顧客為本電子平台 — 工作管理」(工作管理電子平台)系統，配合經革新的客戶服務中心，使營運基金無論在工作流程「智能化」和與客戶溝通方面，都邁進了一大步。客戶服務中心接到客戶的故障報告後，工作管理電子平台系統便會自動透過流動應用程式，把有關的維修工作分配給前線員工，以便迅速跟進。同樣地，前線員工也可隨時透過流動應用程式，以文字、相片和短片向客戶服務中心報告他們的工作進度，讓中心可以及時向客戶提供狀況更新，並迅速回應客戶的查詢，為他們提供最新資訊。

On a corporate level, our new Customer Centric e-Platform - Job Management (CCeP-JM) system and the upgraded Customer Service Centre (CSC) have together taken the EMSTF one big step forward in smarter workflow and client communication. As soon as the CSC receives a client's fault call, the CCeP-JM system will automatically allocate the repair job to frontline staff via a mobile app for prompt action. By the same token, frontline staff can report their job progress to the CSC anytime on the mobile app via text, photos and video clips. This enables the CSC to provide timely status updates to clients and respond promptly to requests for information.

建立大灣區合作網絡

2018/19年度是我們推行第二個五年策略計劃的第一年。計劃的目標是透過數碼化、科技和協作，令營運基金邁進「機電2.0」的新時代。在這前提下，《粵港澳大灣區發展規劃綱要》正好為營運基金以至本港整個機電業界提供合時和寶貴的機會，讓其受惠於創科合作發展。

Networking in the Greater Bay Area

The year 2018/19 was the first year of our second Five-year Strategic Plan. It aims to enable the EMSTF to move towards a new era of E&M 2.0 via digitisation, technology and collaboration. Under this context, the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area presents a timely and valuable opportunity for the EMSTF and, indeed, Hong Kong's entire E&M sector to benefit from I&T co-development.

年內，機電署主動與大灣區不同機構簽訂各項合作安排，主要協議包括與廣州市工貿技師學院簽訂的合作備忘錄，加強雙方在培訓機電技術員和見習技術員方面的合作；以及與廣州市人力資源和社會保障局簽訂的合作備忘錄，加強穗港兩地在促進機電人才發展方面的合作。

During the year, the EMSD took the initiative to sign various co-operation arrangements with GBA entities. The key ones included a memorandum of co-operation (MoC) with the Guangzhou Industry and Trade Technician College to strengthen collaboration in training E&M technicians and trainees; and an MoC with the Guangzhou Municipal Human Resources and Social Security Bureau to enhance collaboration in E&M talent development in both Hong Kong and Guangzhou.

事實上，作為聯合培訓的第一步，我們由2018年4月開始已陸續安排見習技術員和前線員工到廣州參加製冷機和空調維修的短期培訓課程，而在2019年年內，廣州方面也會持續為我們的見習技術員舉辦其他機電範疇的類似課程。內地的校企合作培訓模式，是由技術員培訓學校與企業合作，為企業員工度身訂造培訓課程，形式獨特，或可令本港的機電業界受惠。

In fact, as a first step in joint training, we have been sending technician trainees and frontline staff to Guangzhou to attend short training courses in chiller and air-conditioning maintenance since April 2018. Similar courses in other E&M disciplines for our technician trainees will be held in Guangzhou throughout 2019. The Mainland's model, under which technician training schools collaborate with enterprises to tailor specific training programmes for their employees, is quite unique and may benefit Hong Kong's E&M sector, too.

至於引入更多來自大灣區企業的創科解決方案和技術，我們正與廣東省科學技術協會、廣東省生產力促進中心和廣東省科學院溝通，探討創科合作機會。我們也計劃向大灣區的初創企業推廣我們的「機電創科網上平台」，使這些企業能因應本港政府部門及公營機構於平台上發布的願望清單，提交創科解決方案，以供配對。

年內，我們多次安排客戶部門和業界代表前往深圳、廣州和東莞考察，讓他們與大灣區機構建立直接聯繫，並親身體驗這些城市可以提供的技術，以加快本港公營機構在數碼轉型及智慧城市發展方面的步伐。

我們希望這些安排有助營運基金更有效地聚焦於數碼化和創新工作，朝着「機電2.0」的時代邁進，同時提升人才培訓質素，特別是技術員和見習技術員的培訓，並為香港引進更多來自大灣區研發機構和初創企業的創科解決方案。

實施第二個五年策略計劃

2018/19年度是機電工程營運基金推行第二個五年策略計劃的第一年，年內落實了多項工作，而「機電數碼化」、「培育團隊」及「科技・創新」三個策略都順利開展。這些策略旨在實現我們「機電2.0」的願景，以及落實「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。

我們因應五年策略計劃而推出多項措施，當中較重要的例子包括前文提及的工作管理電子平台系統和經革新的客戶服務中心，兩者目前均運作暢順。下一步是要應付技術層面上的挑戰，這對於我們的數碼化轉型工作至為關鍵。有關工作包括把我們的資產管理系統數碼化、為企業電腦系統進行升級、為400多幢政府建築物建立綜合樓宇管理系統，以及成立區域數碼控制中心，對樓宇內的資產進行中央遙距監察。

As to introducing more I&T solutions and technologies from GBA entities, we are communicating with the Guangdong Provincial Association for Science and Technology, the Guangdong Productivity Centre and the Guangdong Academy of Sciences for I&T co-operation. We are also planning to publicise our E&M InnoPortal to GBA start-ups so that they may submit their I&T solutions in response to the wish-list items posted on the portal by government departments and public organisations in Hong Kong for matching.

To enable our clients and the trade to establish direct contact with GBA organisations, we organised several visits to Shenzhen, Guangzhou and Dongguan for client departments and the E&M trade during the year, allowing them to experience first-hand the technologies these cities can offer to expedite the digital transformation and smart city development of our public sector.

We hope that these arrangements will help us better target our digitisation and innovation work as we move towards E&M 2.0 while also enhancing the quality of our manpower development, especially for technicians and trainees, and introducing more I&T solutions from research institutions and start-ups in the GBA into Hong Kong.

Implementing the Second Five-year Strategic Plan

Much was achieved in the implementation of the EMSTF's second strategic plan in 2018/19, the first of the five-year initiative. A good start was made in each of the three strategies under the plan, namely "E&M Digitisation", "Excellent Work Team" and "Technology • Innovation". These strategies aim to achieve our vision of E&M 2.0 and the corporate goal of "creating public value for community betterment through partnership with different stakeholders".

Notable examples of initiatives contributing to the plan include the launch of the new CCeP-JM system and the upgraded CSC mentioned above, which are operating smoothly. The next step is to tackle technical challenges that will be critical to our digital transformation, including the digitisation of our asset management system, the upgrading of the corporate computer system, the deployment of integrated Building Management System (iBMS) solutions to more than 400 government buildings, as well as the setting up of regional digital control centres for centralised remote monitoring of the building assets.

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這些數碼化系統正式投入運作後，會為我們提供所需的數據和資訊，更能加強為客戶的機電設施提供預測性維修保養服務，並採用以人工智能為基礎的數據分析技術，使有關機電設施的運作表現能維持於最佳水平。兩者均有助把營運基金的操作及維修服務提升至更高水平。

Once up and running, these digitised systems will provide us with the necessary data and information, enabling us to step up predictive maintenance for our clients' E&M facilities and adopt artificial intelligence-based data analytics to upkeep the operational performance of the plants at the best level. Both of these will take our operation and maintenance service to a new level.

前瞻

我們的同事一直積極跟進與大灣區機構簽訂的各項合作安排，以充分發揮有關合作備忘錄的作用，利惠我們與各個合作伙伴的創新和共創工作。我們將繼續聚焦於聯合人才培訓和技術交流，兩者都是營運基金和本港機電業界極感興趣的合作範疇。

此外，我們正計劃在2019/20年度簽訂更多合作備忘錄，例如我們將與五所本地大學及七間科研機構簽訂合作備忘錄，以建立機電創科聯盟；我們亦分別與廣東省科學技術協會及廣東省生產力促進中心簽訂合作備忘錄，這將是我們首次與大灣區機構簽訂創科合作安排。在2019年稍後時間，我們更會與廣東省科學院簽訂另一項創科合作備忘錄。

對於我們日益擴大的大灣區合作網絡，以及其為所有相關各方帶來的潛在效益，我們深感興奮。

A Preview

Our colleagues have been busy following up on the various co-operation arrangements established with GBA organisations so that our MoCs can be leveraged to the fullest extent to help us and all our partners innovate and co-create. Our focus will continue to be on joint manpower training and technology exchange, which are of great interest to the EMSTF and the local E&M trade.

Besides, we are planning to sign more MoCs in 2019/20, such as five with local universities and seven with research institutions to form an E&M-I&T alliance, another one with the Guangdong Provincial Association for Science and Technology and one with the Guangdong Productivity Centre. The latter two MoCs will be our first I&T co-operation arrangements with GBA organisations, to be followed by another MoC with the Guangdong Academy of Sciences on I&T collaboration later in 2019.

We are excited about our growing GBA co-operation network and its potential benefits for all parties concerned.

致謝

根據營運基金最新的2018年客戶意見調查，客戶滿意指數達6.61分(以8分為滿分計)，創歷史新高，反映了客戶對我們的信任和支持，我們謹此衷心致謝。

我們必須感謝全體員工過去一年的貢獻和承擔，他們以積極實幹的精神，迎接不斷增加的工作項目。我們特別感謝同事在去年9月超強颱風「山竹」襲港期間，不眠不休地工作，令颱風對客戶機電系統的影響減至最低，並在風暴過後進行搶修，使各項設施的運作能盡快回復正常。

Special Thanks

The EMSTF would like to express our deep appreciation and gratitude to our clients for their trust and support, as reflected in the record-high Customer Satisfaction Index of 6.61 on a scale of 8 in our latest Customer Opinion Survey 2018.

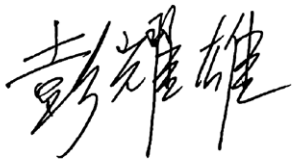
We must thank all our staff for their dedication and can-do spirit in taking on an expanding portfolio of projects in the past year. Special thanks also go to colleagues who worked tirelessly last September to minimise the impact of super typhoon Mangkhut on clients' E&M systems and restore their normal operation as soon as possible after the storm.

有賴常務委員會和各個決策局的指導和支持，特別是對於我們擔當政府和公營機構「創新促成者」的新角色所給予的意見，機電工程營運基金方能保持穩定表現。我們衷心感謝機電業各行業組織、大學、學者、專業團體及培訓與研發機構提供的寶貴意見和支援。我們也感謝各顧問和承辦商，以及所有與我們簽訂合作備忘錄的本港和大灣區其他城市的合作伙伴。

展望來年，我們期待與各持份者進一步合作，繼續邁向「機電 2.0」的新里程。

The EMSTF's steady performance would not have been possible without the guidance and support of the Executive Board and policy bureaux, particularly in our new role as Innovation Facilitator for the Government and public sector. A big thank-you also goes to the trade associations, universities and academics, professional bodies and training and research institutions that gave us sound advice and support, to our consultants and contractors, as well as to all our co-operation partners in Hong Kong and other GBA cities under the various MoCs.

We look forward to collaborating further with all our stakeholders as we continue our journey towards E&M 2.0 in the coming year.



彭耀雄
機電工程署副署長/營運服務

Pang Yiu-hung
Deputy Director/Trading Services, EMSD

營運服務
Trading Services

活力都會生活

香港生活節奏明快，充滿活力，是極富動感的國際都會。我們很高興能夠在這個大都會擔當重要角色，為多個政府部門的機電設施提供操作及維修保養服務，讓每位香港市民都可享受到世界級的都市生活，並體驗林林總總的市政、文化和休閒活動。

2018/19年度的亮點之一，是為香港藝術館的大型擴建及修葺工程項目完成機電工程。經過整整四年的翻新工程，全新面貌的藝術館將於2019年11月重新開放。擴建後，藝術館的展覽空間大幅增加約四成，達到10 000平方米，另新增四個展覽廳，使總數達12個。此外，藝術館還增建了新翼大樓，內設樓高九米、可供展示大型藝術品的展覽廳。

我們的團隊在整項翻新工程中一直悉力以赴，為康樂及文化事務署提供協助，就所有機電系統及設施(包括空調、閉路電視及廣播系統和傳感器)提供意見，確保能夠為展品提供最理想的溫度和濕度，而客戶對我們的表現亦表示讚賞。

年內另一個令人興奮的項目，是為2018年兩度發生火警的香港仔漁光道街市熟食中心，引進紫外光C結合臭氧技術的廚房排煙系統。我們為食物環境衞生署(食環署)提供嶄新解決方案，當油煙進入管道籠罩，結合紫外光和臭氧的技術便能於數秒鐘內將油煙的油分子迅速分解。紫外光和臭氧能把油分子化成水、氧氣、二氧化碳和聚合油脂等非黏性物質，有效防止油脂積聚在排煙管道內壁上。

City of Vitality

Upbeat and cosmopolitan, the Hong Kong lifestyle is among the most vibrant in the world. We are delighted to play a key role in operating and maintaining the E&M facilities of many government departments so that all people in Hong Kong can enjoy world-class urban living with a wide range of municipal, cultural and leisure activities.

A highlight in 2018/19 was the completion of E&M works for the major expansion and facelift of the Hong Kong Museum of Art, which will re-open in November 2019 after a four-year closure for renovation. The upgraded facility will provide 10 000 square meters of exhibition space, an increase of about 40%, with four new galleries to take the total to twelve. A new annex block has also been added, accommodating a nine-meter high gallery to display large-size artworks.

Our team supported the Leisure and Cultural Services Department throughout the renovation project, winning client's appreciation for our advice on all E&M systems and facilities, including air-conditioning, closed-circuit television and public address systems and sensors, to ensure optimal temperature and humidity for artworks on display.

Another exciting development in the year was the introduction of ultraviolet-C and ozone (UV-CN) kitchen exhaust treatment system at the Yue Kwong Road Market Cooked Food Centre in Aberdeen, where two fires broke out in 2018. Our innovative solution for the Food and Environmental Hygiene Department (FEHD) combines UV light and ozone technologies to decompose grease molecules in oily fumes within a few seconds of the fumes entering the canopy hood. UV-C light and ozone break down the grease molecules into non-sticky substances – water, oxygen, carbon dioxide and polymerised grease – to prevent grease from building up on the inner walls of the exhaust ductwork.

我們為翻新後的香港藝術館「新空間」安裝多款射燈，以配合不同類型展覽的需要。射燈能沿着天花板上的軌道移動，並以電腦調校光暗。

We installed a variety of spotlights for "The Lab" of the renovated Hong Kong Museum of Art to cater for the needs of different types of exhibitions. The spotlights are movable along the tracks underneath the ceiling and are dimmable by computers.

可移動式浸洗缸是一項新引入食環署轄下熟食中心的創新應用方案，利用超聲波清洗濾油隔。我們的同事正在示範如何使用浸洗缸，並展示用後的效果。

Our colleagues are demonstrating the use of a mobile soak tank and its cleaning results. The tank, which is an innovative application introduced to the FEHD's cooked food centre, uses ultrasound to clean oil filters.

我們正在檢查新安裝於漁光道街市熟食中心的紫外光C及臭氧設備，該設備以紫外光及臭氧分解油煙分子，減少管道內的油脂積聚。

We are inspecting the UV-CN equipment newly installed at the cooked food centre of the Yue Kwong Road Market, which uses UV-C light and ozone to decompose oily fume molecules and reduce accumulation of grease inside ductwork.

新系統經過一個月的測試並證實成功後，即在上述熟食中心的所有熟食攤檔全面安裝，而其後熟食中心已於2019年4月重新開放。我們也藉此機會改善排氣管道的設計，加裝活門以方便檢查和清潔管道內壁。新系統大大減低了熟食中心發生火警的風險，也提升了客戶對採用新科技的信心。

After a successful one-month pilot, the system was installed at all the cooked food stalls at the above-mentioned cooked food centre prior to its re-opening in April 2019. We also took the opportunity to improve the ductwork by adding an access door for easier checking and cleaning of the inner walls. The new system has greatly reduced potential fire hazards at the venue and boosted the client's appreciation for new technologies.

此外，我們正在開發另一相關的創新方案，就是利用超聲波清洗安裝在排煙管道篷罩中的濾油隔。針對積聚大量油脂的濾油隔，使用苛性鈉或水濂機等傳統方法是無法洗淨的。我們採用的新方法很簡單，就是把濾油隔放入與超聲波儀器連接的浸洗缸中，通過超高頻的超聲波震動洗滌，不用十分鐘便能把濾油隔徹底清洗乾淨。我們已在食環署轄下幾個街市進行該方案的原型設計示範，成效令客戶及熟食攤檔檔主十分滿意。我們現正與客戶及顧問公司跟進測試事宜，以及進行可行性研究和制訂策略性實施計劃。

In a related development, we are exploring an innovative solution that uses ultrasound to clean the oil filters installed in canopy hoods of exhaust systems. Traditional methods using caustic soda or water scrubbers are ineffective on oil filters with heavy grease build-up. Our new method is simple, by which the greasy oil filter is put into a soak tank connected to an ultrasound generator, and the filter is perfectly cleaned in less than ten minutes through super-high-frequency ultrasonic scrubbing. We have demonstrated the prototype at a few FEHD markets, to the satisfaction of the client and stall operators. We are now working with the client and consultant on further trials, a feasibility study and a strategic implementation plan.

我們的團隊為入境事務處的智能身份證換領中心裝設空調、屋宇裝備及其他相關設施，以支援換證中心的運作。

Our team equipped the Immigration Department's Smart Identity Card Replacement Centres (SIDCCs) with air-conditioning, building services and other related facilities to support the operation of the SIDCCs.

營運服務
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隨着九個智能身份證換領中心(換證中心)順利移交入境事務處(入境處),全港市民換領身份證計劃已如期於2018年年底展開。我們的團隊確保全部換證中心均妥為設計,並配備可靠的空調、屋宇裝備系統及所有相關設施,以便入境處能順利提供換證服務。

The Territory-wide Identity Card Replacement Exercise commenced as scheduled in late 2018 after the timely handover of nine Smart Identity Card Replacement Centres to the Immigration Department (ImmD). Our team made sure that the centres were properly designed and equipped with reliable air-conditioning, building services systems and all related facilities necessary for the smooth operation of the identity card replacement service by the ImmD.

為推廣創新及科技(創科),並幫助客戶為營運工作進行數碼化,藉此提升公共服務質素及效率,我們的工程師團隊不斷探索各種各樣的創科解決方案,而「智能眼碌碌」空調控制系統就是其中一例。這系統利用影像分析技術,實時收集人流數據,因應人流變化而自動調校空調風速,為公眾人士提供更舒適環境。

As part of our efforts to promote innovation and technology (I&T) as well as help clients digitise their operations and provide better quality and efficient service to the public, our engineers have been exploring a variety of I&T solutions. The NeuroSmart Eyes Air-conditioning Control System, for example, uses video analytics technology to collect real-time data on people flow and adjust the air-flow rate accordingly, thus providing a more comfortable environment for the public.

另一項創新解決方案是應用影像分析技術監控火化爐的運作。由於火焰顏色的變化能顯示火化過程的進度,我們的系統可以透過監察有關變化,縮短火化時間,從而優化燃料運用和減少廢氣排放。此外,我們的團隊亦正研發一個利用物聯網技術操作的時間顯示系統,利便在康樂場地收集和共享數據。

Another innovative solution is applying video analytics technology to monitor cremator operation. By monitoring flame colour patterns, which indicate the progression of the cremation process, the system can optimise fuel utilisation and reduce emissions by shortening the cremation time. Also in the pipeline is an Internet of Things clock project at recreational venues that can facilitate data collection and sharing.

我們為水務署於天水圍新落成的水資源教育中心提供空調及供電系統的維修保養服務。

We provide maintenance services for the air-conditioning and power supply systems in the newly completed Water Resources Education Centre of the Water Supplies Department in Tin Shui Wai.

過去一年,我們與古物古蹟辦事處簽訂了新的服務水平協議,而在天水圍新水資源教育中心的工作也接近完成。這座全新的大樓樓高六層,既是水資源教育中心的所在處,也是水務署新界西區辦事處,預計於2019年稍後時間啟用。

Last year also saw the signing of a new Service Level Agreement (SLA) with the Antiquities and Monuments Office. Our work on the new Tin Shui Wai Water Resources Education Centre is also nearing completion. Scheduled for opening later in 2019, this new six-storey building will also serve as the New Territories West Regional Office of the Water Supplies Department.

展望未來,東九文化中心將於2019/20年度後期落成,屆時我們會成立新的駐場團隊,負責其機電設施的操作及維修保養工作。待東九文化中心正式啟用後,大會堂低座將進行大型改善工程,我們現正就此作出準備。同時,香港郵政也計劃重置空郵中心,這將會是為其郵件分揀系統及其他郵政設施進行進一步數碼化及優化的良機。

Looking ahead, with the completion of the East Kowloon Cultural Centre (EKCC) in late 2019/20, we shall be setting up a new resident team to operate and maintain the E&M facilities therein. We are also preparing for major upgrading works at the City Hall Low Block upon the opening of the EKCC. Meanwhile, Hongkong Post is planning on reprovisioning the Air Mail Centre, which will be an opportunity to further digitise and upgrade its mail sorting system and other postal facilities.

舒適室溫 時刻做到
Comfortable Temperature at All Times

市政工程部工程師林壽星先生及其團隊成員所開發的「智能眼碌碌」空調控制系統，贏得香港工程師學會青年會員創意獎2019的優異獎。

The NeuroSmart Eyes Air-conditioning Control System developed by Mr Lam Sau-sing, an engineer at Municipal Sector Division, and his teammates won a merit award in the Hong Kong Institution of Engineers Innovation Awards for Young Members 2019.

博物館和展覽廳等場地的空調系統常有的問題，就是難以估計訪客人數，加上訪客在一天不同時間到訪，以致空調系統往往不能緊隨訪客數目變化而迅速調校溫度，令場地出現過暖或太冷的情況。有見及此，當市場上出現影像分析技術的時候，市政工程部工程師林壽星先生便與能源效益事務處兩位工程師組成一支團隊，嘗試把影像分析技術應用於空調控制系統，目的是運用更具智能和更迅速的方法調校溫度。

團隊終於成功研發「智能眼碌碌」空調控制系統，並獲頒發「香港工程師學會青年會員創意獎2019(組別II — 創新應用)優異獎」。這系統運用影像分析技術，實時收集人流數據，並根據人羣密度的變化，迅速調校空調風速，為公眾提供更舒適的環境，特別適用於大型展覽廳或其他會不時出現人流變動的場地。

林先生表示：「這個項目概念已獲客戶同意，我們期望於2020年在科學館某個預定範圍測試相關技術。」

今次這個項目是由跨部別和跨工程學科的三人團隊研發，期間各人從不同的角度應對各種挑戰，林先生很享受參與過程。他們的下一步工作，是編寫項目軟件，使系統得以全面實施。

林先生的日常職責，是監察太空館、科學館、香港藝術館和即將落成的東九文化中心的機電設施的操作及維修保養工作。他期待「智能眼碌碌」空調控制系統全面投入服務，讓廣大市民享受舒適的環境。

A challenge with air-conditioning systems in venues such as museums and galleries where visitor numbers are unpredictable and vary throughout the day is that temperature adjustments in response to the visitors' visiting pattern occur too slowly, leaving the venues either too warm or too cold. When video analytics technology became available in the market, Mr Lam Sau-sing, an engineer with our Municipal Sector Division, formed a team with two engineers from the Energy Efficiency Office to try applying the technology to air-conditioning systems. The aim is to make temperature adjustments smarter and faster.

The outcome is the NeuroSmart Eyes Air-conditioning Control System, which won a merit award in the Hong Kong Institution of Engineers Innovation Awards for Young Members 2019 (Category II – An Innovative Application of Engineering Theories). The system is particularly suitable for large exhibition halls and other venues with dynamic changes in people flow. Using video analytics, the system can collect real-time data on people flow and promptly adjust the air-flow rate according to changes in crowd density, providing a more comfortable environment for the public.

"The client has already endorsed the concept, and we expect to try out the technology in a section of the Science Museum in 2020," Mr Lam said.

Mr Lam enjoys working in this cross-division, multi-discipline project team, where all of the three team members bring different perspectives to tackle challenging issues. Their next step is to develop the software so that the project can be implemented at full scale.

As Mr Lam oversees the operation and maintenance of E&M facilities at the Space Museum, the Science Museum, the Hong Kong Museum of Art and the forthcoming East Kowloon Cultural Centre in his daily work, he looks forward to the day when the NeuroSmart Eyes Air-conditioning Control System is up and running for the enjoyment of all.

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促進創新及科技

為配合政府推動創新及科技(創科)的策略，營運基金擔當政府創科發展促成者的角色，在2018/19年度取得重大進展。

我們於2018年年初成立專責推動創科發展的創新辦公室，年內推出多項措施，以加快政府部門、公營機構及創科初創企業之間的配對和協作。我們的「機電創科網上平台」已上載了來自政府及公營機構數以百計的創科願望清單，並且透過羅列各政府部門及公營機構在創科方面的服務需求，以便與初創企業、大學和研究機構所提供的創科解決方案進行配對。年內，十多個成功配對的項目已在機電工程署總部大樓及其他政府場地展開原型測試。其中一個例子是智能外牆薄膜，這是一種安裝在窗戶上的特殊薄膜，可根據室內光度自動調節窗戶遮蔽度，以提高能源效益。另一例子是智能實時電池狀態和健康診斷系統，有助監察位於偏遠地方的太陽能街燈的功能。我們已支持一所本地大學就這個項目向「創新及科技支援計劃」申請資助，以在上水梧桐河進行測試。我們亦正對監察升降機震動情況的傳感器進行試驗，以便預測故障。

此外，創新辦公室還在機電工程署總部大樓設立了「機電創科專區」，展示政府部門、初創企業和大學之間的各項創科協作項目。其中一個大受訪客歡迎的互動展品為「洞穴式自動虛擬環境」系統。這系統以虛擬實境技術創建虛擬手術室，利便機電維修人員進行培訓。

Facilitating Innovation and Technology

In line with the Government's strategy to promote innovation and technology (I&T), the EMSTF made major strides in 2018/19 in its role as a facilitator of I&T development for the Government.

Our dedicated Inno-Office, established in early 2018, embarked on many initiatives during the year to expedite matching and collaboration among government departments, public bodies and I&T start-ups. Hundreds of wish-list items from the Government and the public sector have been uploaded onto the E&M InnoPortal, an online platform that publishes needs from government departments and public organisations for matching with I&T solutions provided by start-ups, universities and research institutions. Trial tests for over ten prototypes commenced during the year at the EMSD Headquarters Building and other government premises. One example is the smart façade, which is a special film mounted on windows that automatically adjusts the window opacity according to the indoor illumination level to enhance energy efficiency. Another example is the smart real-time battery state and health diagnostics system which facilitates monitoring of the functions of solar lamp posts in remote areas. We have supported a local university to apply for funding under the Innovation and Technology Support Programme to test the system at Ng Tung River in Sheung Shui. We are also conducting trial tests on sensors that monitor lift vibration for fault prediction.

Besides, the Inno-Office has also set up an E&M InnoZone in the EMSD Headquarters Building to showcase various I&T project collaborations among government departments, start-ups and universities. One of the interactive exhibits popular with visitors is the Cave Automatic Virtual Environment system, which features a virtual operating theatre using virtual reality technology to facilitate the training of E&M maintenance personnel.

360°

http://bit.ly/emsd_emiz

位於機電署總部大樓4樓的「機電創科專區」設有展覽區，展示我們與初創企業、大學及研發機構的創科協作項目，當中包括「洞穴式自動虛擬環境」及無人航拍機檢測設施。

There is an exhibition area in the E&M InnoZone on the 4/F of the EMSD Headquarters Building to showcase our I&T collaborative projects with start-ups, universities and research institutions, including the Cave Automatic Virtual Environment and the testing facility for unmanned aerial vehicles.

繼2017年成功舉辦第一屆「創新科技日」後，我們於2018年6月舉辦第二屆「創新科技日」，邀請了十間設於香港科學園的初創公司，向不同政府部門和公營機構展示他們的研發成果和應用意念。機電工程署亦於今年4月正式成為政府的「創新促成者」，為我們日後在推廣創科方面的工作鋪路，奠下了重要的里程碑。

Following the success of the first Innovative Technology Day held in 2017, a second one was held in June 2018, in which ten start-ups from the Hong Kong Science Park were invited to showcase their R&D results and application ideas to different government departments and public organisations. In April this year, the EMSD was also assigned as Innovation Facilitator for the Government, a significant milestone that paves the way for the EMSD's work in I&T promotion in the coming years.

然而，推廣創科的工作並非只是創新辦公室的責任，營運基金所有策略業務單位也會同心協力，做好有關工作。舉例來說，我們的綜合工程部正帶頭推行一項為期五年的計劃，透過採用綜合樓宇管理系統方案，為400多幢政府建築物的機電設備進行數碼化工程。我們的目標是在2019年年底前建立一個區域數碼控制中心，集中和遙距監察選定場地的綜合樓宇管理系統，並於2020年前完成36座建築物的數碼化工作。當區域數碼控制中心及各個綜合樓宇管理系統開始運作後，前線員工便可進行遙距監察及故障通報，而我們將能把數據分析法應用於機電系統上，逐步落實預測性維修保養工作。

It should be noted, however, that I&T promotion is not a task limited to the Inno-Office but the concerted effort of all our Strategic Business Units (SBUs). Our General Engineering Services Division, for example, is spearheading a five-year initiative to digitise the E&M equipment of more than 400 government buildings with the deployment of integrated Building Management System (iBMS) solutions. Our target is to set up a Regional Digital Control Centre (RDCC) for centralised remote monitoring of the iBMS systems of selected venues by the end of 2019 and to complete the digitisation of 36 buildings by 2020. With the RDCC and multiple iBMS systems in place, frontline staff will be empowered to perform remote monitoring and fault reporting, and we will be able to apply data analytics on E&M systems and move towards predictive maintenance.

以地理資訊為基礎建立的數碼文檔記錄系統，有助我們的工程人員快速獲取各項機電設施的技術資訊，以便進行維修工作。

The Geographic Information System-based digital documentation system assists our engineering staff in quickly obtaining the technical information of various E&M facilities to facilitate maintenance work.

同時，我們正開發一套以地理資訊系統為基礎的數碼文檔記錄系統。這系統能協助員工即時識別位置，並準確地檢索和詮釋被定位建築物的技術資訊，包括圖則、保養維修手冊及記錄等，對於機電人員接收新建築物的日常維修保養工作大有幫助。

At the same time, a Geographic Information System-based digital documentation system, which can help with the identification of locations immediately and enable the accurate retrieval and contextual interpretation of technical information (including drawings, maintenance manuals and records, etc.) of a located building, is being developed. It will be very useful for E&M personnel when taking over the ongoing maintenance of new buildings.

營運服務
Trading Services

營運基金近年率先開發「建築信息模擬 — 資產管理」技術，並把有關技術推廣至業界，以應用於機電設施的維修保養工作。我們於2017年11月出版了首份《建築信息模擬 — 資產管理標準及指引》，為各政府部門及業界提供實用參考，例如供建造業議會在擬備《建築信息模擬標準 — 機械、電氣及管道》時作參考之用。2019年1月，我們採納業界有關實施「建築信息模擬 — 資產管理」系統的意見，推出了2.0版。

The EMSTF has pioneered the development of Building Information Modelling – Asset Management (BIM-AM) technology and promoted it to the trade for E&M maintenance in recent years. We published the first BIM-AM Standards and Guidelines in November 2017, which provides useful reference to all government departments and the trade, such as for preparing the Construction Industry Council Building Information Modelling Standards for Mechanical, Electrical and Plumbing. In January 2019, Version 2.0 was launched, incorporating feedback from the trade regarding the implementation of BIM-AM system.

事實上，我們已開始在整座機電工程署總部大樓實施「建築信息模擬 — 資產管理」系統，為機電系統進行維修保養。我們現正為西九龍政府合署、天水圍醫院及香港兒童醫院等多幢新落成的政府及公共建築物建造有關系統。

Indeed, we have commenced the implementation of BIM-AM system in the entire EMSD Headquarters Building for the maintenance of E&M systems. We are now building the BIM-AM system for several new government and public buildings, such as West Kowloon Government Offices, Tin Shui Wai Hospital and Hong Kong Children's Hospital.

透過「建築信息模擬 — 資產管理」系統，我們的工程人員只需使用平板電腦，便可以隨時隨地獲得整座香港兒童醫院的機電設施資訊。

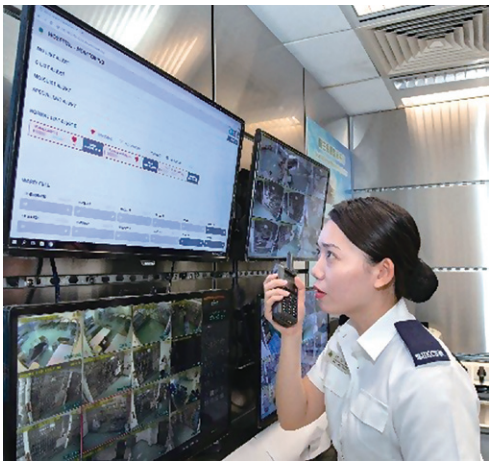
Through the Building Information Modelling - Asset Management system, our engineering personnel can obtain information about E&M facilities of the entire Hong Kong Children's Hospital anytime and anywhere by simply using a tablet.

營運基金亦致力把實時技術加入「建築信息模擬 — 資產管理」系統，以便遙距監控機電設備。2019年，我們成功透過「建築信息模擬 — 資產管理」平台完成了建築信息模擬和物聯網技術的試用界面，使物聯網技術能補充目前樓宇管理系統未能涵蓋的信息，根據實際使用情況進一步優化機電系統的運作，以便落實智能工作間的措施。

The EMSTF also makes every endeavour to integrate real-time technologies into the BIM-AM system to facilitate remote monitoring of E&M equipment. In 2019, we successfully completed the trial interface of BIM and Internet of Things (IoT) technology through the BIM-AM platform. With this interface, IoT technology can supplement the information which is not covered by the current building management system to further optimise the operation of E&M systems according to actual usage for smart workplace initiatives.

政府於2017年公布《香港智慧城市藍圖》後，營運基金便一直致力協助推行當中載述的各項措施。在「智慧出行」方面，我們一直與運輸署合作，安裝交通探測器及多線道路不停車繳費系統，同時也為該署就電子道路收費系統進行的研究提供支援，特別是該系統日後運作所需的車內儀器。

The EMSTF has been working to help implement the various initiatives set out in the Government's Hong Kong Smart City Blueprint published in 2017. On "Smart Mobility", we have been working with the Transport Department on the installation of traffic detectors and multi-lane free-flow tolling system. Meanwhile, we are also supporting the Transport Department in its study of an electronic road pricing system, in particular an in-vehicle unit that will enable the system to function in the future.



我們與懲教署合作推動發展「智慧手帶」，協助懲教署職員了解在囚人士的身體健康狀況。
We collaborated with the Correctional Services Department (CSD) to develop a Smart Wristband, assisting the CSD officers to understand the health conditions of persons in custody.

在「智慧政府」方面，我們的智慧監獄項目和智能發燒偵測系統均曾獲獎，且是利用創科協助政府部門提高營運效率的好例子。至於「智慧環境」，我們除了使政府建築物及場地更智能化和更具能源效益外，亦參與了一項先導計劃，為起動九龍東辦事處安裝智慧燈柱，監察路邊空氣質素及相關排放物的數量。與此同時，我們的團隊也參與在安達臣道石礦場重建用地興建物聯網基礎設施的籌備工作。

我們亦透過採購安排推廣創科。為配合最新的《施政報告》，政府於2019年4月推出支持創新的採購政策，使提出創新方案的標書有更大機會贏得政府合約。同時，政府將加強與創科初創公司和中小型企業交流，並改善發放有關採購資訊的方法，以協助他們參與政府採購。

「機電創科網上平台」正好配合支持創新的採購政策，為創科解決方案的供應方(初創企業、大學和研究機構)及需求方(政府部門和公營機構)提供平台，就特定創科解決方案進行市場研究，是加快採購過程的重要一步。

至於部門內部，創新辦公室在2018/19年度舉辦了多項活動，培養部門的創新文化，「Inno@E&M創新科技挑戰賽」便是其中一例。這個內部比賽邀請機電署員工提交具潛質的創科建議，而部門則會提供資金及人手，讓得獎隊伍實施有關項目。比賽共有24個優勝項目將會落實推行，每個項目均為市場上未有提供的創科解決方案，有助滿足客戶的需要。此外，多個策略業務單位進行了辦公室翻新工程，在設計上融入鼓勵創新文化的元素，打造大量開放的連接空間，有利員工進行討論、分享和協作。

展望2019/20年度，機電工程署將會就創科發展等範疇簽署多項合作協議；而創新辦公室會繼續優化「機電創科網上平台」，並加強創科方面的聯繫交流活動。

For "Smart Government", our award-winning Smart Prison project and the Smart Fever Screening System are good examples of using I&T to help government departments operate with greater efficiency. As to "Smart Environment", in addition to making government buildings and venues more intelligent and energy efficient, we have also participated in a pilot project to erect smart lamp posts for the Energizing Kowloon East Office to monitor roadside air quality and related emissions. At the same time, our team is involved in preparations to build an IoT infrastructure at the Anderson Road Quarry redevelopment site.

Promotion of I&T can also be achieved through procurement arrangements. In line with the latest Policy Address, the Government introduced a pro-innovation procurement policy in April 2019, giving innovative proposals a better chance of winning government contracts. The Government will also enhance exchange with I&T start-ups and small and medium-sized enterprises as well as improving the dissemination of procurement information to facilitate their participation in government procurement.

The E&M InnoPortal will be an excellent tool to support the pro-innovation procurement policy as it provides a platform for both the supply side (start-ups, universities and research institutions) and the demand side (government departments and public organisations) to conduct market research for specific I&T solutions, which is an important step to accelerate the procurement process.

Internally, the Inno-Office organised various events during 2018/19 to foster our I&T culture, a notable one being the Inno@E&M Challenge, an internal competition which invites potential I&T proposals from EMSD staff and provides winning teams with funding and manpower for project implementation. A total of 24 winning projects will be implemented, each delivering an I&T solution which is not yet available in the market and helps fulfill our clients' needs. Many SBUs have also renovated their offices with pro-innovation design features, offering plenty of open, connected spaces conducive to staff discussion, sharing and co-working.

In 2019/20, the EMSD will sign various co-operation agreements in such areas as I&T development, while the Inno-Office will continue to enrich the E&M InnoPortal and step up its I&T networking activities.

營運服務
Trading Services

創新辦公室促進創新及科技
Inno-Office Boosts Innovation and Technology

高級工程師林鑫駿先生一直對創新科技發展充滿熱誠，致力提升創新辦公室的潛力和推動機電署的創新文化。

Mr Tommy Lam Kam-chun, a senior engineer, has always been passionate about the development of innovation and technology, striving to enhance the potential of Inno-Office and promote a culture of innovation in the EMSD.

自2018年2月機電署成立創新辦公室以來，高級工程師林鑫駿先生對於客戶部門在應用創科方面的積極反應，以及對創新辦公室在培養部門的創新文化方面取得的成績，感到十分鼓舞。

林先生說：「政府於2019年4月正式確認機電署為政府部門的『創新促成者』，我們即抓緊時間，協助客戶部門物色本地初創企業和大學的創科解決方案。另外，我們也以機電署總部大樓作為試驗場地，讓初創企業和大學測試其產品原型，藉此填補香港創科生態系統的不足。」

創新辦公室的宗旨，是為香港打造一個以需求為主導的創科生態系統，促進概念驗證的過程和擴大其規模，從而加快創新的速度，使其更為有效。創新辦公室除了推出「機電創科網上平台」，為客戶的科技發展需要與創科解決方案進行配對外，更在機電署總部大樓設立「機電創科專區」，展示配對過程中產生的創科解決方案。過去一年多以來，創新辦公室成功舉辦了兩屆「創新科技日」。稍後，機電署將分別與五所本地大學和七間研究機構簽訂12份合作備忘錄。粵港澳大灣區市場龐大，創科實力雄厚，機遇處處。「機電創科網上平台」會在適當時候開放予大灣區的初創企業，此舉應有助擴大香港機電業界至大灣區。

創新辦公室架構精簡，由機電署數碼科技部的同事提供技術發展支援。林先生感謝一眾同事對創新辦公室的支持，以及機電署管理層對創科發展的承擔，使其團隊敢於作出新嘗試。

他說：「大家對創新辦公室的期望甚高，因此確有壓力，但我們會繼續努力加把勁，只要是關於創新的工作，我們都會全力以赴去做。」

Ever since setting up the EMSD's Inno-Office in February 2018, Mr Tommy Lam Kam-chun, our senior engineer, has been thrilled by client departments' enthusiasm for the adoption of I&T and energised by the accomplishment of the Inno-Office in fostering the Department's innovation culture.

"Formally recognised by the Government as an Innovation Facilitator for government departments since April 2019, the EMSD has lost no time in helping client departments explore I&T solutions from local start-ups and universities," said Mr Lam. "We also fill an important gap in Hong Kong's I&T ecosystem by making available our headquarters building as a venue for start-ups and universities to conduct trial tests of their product prototypes."

The Inno-Office aims to nourish a demand-driven I&T ecosystem for Hong Kong and expedite and scale up the proof-of-concept process, thus speeding up innovation and making it more effective. It has launched an online platform, the E&M InnoPortal, to match the technology development needs with I&T solutions. An E&M InnoZone has also been set up at the EMSD Headquarters Building to showcase I&T solutions arising from this matching process. Over the past year or so, the Inno-Office successfully organised two Innovative Technology Days. Also, the EMSD will sign 12 memoranda of co-operation with five local universities and seven research institutions. The Greater Bay Area (GBA), with its enormous market and strong I&T capabilities, presents another opportunity. The E&M InnoPortal will be opened to GBA start-ups when the time comes, which should also help Hong Kong's E&M sector expand into the GBA.

With a slim structure, the Inno-Office receives technology development support from colleagues in the EMSD's Digitalisation and Technology Division. Mr Lam is grateful to fellow colleagues for their support to the Inno-Office and the EMSD management for its commitment to I&T development, which empowers his team to try out new ideas.

"Expectations are high, and the pressure is real, but we will continue to step up to take responsibility for all things innovation."

小手帶大任務
Small Wristband Takes on Big Tasks

保安及車輛工程部工程師張家麒先生和他的團隊成員一直支援懲教署開發智慧監獄系統，該系統在第47屆日內瓦國際發明展榮獲金獎。

Mr Cheung Ka-kei, an engineer at Security and Vehicle Services Division, and his teammates have been supporting the Correctional Services Department in developing the Smart Prison System which won a Gold Medal in the 47th International Exhibition of Inventions of Geneva.

保安及車輛工程部工程師張家麒先生認為機電署能成功發揮促成者的角色，提升客戶對創科解決方案的興趣。他說：「機電署於2017年12月舉辦首個『創新科技日』，當天展出的創科項目，令出席的懲教署高層管理人員留下深刻印象，後來更決定投放更多資源發展創科項目，以提升部門的運作效率。」

由於香港的人力資源緊絀，創科對懲教署這類客戶部門確是非常吸引的選擇，既可為一些合適的人力密集工序進行自動化，又不會影響保安水平。舉例來說，張先生的團隊一直支援懲教署開發智慧監獄系統，其中的「智慧手帶」更具備維生指標監察系統和移動及位置監察系統功能。「智慧手帶」能透過量度在囚人士的心跳率，讓懲教署職員監察其健康狀況。手帶也可監察在囚人士在監獄內指定路線上的準確位置，讓押送人員可騰出時間處理其他工作。

「智慧手帶」於2019年4月舉行的第47屆日內瓦國際發明展上獲評判高度評價，並贏得金獎。

張先生表示：「有別於大部分場地，懲教院所如要採用創科方案，可能需要改動某些運作程序。」換言之，懲教署須仔細分析應用創科對院所運作帶來的變化，務求使創科能提升日常工作的管理及運作效率。張先生目前正與懲教署合作，試行「智慧手帶」，並與一間初創企業合作，為懲教署的監獄打造一個巡邏機械人。

張先生說：「我們很高興香港的創新技術應用獲得國際認同，而客戶部門採取由上而下的方式應用創科，大概是最有效的方法。」

Mr Cheung Ka-kei, an engineer at our Security and Vehicle Services Division, considered that the EMSD had been fulfilled its facilitating role in enhancing clients' interest in I&T solutions. "The senior management of the Correctional Services Department (CSD) was so impressed by the I&T projects showcased at the EMSD's first Innovative Technology Day in December 2017 that the Department began investing more in I&T projects to make its operations more efficient," Mr Cheung said.

Given Hong Kong's tight manpower supply, I&T is an attractive option for clients such as the CSD to automate suitable labour-intensive procedures without compromising security. For example, Mr Cheung's team has been supporting the CSD in its development of a Smart Prison System, with the Smart Wristband functioning as Health Signs Monitoring and Passage Surveillance Systems. The Smart Wristband enables CSD officers to monitor the health conditions of persons in custody (PICs) through measuring their heart rates and a PIC's exact location on a prescribed route in the prison, thus freeing the escorts for other tasks.

The Smart Wristband was highly praised by judges at the 47th International Exhibition of Inventions of Geneva held in April 2019 and won a Gold Medal.

"Unlike most other venues, certain operational procedures of correctional institutions may need to be modified for the deployment of I&T," noted Mr Cheung. This means the CSD has to analyse carefully changes brought to the institutions by the introduction of I&T so as to raise management and operation efficiency of daily work. Mr Cheung is now working with the CSD on a pilot implementation of the Smart Wristband and collaborating with a start-up to build a patrolling robot for CSD prisons.

"We are happy that Hong Kong's innovative technology application has won international recognition, and that clients are taking a top-down approach in deploying I&T, which is probably the most effective approach," he said.

營運服務
Trading Services

健康與環保

每個城市都嚮往健康、安全和環保。過去一年，我們很高興能協助客戶部門滿足公眾在這幾方面的期望。

香港兒童醫院在2018年12月落成啟用，我們負責醫院機電系統的操作和維修保養工作。在2018/19年度，我們亦為東區尤德夫人那打素醫院完成高壓氧治療中心的裝設工作，這是全港第一個設於醫院的高壓氧治療設施。我們的團隊協助為這個項目進行可行性研究、評審標書、安裝設施和申請高壓氧治療艙牌照，並提供持續的緊急支援和維修保養服務。此外，我們與菲臘牙科醫院的服務水平協議亦由2019/20年度起續約三年，確保病人可繼續享用保養完善的機電設施。

Healthy and Green

Every city aspires to be healthy, safe and green. We are delighted to have supported our client departments to meet the public's expectations in these areas in the past year.

During 2018/19, we took on the operation and maintenance of E&M systems at Hong Kong Children's Hospital, which opened in December 2018, and completed the installation work of the hyperbaric oxygen therapy (HBOT) centre at Pamela Youde Nethersole Eastern Hospital, the first HBOT facility in a hospital in Hong Kong. Our team was involved in the feasibility study, tender assessment and installation of the facility, as well as applying for HBOT chamber licence and providing ongoing emergency support and maintenance services. Besides, we also renewed our Service Level Agreement with Prince Philip Dental Hospital for another three years from 2019/20, providing an assurance that its patients will continue to enjoy well-maintained E&M facilities.

香港兒童醫院於2018年12月啟用，我們為該院的各項機電系統(例如區域供冷系統熱交換器及太陽能熱水系統等)提供操作及維修保養服務。

The Hong Kong Children's Hospital (HKCH) was opened in December 2018. We provide operation and maintenance services for various E&M systems (such as heat exchanger of the district cooling system and solar water heating system, etc.) in the HKCH.

我們為東區尤德夫人那打素醫院的高壓氧治療中心提供專業工程服務，包括進行可行性研究、投標評審和安裝各項機電系統。

We offer professional engineering services for the hyperbaric oxygen therapy centre at the Pamela Youde Nethersole Eastern Hospital, including conducting feasibility study, tender assessment and installation of various E&M systems.

360°

http://bit.ly/emsd_hkch

年內的另一發展是籌備於2019/20年度在營運基金之下成立一個專責部別，負責支援醫院管理局(醫管局)推行第一及第二個十年醫院發展計劃。這兩個醫院發

In a separate development, we were making preparations during the year to create a dedicated division under the EMSTF in 2019/20 to support the Hospital Authority (HA) in implementing its first and second Ten-year Hospital Development Plans

展計劃的總預算開支達4,700億元，讓醫管局可適時在主要的公營醫院展開多個發展項目，以應付人口老化和醫療需求不斷增加的挑戰。第一個十年醫院發展計劃涵蓋瑪麗醫院、威爾斯親王醫院及瑪嘉烈醫院等的重建或擴建工程，以及新醫院的興建工程，包括在啟德發展區興建一間新急症醫院。

作為醫管局現時的機電服務提供者，我們會致力為有關醫院發展計劃提供工程支援服務，以確保現有醫院建築物內的公共醫療服務能維持正常、令原址重建的醫院由施工階段無縫過渡至運作階段，以及確保醫院發展計劃下各間新建和重建醫院內所裝設的工程系統質素良好。

為提升客戶的現有設備，我們採購了兩台新的流動傷者治療車輛。當發生大型事故時，這些車輛會被派往事故現場搶救傷者。每台治療車輛均設有手術室，可供醫療和救護人員為傷者先進行緊急手術才轉送醫院。為盡量減少手術室內的空氣被外面的空氣污染，空調系統能將室內氣壓提高，以防止外面未經過濾的空氣倒流到室內。手術室內亦有其他必需的設備，例如手術燈、維生儀器及電動液壓擔架平台。電動液壓擔架平台的設計獨特，容許醫療和救護人員在進行手術時調校擔架高度，而其底座還可作充氣墊，使傷患者在運送期間更加舒適。手術室旁的另一間隔為治療室，用作治療和搶救擔架床上的傷者。車輛亦配備廢水收集系統。這次引入最新型的流動傷者治療車輛，反映我們積極主動協助客戶為市民提供最先進優良的服務。

(HDPs). With a combined budget of about $470 billion, the two ten-year plans ensure the commencement of development projects of major public hospitals in due course for the HA to cope with the challenges of ageing population and increasing healthcare demands. The first ten-year plan covers the redevelopment or expansion of Queen Mary Hospital, Prince of Wales Hospital, and Princess Margaret Hospital, among others, as well as the construction of new hospitals such as a new acute hospital at Kai Tak Development Area.

As the incumbent E&M service provider for the HA, we will provide engineering support services for the HDP projects with a view to ensuring normal public health services in existing hospital buildings, achieving seamless transition from construction phase to operation phase of the hospitals to be redeveloped in-situ, and safeguarding the quality of engineering systems to be installed in the new and redeveloped hospitals under the HDP.

To upgrade existing equipment for clients, we have procured two new mobile casualty treatment centres (MCTCs) which will be dispatched to large-scale incidents to provide life-saving treatments. Each vehicle is equipped with an operating theatre which allows the medical and ambulance staff to conduct emergent surgeries before transferring the casualties to the hospital. With a view to minimising the air inside the operating theatre being contaminated by the outside air, the air-conditioning system can maintain the pressure inside at a level higher than the surrounding to prevent backflow of non-filtered air. The operating theatre also has other essential devices, such as surgical light, life-supporting equipment and electro-hydraulic stretcher platform. The design of the electro-hydraulic stretcher platform is unique as it allows the height of the stretcher to be adjusted for operations and its base can serve as an air-cushioning to enhance riding comfort of the patient during transportation. The other vehicle compartment next to the operating theatre is for providing medical and rescue treatment to patients on stretcher. The vehicle also equipped with wastewater collection system. The introduction of the latest MCTC model marks our proactive effort to help the client provide this state-of-the-art service to the public.

我們為消防處採購的流動傷者治療車，其前半部分為小型手術室，後半部分則用作傷者分流或開會用途。

The front portion of the mobile casualty treatment centre we procured for the Fire Services Department is a small operating theatre, while the rear portion is used for patient triage or meeting purposes.

營運服務
Trading Services

我們憑藉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，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2018」。

We received the Digital Award 2018 for the Best Small Project/ Collaboration from the Chartered Institution of Building Services Engineers for the installation of self-developed digitised air-conditioning, electricity distribution and energy management system at the Tuen Mun School Dental Clinic.

同事的努力在年內獲得肯定並贏取了不少獎項，我們對此感到欣喜。機電署成功把屯門學童牙科診所的空調和配電系統數碼化，以便進行實時遙距監察、故障預測和提升系統表現及能源分析能力，並憑此項目在2018年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」。

機電署另一團隊聯同香港科技大學及衞生署合作研發的智能發燒偵測系統，榮獲「香港工程師學會青年會員創意獎2019(組別 I — 發明)大獎」。這系統能在邊境管制站實時自動檢測人體溫度，讓職員獲得實時體溫數據，以追蹤疑似發燒人士，因此有助提升衞生署在邊境管制站執行健康檢查工作的效率，同時減少對人流的阻礙。有關系統的原型設計已經完成，稍後會在選定的邊境管制站進行測試。

至於安全及保安方面，我們繼續與懲教署合作發展多項智慧監獄方案，以提升其監察及保安系統的效率。影像分析監察系統是其中一例，這系統主要透過智能閉路電視偵測在囚人士的違規或自殘行為，現正於壁屋監獄進行試驗。另一例子是引入須配合物聯網技術應用，且具備維生指標監察系統和移動及位置監察系統功能的智慧手帶。在 2019年4月初舉行的第47屆日內瓦國際發明展上，大會評判高度評價智慧手帶並頒予金獎。此外，我們亦研發了緝毒機械臂系統，以取代人手檢查在囚人士的排泄物是否藏有毒品。

香港警務處的車隊管理進一步數碼化，有助提高車隊的管理效率。我們和客戶共同研究開發創新方案，以更全面監察車隊司機的駕駛行為和進行車輛遙距故障診斷。我們的目標是糅合這些智慧功能，為警車車隊設計新一代的綜合車隊管理系統。

We are pleased to report that our efforts won recognition and several awards during the year. The EMSD received the Digital Award 2018 for the Best Small Project/ Collaboration from the Chartered Institution of Building Services Engineers for successfully digitising the air-conditioning and electricity distribution systems at the Tuen Mun School Dental Clinic to facilitate real-time remote monitoring and fault prediction as well as to enhance system performance and energy use analysis.

Another EMSD team was awarded a grand prize in the Hong Kong Institution of Engineers Innovation Awards for Young Members 2019 (Category I – An Invention) for developing the Smart Fever Screening System in collaboration with the Hong Kong University of Science and Technology and the Department of Health (DH). The system automatically detects in real time the human temperature at boundary control points. It can also provide the operators with real-time data for tracking the location of febrile suspects, thus enhancing the operational efficiency of the DH for health screening at border control points and minimising obstruction to people flow. A prototype of the system has been completed and site trials at selected boundary control points will be conducted later.

Moving on to safety and security, we continued to work during the year with the Correctional Services Department on several Smart Prison solutions to enhance the efficiency of its monitoring and security systems. An example is the Video Analytic Monitoring System that detects irregularities or self-harm behaviours of persons in custody through smart closed-circuit televisions (CCTVs), which is being tested in Pik Uk Prison. Another example is the introduction of the Smart Wristband that ties in with the application of Internet of Things technology and functions as Health Signs Monitoring and Passage Surveillance Systems. The Smart Wristband was highly praised by judges at the 47th International Exhibition of Inventions of Geneva, held in early April 2019, where it won a Gold Medal. Besides, we also developed the Drug-detection Robotic Arm System which can replace the manual inspection of drug products in the excreta of persons in custody.

Further digitisation of the Hong Kong Police Force vehicle fleet can make its management work more effective. With the client, we have been exploring innovative solutions to better monitor drivers' behaviour and conduct remote fault diagnosis. Our aim is to combine all these smart features into a new-generation Integrated Fleet Management System for the Police fleet.

我們為馬頭角道政府合署安裝了一台由中央控制及監察系統監察的風冷式製冷機，為場地提供穩定的空調供應。

We installed at the Ma Tau Kok Road Government Offices an air-cooled chiller monitored by the Central Control and Monitoring System to provide stable air-conditioning to the venue.

20多年來，機電工程營運基金積極主動，協助客戶節約能源和落實更環保的營運方針。以市政服務為例，我們的同事在2018/19年度協助客戶推行各項節能項目，當中包括更換製冷機組、風櫃和照明系統，每年節省約720萬度電。政府大樓亦擁有很好的節能潛力，例如最近馬頭角道政府合署便更換了製冷機組，每年可節省76 000度電。

我們亦持續尋找運用可再生能源方案的機會。舉例來說，雖然在過程中需要克服不少技術挑戰，例如部分天台空間有限、某些舊建築物的結構能否承托等，但我們仍成功在一些政府建築物的天台安裝了太陽能板。此外，我們亦協助漁農自然護理署在離岸海產養殖魚排上安裝太陽能板。如項目試驗成功，將有助這類離岸魚排生產可再生能源，為魚場設備提供電力，無需依賴岸上的發電機組。

隨着社會對用後即棄塑膠瓶危害環境的意識日益提高，政府已禁止在所有政府體育和康樂場地的自動售賣機出售瓶裝水。為了配合這項可持續發展措施，我們現正協助環境保護署(環保署)在這些場地加裝500部飲水機，以迎合市民的需要。此外，我們會為環保署加裝電動車充電設施，以鼓勵在香港使用環保車輛。

展望2019/20年度，我們的重點工作之一是成立一個新部別，協助政府和醫管局實施兩個十年醫院發展計劃。與此同時，我們會更廣泛利用創新科技，協助紀律部隊提高運作效率，為香港提供一個更安全和環保的生活環境。

For over two decades, the EMSTF has taken proactive measures to help clients save energy and become greener in their operations. Take municipal services as an example. During 2018/19, our colleagues helped clients in the municipal sector carry out various energy-saving projects, including replacement of chillers, air-handling units and lighting systems, saving a total of about 7.2 million kWh per year. Government buildings also offer good potential for energy saving, such as in the recent chiller plant replacement at the Ma Tau Kok Road Government Offices, which achieved an annual energy saving of 76 000 kWh.

We also continued to look out for opportunities to implement renewable energy (RE) solutions. A good example is the installation of solar panels on rooftops of government buildings, though we need to overcome technical challenges, such as limited roof space and the structural feasibility of certain older buildings. A related initiative is to assist the Agriculture, Fisheries and Conservation Department in installing solar panels on offshore mariculture rafts. If our trials prove successful, the project will help fish farms generate RE on the rafts for their equipment needs without having to rely on electricity from their onshore power generators.

With increasing community awareness of the harm of disposable plastic bottles, the Government has banned the sale of bottled water in vending machines at all government sports and recreational venues. To support this sustainability measure, we are now helping the Environmental Protection Department (EPD) install 500 additional drinking fountains at these venues to cater to the public's needs. Besides, we will install more chargers for electric vehicles for the EPD to boost the use of green vehicles in Hong Kong.

Going into 2019/20, one of our focus areas is to set up a new division to help the Government and the HA implement the two ten-year HDPs. At the same time, we will deploy innovative technologies more extensively to help the disciplined forces enhance their operational efficiency so that Hong Kong will become safer while enjoying an eco-friendly environment.

營運服務
Trading Services

妙法偵測發燒旅客
Detecting Fever the Smart Way

衞生工程部工程師蕭曉暉先生及同事聯同香港科技大學研發的智能發燒偵測系統，有助邊境口岸快速及準確地追蹤發燒人士。該系統更獲得「香港工程師學會青年會員創意獎2019（組別I — 發明）大獎」。

Mr Siu Hiu-fai, an engineer at Health Sector Division, and his colleagues jointly developed with the Hong Kong University of Science and Technology the Smart Fever Screening System, which facilitates prompt and accurate tracking of febrile persons at boundary control points. The system won a grand prize of the Hong Kong Institution of Engineers Innovation Awards for Young Members 2019 (Category I - An Invention).

香港有多個邊境管制站，需要有一套可靠的系統偵測發燒旅客。現有的紅外線發燒篩查系統有兩大缺點。首先，它不能區分發燒人士和熱的物件，例如一杯熱咖啡。其次，系統在追蹤疑似發燒的旅客時，由於需要人手不斷注視屏幕進行監察，因此必須有另一名員工負責尋找和截停該名旅客。這兩個缺點使人手安排未能發揮最大效用。

With various boundary control points, Hong Kong needs a reliable fever screening system. The existing infra-red fever screening system has two shortcomings. First, it cannot distinguish a febrile person from a hot object, such as a cup of coffee. Second, tracking a suspected febrile passenger requires constant manual monitoring of the screen, along with another staff member to identify and stop him or her. Neither is an efficient use of manpower.

為協助衞生署解決這個問題，衞生工程部工程師蕭曉暉先生和他的團隊聯同香港科技大學合力研發了一套智能發燒偵測系統，運用電腦視覺及人工智能科技，實時自動偵測疑似發燒的旅客，並追蹤至入境櫃枱，讓櫃枱職員向相關旅客查問。此舉可免除人手監察屏幕，也無須在中途尋找和截停疑似發燒的旅客，既為衞生署節省人手，也提高偵測發燒工作的成效。

To help the DH tackle the issue, Mr Siu Hiu-fai, an engineer of our Health Sector Division, and his team co-developed the Smart Fever Screening System with the Hong Kong University of Science and Technology. Using computer vision and artificial intelligence technologies, the system will automatically identify febrile passengers in real time and track them to the arrival counters, where they can be interviewed. This eliminates the need for manual monitoring and the hassle of identifying and intercepting passengers in person along the way. It will both save manpower for the DH and make fever screening more effective.

智能發燒偵測系統榮獲「香港工程師學會青年會員創意獎2019(組別 I — 發明)大獎」。團隊現正協助衞生署在若干選定的場地進行測試，目的是逐步在所有邊境管制站推行新系統。

The system was awarded a grand prize in the Hong Kong Institution of Engineers Innovation Awards for Young Members 2019 (Category I – An Invention). The team is also helping the DH with pilot trials at selected venues, with the aim of eventually rolling out the system at all boundary control points.

蕭先生表示：「為了真正了解衞生署前線同事的日常運作需要，並釋除各場地管理人員的疑慮，我們到訪多個邊境管制站，直接與不同持份者溝通。」團隊更在現場觀察各類旅客(例如每天大清早過關來港上學的學童)使用邊境口岸服務的模式。他又說：「這個未必是革命性的項目，卻可提升公共服務質素。」

"To really understand the operational needs of frontline DH staff and address the concerns of venue managers, we visited many border control points to communicate directly with different stakeholders," said Mr Siu. The team also observed the border usage patterns of different passenger types, such as children crossing the border early every morning to attend schools in Hong Kong, etc. "The project may not be revolutionary, but it can enhance our public services," he added.

超強颱風下保護客戶設施的安全
Safeguarding Client's Facilities in a Super Typhoon

助理工程師姚柱匡先生及其團隊協助政府物流服務署及建築署為政府物料營運中心內的消防泵圍起高牆，並搬遷原來的電掣房入口，以消除水浸危機，為颱風季節做好準備。

To prepare for the typhoon season, Mr Yiu Chu-hong, an assistant engineer, and his team assisted the Government Logistics Department and the Architectural Services Department to surround the fire pump in the Government Logistics Centre with high walls and relocate the original entrance of the switch room to eliminate the risk of flooding.

氣候變化帶來超強颱風，好像去年9月襲港的「山竹」，就大幅損毀了全城不少設施，包括位於柴灣海旁的政府物料營運中心(營運中心)。營運中心落成的年代，颱風遠不及今天的強勁，加上位處海邊，大樓的兩個電掣房又在臨海的地面層，面對現今的颱風，極易發生水浸。

綜合工程部的助理工程師姚柱匡先生詳細闡述「山竹」迫近香港期間，他的團隊怎樣盡力減低颱風對營運中心的破壞。

他說：「首要工作是確保營運中心內的印刷機不受影響，因為《施政報告》的印刷本必須在10月準備就緒。」「山竹」迫近香港時，他的團隊已做好所有必需的防風措施，例如安裝防水閘、準備抽水泵等。姚先生也跟香港電燈有限公司(港燈)做好聯繫，事先制訂了颱風期間的緊急應變措施，又敦促相關的承辦商準備充足的電線等物料，供緊急維修之用。

雖然做了大量準備工作，但「山竹」襲港期間，營運中心一個電掣房仍發生水浸。幸好團隊事前已與港燈做好協調，港燈便按事前安排，遙控切斷營運中心的電力供應。此外，後備發電機也馬上以人手關掉，以確保安全。

姚先生指出：「在颱風吹襲的整段時間內，有兩位前線員工自願留守營運中心，保護客戶的場地設施。」對於同事的高度承擔，他十分欣賞。颱風過後，修復工作馬上開始，翌日已局部恢復電力供應。由於印刷機完好無損，當電力供應完全恢復後，印刷工作即逐步回復正常。

姚先生和他的團隊事後也協助客戶進行各項改善工程，例如改動兩個電掣房的大門位置，以及加裝新的閉路電視系統，為來年的颱風季節做好準備。

Climate change has brought about super typhoons such as Mangkhut, which hit Hong Kong last September and caused extensive damage to the city's facilities, including the Government Logistics Centre (GLC) on the Chai Wan waterfront. The GLC was built at a time when typhoons were much less severe. Its waterfront location, especially the siting of its two main switch rooms on the ground floor facing the sea, makes it vulnerable to flooding during typhoons today.

Mr Yiu Chu-hong, an assistant engineer of our General Engineering Services Division, explained how his team minimised the impact of the approaching storm on the GLC.

"Our priority was to keep the printing facilities at the GLC intact, as hard copies of the Policy Address had to be available by October," Mr Yiu said. As Mangkhut approached, his team made the necessary preparations, e.g. installing flood prevention gates, readying water pumps, etc. Mr Yiu also liaised with the Hongkong Electric Company Limited (HEC) in advance to make contingency arrangements and asked contractors to prepare an adequate supply of electric cables, etc. in case of urgent repairs.

Despite the preparations, one switch room was flooded by seawater when Mangkhut hit Hong Kong. However, thanks to prior co-ordination with the HEC, the GLC main power system was remotely switched off. The standby generator was also promptly turned off manually to ensure safety.

"Two frontline staff members volunteered to stay on at the GLC throughout the typhoon to safeguard the facilities at the venue," Mr Yiu noted, showing great appreciation for their commitment. Repair works began as soon as the typhoon was over, with the electricity supply partially resumed the following day. With no printing press damage, printing resumed gradually as the power supply returned to normal.

Mr Yiu's team has since been helping the client carry out improvement measures, such as relocating the doors of the main switch rooms and installing a new CCTV system, to get ready for the coming typhoon season.

營運服務
Trading Services

智慧出行

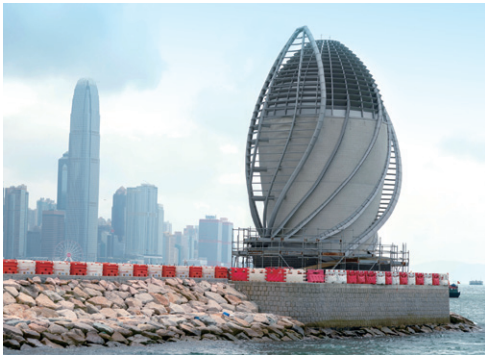
「智慧出行」是政府於2017年公布的《香港智慧城市藍圖》中的六個主要範疇之一。一直以來，營運基金為相關政府部門的運輸基建和機電設施，提供操作、維修保養及項目管理服務。作為政府創新及科技(創科)發展的促成者，營運基金具備優勢，能協助客戶部門加快進行設施數碼化及部署創科應用。

在2018/19年度，香港有三個重要的運輸基建項目落成啟用，即廣深港高速鐵路香港段(高鐵)、港珠澳大橋和中環灣仔繞道。我們分別就高鐵及港珠澳大橋的所有機電設施，為入境事務處、香港海關及路政署提供操作及維修保養服務，也就中環灣仔繞道的機電設施，為運輸署提供諮詢、技術支援及監察服務，確保所有設施運作暢順。

Intelligent Mobility

Smart mobility is one of the six major areas in the Government's Hong Kong Smart City Blueprint, published in 2017. The EMSTF has long been providing operation, maintenance and project management services to relevant departments for their transport infrastructure and E&M facilities. As the Government's facilitator of innovation and technology (I&T) development, the EMSTF is well positioned to help our client departments expedite the digitisation of their facilities and deployment of I&T applications.

The year 2018/19 saw the opening of three milestone transport infrastructure projects in Hong Kong, namely the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong High Speed Rail (HSR), the Hong Kong-Zhuhai-Macao Bridge (HZMB) and the Central-Wan Chai Bypass. We have taken up operation and maintenance services for all E&M facilities at the HSR and HZMB for the Immigration Department, Customs and Excise Department and Highways Department, as well as providing advisory, technical support and monitoring services for E&M facilities at the Central-Wan Chai Bypass to the Transport Department (TD), with all operating smoothly.



我們為運輸署提供中環灣仔繞道機電設施的諮詢、技術支援及監管服務。圖為繞道的東面排風口，隧道內的廢氣會由空氣淨化系統淨化，然後經排風口排出。

We provide advisory, technical support and monitoring services for the E&M facilities of the Central-Wan Chai Bypass to the Transport Department. The Picture is the East Vent Shaft of the Air Purification System which purifies exhaust air in the tunnel and then discharges treated air through vent shafts.

我們為港珠澳大橋香港口岸和三條連接路的建築物內的機電裝置(例如貨物檢查設施)，提供維修保養服務。

We provide maintenance services for the E&M installations (e.g. cargo checking facilities) in the buildings at the Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing and the three associated slip roads.

360°

http://bit.ly/emsd_hkzmb

我們一直與運輸署合作，加快發展效率更高的政府隧道繳費系統。年內，我們在多條政府隧道完成安裝電子繳費系統，並已就引入無收費亭及電子化的不停車繳費系統作好準備，使隧道交通更快捷暢順。將軍澳 — 藍田隧道在2021年落成啟用後，便會在該處實施首個不停車繳費系統。根據不停車繳費系統，駕駛人士只需在車輛貼上芯片標籤，即一個帶有無線射頻識別技術的車內感應器。當車輛駛經隧道時，不停車繳費系統便可使用其路面設備讀取車內感應器以

We have been working with the TD to expedite the development of more efficient toll payment systems for government tunnels. During the year, we completed the installation of an e-payment system at various government tunnels and made good progress on preparations for the introduction of a toll booth-free, electronic free-flow tolling system (FFTS) to make tunnel traffic faster and smoother. The first FFTS will be implemented at the Tseung Kwan O-Lam Tin Tunnel upon its commissioning in 2021. Under the FFTS, all that a driver has to do is to affix to his vehicle a chip-tag, i.e. an in-vehicle unit (IVU) enabled with radio frequency identification technology. As a vehicle passes through the toll point, the FFTS will detect the vehicle using its

探測有關車輛，或透過自動車牌識別系統識別車牌上的車輛登記號碼。隧道費將從預先向運輸署登記的繳款帳戶直接扣除，或以欠款形式隨後繳交，讓駕駛人士無須停車繳費。政府的目標是在將軍澳 — 藍田隧道落成啟用後的兩至三年內，把不停車繳費系統逐步推展至全港所有現有政府收費隧道。

鑑於香港地小車多，智能泊車方案往往深受駕駛人士歡迎。政府於2018年年初委託顧問公司進行研究，選定六個適合興建不同類型智能停車場的地點。同時，運輸署正考慮於荃灣、深水埗及上環的三幅短期租約用地，安裝智能泊車系統以進行先導試驗計劃。

這些智能泊車系統配備運送車輛的機械裝置，以及自動搜尋泊車位置和存取停泊車輛的設施。營運基金亦在總部安裝了機械化泊車系統，以供運輸署作為進行技術測試的試驗場地。透過這個試驗計劃，營運基金為運輸署提供開發智能泊車系統方面的技術支援，又與業界分享經驗，以助該署興建類似的智能泊車系統。

field equipment to read the IVU or recognise the vehicle registration mark on the vehicle number plate via an Automatic Number Plate Recognition System. The toll fee will be deducted through direct debit from a pre-registered payment account with the TD or by payment in arrears later, with no need for motorists to stop and pay. The Government aims to implement the FFTS at all existing government tolled-tunnels one by one within about two to three years after the commissioning of the Tseung Kwan O – Lam Tin Tunnel.

Given Hong Kong's limited space, smart parking solutions are always welcomed by motorists. The Government commissioned a consultancy study in early 2018 to identify six sites suitable for different types of automated car parks. In the meantime, the TD is contemplating the installation of automated parking systems (APSs) at three short-term tenancy sites in Tsuen Wan, Sham Shui Po and Sheung Wan for pilot trials.

These APSs are equipped with mechanical devices for transportation of vehicles and an apparatus that allows for automatic location and retrieval of parked vehicles. The EMSTF has also installed mechanised car parking systems at its headquarters, which are used as a testing ground for the TD to conduct technical tests. By this pilot project, the EMSTF provides technical support to the TD on the development of smart car parking system and shares with the trade the experience for the construction of similar types of smart parking systems.

我們在機電署總部裝設了室內及室外機械化泊車系統，以增加泊車位數目。我們將與運輸署及業界分享有關裝設智能泊車系統的經驗。

We have installed Indoor and Outdoor Mechanised Parking Systems at the EMSD Headquarters to increase parking capacity. The experience gained in respect of the installation of the smart parking system will be shared with the Transport Department and the trade.

同時，我們一直與運輸署合作，探索實施各類「智慧出行」措施的科技方案，例如以新一代電子泊車咪錶取代現有的泊車咪錶。新電子咪錶可支援多種電子支付方式，更可接受駕駛人士透過流動應用程式遙距繳付泊車費。為路旁停車位及政府停車場安裝車輛佔用傳感器，有助駕駛人士以遙距方式尋找空置停車位、節省時間，並減少他們尋找空置停車位時造成的不必要交通流量。收集停車位的佔用數據，亦有助運輸署監察停車位的使用率，以進行政策規劃。此外，在路標塔架上裝設更先進精密的交通探測器，會為駕駛人士提供更準確的實時交通資訊。

Meanwhile, we have been working with the TD to explore technology solutions for the implementation of smart mobility initiatives, such as replacement of existing parking meters with a new generation of electronic parking meters that will support multiple electronic payment means as well as remote payment via mobile applications. The installation of vehicle occupancy sensors for on-street parking spaces and government car parks will facilitate motorists in searching for available parking spaces remotely, saving time for motorists and reducing unnecessary traffic caused by vehicles looking for vacant parking spaces. The collection of parking space occupancy data also allows the TD to monitor the utilisation rate of parking spaces for policy planning. Furthermore, the adoption of more sophisticated traffic detectors on road sign gantries will provide more accurate, real-time information on traffic conditions to motorists.

營運服務
Trading Services

在2018/19年度，營運基金的其他車輛業務包括為香港國際機場未來第三條跑道禁區內新增的兩個消防局，採購14部用於飛機救援的消防車輛。至於在機電署總部的政府車隊維修保養工場，我們的車輛預約系統運作暢順，現適用於數類車輛。下一步工作，是把整個車輛預約系統的程序數碼化，以進一步提升其效率。此外，我們的團隊亦會更集中為使用新型和環保燃料的車輛鑽研相關的維修保養服務，預計此類車輛將會是市場的未來趨勢。

Other vehicle businesses of the EMSTF in 2018/19 included an assignment to procure 14 aircraft rescue and fire-fighting vehicles for two additional fire airside stations that will serve the future third runway system at the Hong Kong International Airport (HKIA). Back at the maintenance depot for the government fleet at the EMSD Headquarters, our Advance Vehicle Booking System (AVBS) is operating smoothly for several types of vehicles and the next step is to digitise the entire AVBS process to further enhance its efficiency. Our team will also focus more on the maintenance of vehicles using new and eco-friendly fuel, which are expected to become the future trend.

我們為港澳碼頭更換了製冷機組、風櫃機組及照明設備，讓市民可享用更具能源效益的設施。

We replaced chiller plants, air-handling units and lighting systems for the Hong Kong-Macau Ferry Terminal, enabling members of the public to enjoy more energy-efficient facilities.

我們的團隊盡心盡責提供服務，在去年獲得多個獎項，包括為行人天橋升降機進行緊急維修的同事獲頒申訴專員公署嘉許獎，而在香港國際機場工作的同事也贏得機場管理局的兩項安全運動獎，以表揚其卓越服務。

In the past year, our colleagues won several awards for their dedicated services, including an Ombudsman's Award for a colleague's work in prompt repairs for footbridge lifts, and two Airport Authority's Safety Campaign Awards for colleagues at the HKIA in recognition of their outstanding services.

展望2019/20年度，我們將積極發展不停車繳費系統及其他創科項目，繼續推動「智慧出行」，將香港打造成一個更高效率和更環保的城市。

Looking forward to 2019/20, we will keep up the momentum to achieve intelligent mobility through the development of the FFTS and other I&T projects that help make Hong Kong a more efficient and environment-friendly city.

迅速修復　順利出行
Speedy Solution for a Smooth Journey

邊境及運輸工程部工程師李家俊先生快速及有效地處理行人天橋升降機機門的維修工作，榮獲2018年申訴專員嘉許獎。

Mr Lee Ka-chun, an engineer at Boundary Crossing Facilities and Transport Services Division, was awarded an Ombudsman's Award 2018 for his prompt and effective handling of the repair work for a footbridge lift door.

在2018年3月，邊境及運輸工程部工程師李家俊先生接到一個非政府機構的電話，指九龍灣啟業邨某行人天橋升降機的玻璃門破損。該機構提倡為殘疾人士提供無障礙通道設施，促請李先生加快修理，讓升降機盡早回復正常服務，以減低對輪椅使用者帶來的不便。

李先生所屬的團隊負責全港行人天橋上的升降機和自動梯的操作及維修保養，於是馬上採用一個較快捷的方案，為破損的升降機安裝一道臨時金屬門，使升降機翌日便恢復正常服務。假如按正常程序，即透過承辦商訂購新的玻璃門，再安排付貨和安裝，一般需要六至八星期才能完成工程。

李先生迅速高效地處理這宗個案，因而獲頒2018年申訴專員嘉許獎。他表示：「我們很高興能夠幫助市民，讓他們出行更方便。」

事後，李先生的團隊更敦促承辦商必須常備升降機玻璃門存貨，讓維修工作做得更快，確保升降機有高的可用率，方便市民出行。

與承辦商維持良好的合作關係非常重要。即使在2018年9月超強颱風「山竹」襲港後，由於承辦商提供支援，並在事前與我們一同作好準備，大部分在颱風中毀壞的行人天橋升降機，均能在一星期內成功修復，提供正常服務。

他說：「作為政府部門，我們必須未雨綢繆、多走一步，亦必須視承辦商為合作伙伴，才能達致最大的工作成效。」

In March 2018, Mr Lee Ka-chun, an engineer of our Boundary Crossing Facilities and Transport Services Division, received a phone call from a non-governmental organisation (NGO) about a broken glass door at a footbridge lift in Kai Yip Estate, Kowloon Bay. The NGO, which advocates barrier-free access for the disabled, urged Mr Lee to expedite the repair works so that the lift service could resume normal as soon as possible to minimise the inconvenience caused to wheelchair users.

Mr Lee, whose team oversees the operation and maintenance of all footbridge lifts and escalators in Hong Kong, took prompt action to have a temporary metal door installed. With this fast-track solution, lift service resumed normal the next day. If the normal procedure was adopted, which would involve ordering a new glass door via the contractor, delivery and installation, the works would typically have to take six to eight weeks to complete.

Mr Lee received an Ombudsman's Award 2018 for his effective handling of the case. "It is our pleasure to be able to help people and make their journeys more convenient," he said.

Mr Lee's team now urges its contractors to keep glass lift doors in stock at all times to enable speedy repairs, thus ensuring high availability of footbridge lifts for the public.

Maintaining a good working relationship with contractors is very important. Even after super typhoon Mangkhut struck Hong Kong in September 2018, most of the damaged footbridge lifts were successfully repaired and resumed normal service in less than a week, thanks to contractors' support and joint forward planning.

"As a government department, we must think ahead, go the extra mile and treat contractors as collaborating partners in order to achieve optimal results," Mr Lee said.

營運服務
Trading Services

參與大灣區發展

國家於2019年2月公布《粵港澳大灣區發展規劃綱要》，標誌着大灣區發展的新里程碑。機電工程署除了在2018年參與大灣區發展外，亦會在《規劃綱要》的推動下，更積極地融入這個國家發展計劃，引入更多創新及科技(創科)，藉以加強我們的機電服務。

我們的創新辦公室已在研究能否邀請大灣區的初創企業和研究機構，為上載於「機電創科網上平台」的願望清單提供創科解決方案，以及就個別項目進行跨境合作以開發創科產品。如「機電創科網上平台」開放予大灣區的初創企業提供解決方案，我們的客戶將直接受惠於整個大灣區的龐大創造力及科技專才。

舉例來說，營運基金目前正忙於為新的蓮塘/香園圍口岸邊境管制站準備機電設施，務使管制站能如期於2019年啟用。待新管制站投入服務後，我們的團隊便能投放更多時間和精力，為現有的各邊境管制站進行保安系統升級工程。我們於2018年年初到大灣區進行考察時，曾與當地多間企業的代表會面，探討潛在可行的「智能過境」技術，例如無須使用X光亦可檢查貨物及掃描乘客的嶄新系統。我們期待朝着這個方向作進一步討論。

Participation in the Development of the Greater Bay Area

The promulgation of the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area in February 2019 has signified a new milestone in the development of the Greater Bay Area (GBA). Apart from participating in the development of the GBA in 2018, the EMSD will integrate more into this national development plan and bring in more innovation and technology (I&T) to strengthen our E&M services under the impetus of the Outline Development Plan.

Our Inno-Office has been exploring the possibility of inviting start-ups and research institutions from the wider GBA to provide I&T solutions for the wish-list items posted on the E&M InnoPortal and allow for cross-boundary collaboration on I&T product development for specific projects. Once the E&M InnoPortal is open to solutions offered by GBA start-ups, our clients will benefit directly from the creativity and technological expertise of the entire GBA.

For instance, the EMSTF is currently working on the E&M facilities at the new Liantang/Heung Yuen Wai Boundary Control Point to meet its schedule for opening in 2019. Upon commissioning of this new control point, our team will then be able to devote more time and effort to upgrading the security systems at existing boundary control points. During a GBA tour in early 2018, we met with various firms to explore potentially useful "smart-crossing" technologies, such as new systems that inspect goods and scan passengers without the use of X-rays. We look forward to having further discussions in this direction.

機電署於2018年6月與廣州市工貿技師學院簽訂《人才培訓合作備忘錄》，以加強粵港兩地技術培訓機構的協作和交流，並提升機電業技術員的水平。

The EMSD and the GITTC signed in June 2018 the Memorandum of Co-operation for Talent Training to strengthen collaboration and exchange between technical training institutions in Guangdong and Hong Kong, as well as to enhance the standards of E&M technicians.

事實上，機電工程署已與大灣區兩個公營機構展開正式合作。我們分別於2018年6月和11月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訂合作備忘錄。兩項安排均以機電人才發展方面的合作為重點，對穗港兩地的機電業界將有莫大裨益。

In fact, the EMSD has already started formal collaboration with two public organisations in the GBA. We signed memoranda of co-operation with the Guangzhou Industry and Trade Technician College (GITTC) in June 2018 and the Guangzhou Municipal Human Resources and Social Security Bureau in November 2018. Both arrangements focus on collaboration in E&M talent development, which will greatly benefit the E&M sectors in Hong Kong and Guangzhou.

我們的技術職系同事前往廣州參加由機電署與廣州市工貿技師學院合辦的製冷與空調培訓課程，藉以提升他們的維修保養知識及技術水平。

Our technical grade colleagues travelled to Guangzhou to participate in the refrigeration and air-conditioning training course for technicians jointly organised by the EMSD and the GITTC in order to enhance their maintenance knowledge and technical capabilities.

有關合作安排已初見成效。機電工程署的20名前線員工於2018年年底和2019年年初前往廣州參加設有兩部分的空調培訓課程，而82名見習技術員將於今年夏天參加四個有關空調、屋宇裝備、電氣及車輛維修的培訓課程。此外，機電工程署亦與廣州市的技師學院合作，為我們兩名見習技術員進行密集式培訓，為他們參加今年8月在俄羅斯喀山舉行的2019年「世界技能大賽」備戰。

Such collaboration has already yielded initial results. Twenty EMSD frontline staff members participated in a two-part air-conditioning training course in Guangzhou in late 2018 and early 2019, while 82 EMSD technician trainees will take part in four training courses in air-conditioning, building services, electrical and vehicle maintenance this summer. In addition, the EMSD has also jointly organised intensive training programmes with the technician colleges in Guangzhou for two of our technician trainees in preparation for the WorldSkills Competition 2019 to be held in Kazan, Russia, this August.

兩名參賽者均已在內地及香港接受密集式訓練，將代表香港前往喀山分別出戰「空調製冷」及「電氣安裝」兩個項目。有關訓練還協助他們在多個海外比賽中獲獎，包括澳洲的全球技能挑戰賽、廣州邀請賽和於重慶舉行的一帶一路國際技能大賽，為喀山大賽作熱身準備。

Both contestants have received intensive training in the Mainland and Hong Kong and will represent Hong Kong to compete in the "Refrigeration and Air-conditioning" and "Electrical Installations" trades in Kazan respectively. The training has also helped them win awards in various overseas competitions, such as the Global Skills Challenge in Australia, the Guangzhou Invitational Competition, and the Belt and Road International Skills Competition in Chongqing, as part of their preparations for the Kazan contest.

我們的合作範圍並不限於培訓方面。機電工程署於2018年11月與香港、澳門及內地六間機構簽署合作備忘錄，以推動大灣區發展和應用建築物重新校驗。重新校驗好比為建築物進行定期健康檢查和採取相應的改善措施，讓現有建築物的業主能優化其樓宇系統和設備，以提高運作效率，從而減低營運成本和提升能源效益。隨着老化建築物的數目增加，重新校驗在香港和大灣區其他城市將有極大的應用潛力。

Our scope of co-operation is not limited to training. In November 2018, the EMSD signed a memorandum of co-operation with six organisations from Hong Kong, Macao and the Mainland to promote the development and application of retro-commissioning (RCx) of buildings in the GBA. Similar to conducting regular health checks with follow-up improvement measures, RCx is a solution for owners of existing buildings to fine-tune their building systems and equipment in order to optimise operational efficiency, thus reducing operating costs and enhancing energy efficiency. As the number of ageing buildings increases, there will be enormous potential to apply RCx in Hong Kong and other GBA cities.

營運服務
Trading Services

機電署於2018年11月與廣州市人力資源和社會保障局簽訂《機電人才發展合作備忘錄》，加強雙方在促進機電人才發展方面的合作。

The EMSD signed the Memorandum of Co-operation on E&M Talent Development with the Guangzhou Municipal Human Resources and Social Security Bureau in November 2018 to enhance collaboration in the development of E&M talent in both places.

我們於2018年7月舉辦了為期四天的考察團，讓20多名機電業界代表及機電工程署人員參觀深圳和廣州的創科企業及創新創業基地。考察團成員亦與學者交換意見，了解更多關於大灣區創科發展的事宜。

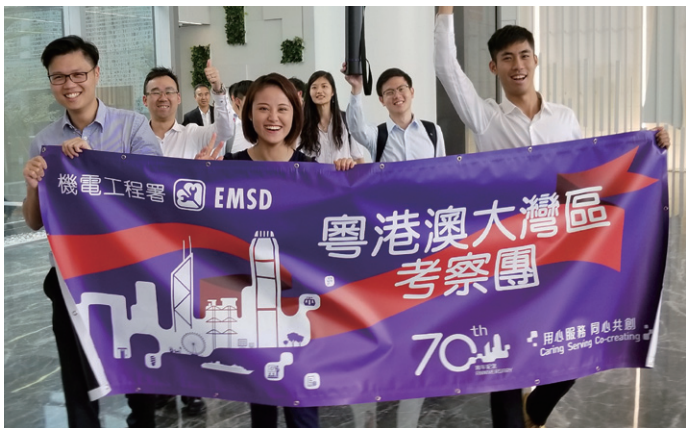
We organised a four-day visit to Shenzhen and Guangzhou in July 2018, joined by over 20 representatives from the E&M trade and the EMSD to visit the I&T enterprises and innovation entrepreneurship bases there. Delegates also exchanged views with academics to understand more about I&T development in the GBA.

大灣區內林林總總的科技均有助加快香港的智慧城市發展，因此我們多次安排與客戶部門的代表共同到大灣區考察，以取得第一手的創科資訊，推動香港的創科發展。

The GBA could offer a wide range of technologies to help expedite our smart city development. Therefore, we have arranged joint visits to the GBA with our client departments to obtain first-hand I&T information for promoting I&T development in Hong Kong.

來年，我們預期將與大灣區在機電人才發展、能源效益及創科發展方面展開進一步的合作。

In the year ahead, it is expected that further collaboration in E&M talent development, energy efficiency as well as I&T development in the GBA will take place.



大灣區考察團參觀了廣州和深圳的創科企業和主要創科基地，以了解兩地在創科方面的最新發展，並促進香港與內地機電業界在創科和人才培訓等領域的合作，為未來發掘更多發展機遇。

Delegations to the Greater Bay Area visited the I&T enterprises and major I&T bases in Guangzhou and Shenzhen to learn about the latest I&T developments in both places, and facilitate co-operation between the E&M trades in Hong Kong and the Mainland in the fields of I&T and talent training, with a view to exploring more development opportunities in future.

大灣區培訓菁英人才
Greater Bay Area Trains Top Talents

在撰寫本文期間，陳宇泰先生(右)及郭振銘先生(左)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。陳先生參加「電氣安裝」項目，而郭先生則出戰「空調製冷」項目。

At the time of writing, both Mr Chan Yu-tai (right) and Mr Kwok Chun-ming (left) have won Medallions for Excellence in the 45th WorldSkills Competition in Kazan, Russia, held in August 2019. Mr Chan competed in the "Electrical Installations" trade and Mr Kwok in the "Refrigeration and Air-conditioning" trade.

機電工程署見習技術員陳宇泰先生和郭振銘先生目前正為今年8月於俄羅斯喀山舉行的「世界技能大賽2019」備戰。世界技能大賽被譽為技能界奧林匹克，說他們正接受奧運式的賽前密集訓練，一點也不誇張。

陳先生和郭先生分別於2015年和2017年加入機電署的技術員訓練計劃，憑藉在電氣安裝方面的才能和空調系統安裝方面的實力，二人很快便已嶄露頭角。上司為他們提供重點培訓，並給予強大支援，使他們贏出多項內部比賽之餘，更在香港及澳洲的世界技能大賽取得佳績。陳先生和郭先生將代表香港參加在喀山舉行的「世界技能大賽2019」，分別出戰「電氣安裝」及「空調製冷」項目。

經過多次比賽和密集訓練，兩位技術員現已進入最後階段，集中磨煉技術和提升心理質素，以應付這場全球大賽。二人最近分別於廣州市技師學院及廣州市工貿技師學院受訓，並與參加喀山世界技能大賽的其他大灣區選手一起集訓，獲益良多。

二人在廣州接受嚴格訓練，每天由早上8時30分至下午5時集訓，晚上還要進行討論。他們說：「不過，我們從內地專家、導師和曾參加世界技能大賽的前選手身上學習了很多。那裏的競爭氣氛雖比香港濃厚，但我們也結識了不少朋友。」

良好的體能對空調安裝工作十分重要，因為要把冷氣喉管拗曲至符合比賽要求的弧度，需要很大氣力。因此，郭先生進行了更嚴格的體能鍛煉，藉以增強體力。同時，陳先生很高興有機會拓闊眼界，並會把經驗傳授給師弟師妹。

世界技能大賽的賽例規定，每人一生只能參賽一次，並須在22歲前參賽。陳先生和郭先生現正全力備戰，把握這個一生只得一次的機會，為機電署和香港爭光。

It is no exaggeration to say that Mr Chan Yu-tai and Mr Kwok Chun-ming, both technician trainees at the EMSD, have adopted an Olympic-style training regime as they prepare for the WorldSkills Kazan 2019, also known as "Skills Olympics", in Russia this August.

Mr Chan's talent in electrical installation and Mr Kwok's strength in air-conditioning system installation were spotted soon after they joined the EMSD's Technician Training Scheme in 2015 and 2017 respectively. They were given focused training and strong back-up by their supervisors, and won many internal competitions as well as WorldSkills Competitions in Hong Kong and Australia. Mr Chan and Mr Kwok will represent Hong Kong in the "Electrical Installations" and "Refrigeration and Air-conditioning" trades respectively at WorldSkills Kazan 2019.

With numerous competitions and training programmes all the way through, both trainees are now in the final stages of honing their skills and mental agility for the global competition. Training sessions for the two trainees at the Guangzhou Technician College and the Guangzhou Industry and Trade Technician College respectively and other GBA contenders also proved valuable.

It was tough training in Guangzhou, from 8:30 am to 5:00 pm every day, followed by discussions in the evenings. "However, we learnt a great deal from the Mainland experts, trainers and former WorldSkills contestants. The atmosphere there was more competitive, but we made many friends, too," they said.

Physical strength is important in air-conditioning installation, as bending ducts and tubing to a prescribed curvature can be strenuous. Mr Kwok has hence taken up more rigorous physical exercises to build up his strength. Meanwhile, Mr Chan is appreciative of the opportunity to broaden his perspective and will pass on the experience to younger trainees at the EMSD.

The rules of the WorldSkills Competition state that individuals may take part only once and must be under the age of 22. Mr Chan and Mr Kwok are thus doing their best to prepare for this once-in-a-lifetime event and shine for the EMSD and Hong Kong.

企業管理
Corporate Stewardship

踏入2018/19年度，機電工程營運基金開展了第二個五年策略計劃，在「機電數碼化」、「培育團隊」及「科技・創新」三大策略方面均有好的開始。我們正利用這些策略來實現「機電2.0」的願景及營運基金的企業目標，即「透過與不同持份者的伙伴關係，創造公眾價值及改善社會」。本章概述我們落實這些策略的進展，並分享一些企業亮點。

Kicking off the EMSTF's second Five-year Strategic Plan in 2018/19, we made a good start on each of our three main strategies, namely "E&M Digitisation", "Excellent Work Team" and "Technology • Innovation". These strategies are being deployed to achieve our vision of "E&M 2.0" and the corporate goal of "creating public value for community betterment through partnership with different stakeholders". In this chapter, we outline our progress under these strategies and share a few corporate highlights.

去年是機電工程署成立七十周年，部門舉辦了連串慶祝活動，並於2018年9月舉行壓軸典禮，邀得財政司司長蒞臨主持。數百名政府主要官員、業界代表及各界社會賢達亦應邀出席，場面熱鬧。

The past year saw a series of EMSD 70th anniversary celebrations, which culminated in a ceremony in September 2018 officiated by the Financial Secretary and attended by hundreds of key government officials, trade representatives and dignitaries from many sectors.

機電工程署七十周年典禮於2018年9月舉行，由財政司司長陳茂波先生(上圖)擔任主禮嘉賓。

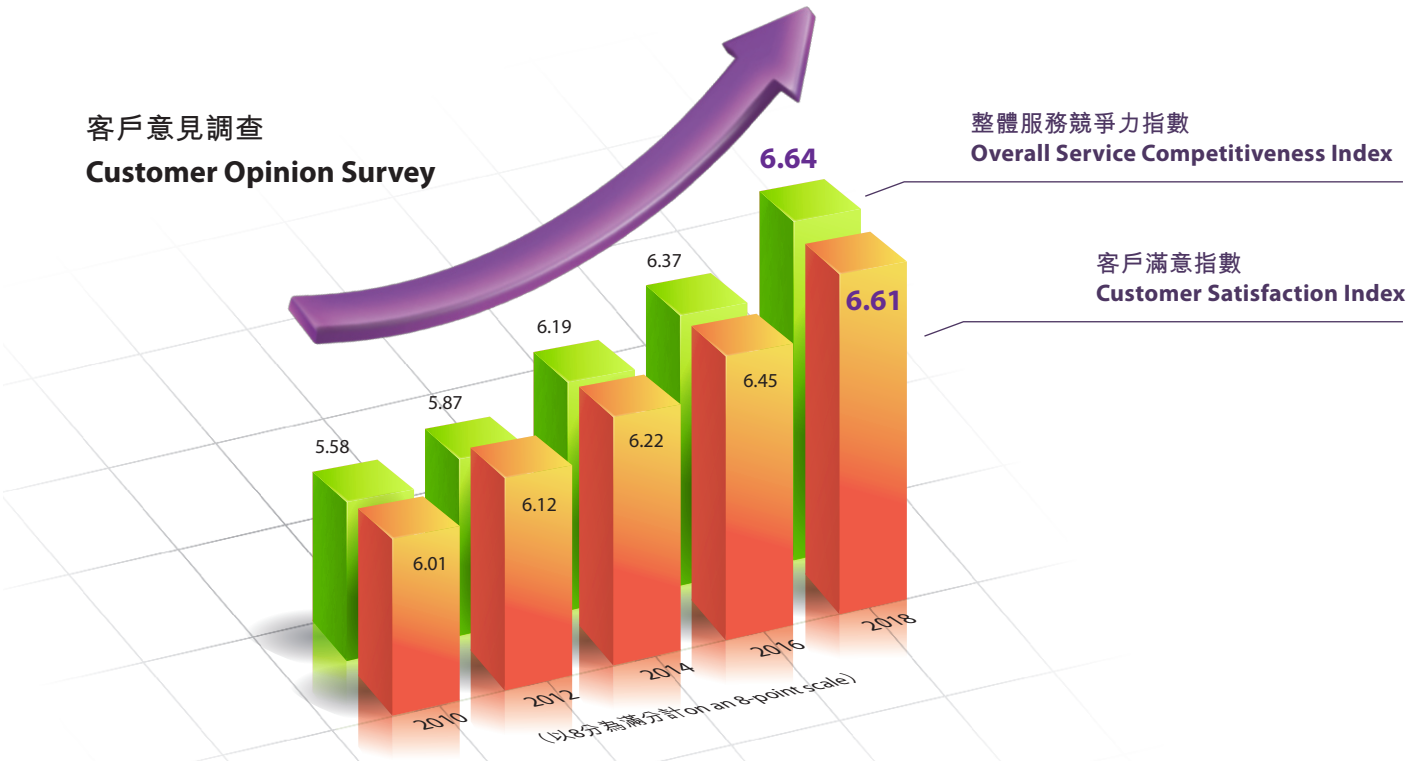
The EMSD 70th Anniversary Ceremony was held in September 2018, with the Financial Secretary, Mr Paul Chan (top), as our officiating guest.

另一亮點是營運基金的2018年客戶意見調查，當中客戶滿意指數及整體服務競爭力指數分別取得6.61分及6.64分(以8分為滿分計)，兩者均創歷史新高。為配合我們作為創新及科技(創科)促成者的角色，2018年的調查首次加入「創新能力」一項，並取得6.26分。這分數將成為衡量我們日後創科表現的基線。

Another highlight was the EMSTF Customer Opinion Survey 2018, which returned record-high results: a Customer Satisfaction Index of 6.61 and an Overall Service Competitiveness Index of 6.64 on a scale of 8. Consistent with our role as a facilitator of innovation and technology (I&T), we introduced a new dimension to the Survey, i.e. "Ability for Innovation", and obtained a score of 6.26, which will serve as the baseline to gauge our future I&T performance.

我們的關鍵績效指標成績也值得注意。營運基金在2018/19年度大部分績效指標的表現均達標，部分更超標完成，例如客戶滿意指數為6.61分，高於6.6分的目標；而每名員工年內接受訓練的日數平均為5.37天，也高於4.5天的目標。

The results of our Key Performance Indicators (KPIs) are noteworthy, too. The EMSTF met most of its KPI targets for 2018/19 and exceeded them in several areas. Examples are the Customer Satisfaction Index of 6.61 against a target of 6.6 and 5.37 training days per staff member against a target of 4.5 days, to name a few.



策略1：機電數碼化

這個策略的要點，是提供數碼化機電服務及創新方案，以配合智慧城市發展和應對氣候變化的政策。就此，我們的策略業務單位一直致力共同為客戶訂製各種創科方案，並與業界伙伴合作，訂立最佳作業方法，有關詳情已載述於較前章節。

在企業層面，我們的創新辦公室於2018年6月正式推出「機電創科網上平台」，是營運基金協助客戶實現數碼化轉型的主要措施。截至2019年3月底，我們透過「機電創科網上平台」收集了超過150個創科願望，並收到90多個潛在的創科解決方案，涵蓋的創新技術範圍廣泛，包括人工智能和資訊分析、能源效益和可再生能源、能源儲存和轉移、機械人應用等。目前有50多個創科項目正在機電工程署總部大樓或其他合適的政府場地進行試驗。

創新辦公室作為我們與外間機構在創科事宜和合作方面的首個接觸點，年內與香港科技園公司合辦第二屆「創新科技日」，展示初創企業和大學的創科項目，藉以提高客戶部門和公營機構對有關項目的興趣。

機電工程署的重點活動之一，是營運服務與規管服務每兩年一度合辦的研討會。最近一次的研討會於2018年11月在香港科學園舉行，以「共創智慧未來」為主題，吸引逾350名客戶和業界代表及本地和海外的專家和學者參與。與會者就智慧城市發展進行深入討論，並就創科議題分享意見，對客戶的數碼化工作甚有裨益。

Strategy 1: E&M Digitisation

The gist of this strategy is to provide digitised E&M services and innovative solutions in tandem with smart city development and policies to tackle climate change. In this regard, our Strategic Business Units (SBUs) have been busy co-developing I&T solutions tailor-made for our clients as well as collaborating with trade partners to develop best practices, details of which are already set out in earlier chapters.

On a corporate level, a major step to assist clients in achieving digital transformation was the official launch of the E&M InnoPortal in June 2018 by our Inno-Office. As at end-March 2019, more than 150 I&T wishes were collected through the E&M InnoPortal, with over 90 prospective I&T solutions received, covering a wide range of innovative technologies, including artificial intelligence and information analysis, energy efficiency and renewable energy, energy storage and transfer, robotic application, etc. More than 50 I&T trials are being conducted either at the EMSD Headquarters Building or other appropriate government premises.

As our first point of contact with external parties on I&T matters and collaboration, the Inno-Office also co-organised the second Innovative Technology Day with the Hong Kong Science and Technology Parks Corporation to showcase I&T projects by start-ups and universities, with a view to generating interest from client departments and public organisations.

One of the EMSD's signature events is the biennial symposium jointly organised by Trading Services and Regulatory Services. The latest symposium was held at the Hong Kong Science Park in November 2018 under the theme "Co-creating a Smart Future". Over 350 participants attended, including our clients, trade representatives as well as local and overseas experts and academics. They had in-depth discussions on smart city development and shared I&T insights highly relevant to clients' digitisation work.

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2018/19財政年度關鍵績效指標成績及表現承諾　　KPI Results and Performance Pledges in FY 2018/19

項目 Item	關鍵績效指標 (單位)[1] Key Performance Indicators (Unit)[1]	目標 Target	成績 Results
1.	收入回報率 (%) Return on Revenue (%)	1.8	9.2
2.	新業務及業務增長 (百萬元) New Business and Growth of Business ($M)	394	734.2
3.	客戶滿意指數 [以8分為滿分計] Customer Satisfaction Index (CSI) [on an 8-point scale]	6.6	6.61[2]
4.	年內續訂的服務水平協議 (%) Percentage of Service Level Agreement (SLA) Renewed during the Year (%)	95	100
5.	每月電話調查客戶滿意度 (%) Percentage of Satisfaction Level Based on Monthly Customer Feedback (%)	99	99.95
6.	營運基金員工的訓練日數 (每名員工接受訓練的日數) Training Days of EMSTF Staff (no. of training days per staff)	4.5	5.37
7.	員工滿意度指數 [以10分為滿分計] Staff Satisfaction Rating [on a 10-point scale]	7.0	6.8[3]
8.	員工建議計劃的建議書 (份) Awards for Staff Suggestion Scheme Proposal (no.)	75	116
9.	達到服務水平協議所訂的表現目標 (%) Percentage of SLA Service Performance Target Compliance (%)	99	99.98
10.	每千名營運基金員工須呈報的累積意外宗數 (每千人計算) Accumulated Reportable Accidents per 1 000 EMSTF Staff (no. per 1 000 staff)	5.0[4]	4.38
11.	違反法例次數 (宗) Statutory Non-compliance (no.)	0	0
12.	耗電量 (千瓦小時) [機電署總部大樓、企業數據中心及各策略業務單位場地] Electricity Consumption (kWh) [EMSD Headquarters Building, Corporate Data Centre and all SBUs Venues]	10 405 200[5]	9 625 397[6]

1 除第7、第8及第12項適用於機電工程署整個部門外，表內各項目只適用於機電工程營運基金。
2 數字為2018年的調查結果。
3 數字為2019年的調查結果。
4 此為警戒水平，並非目標。
5 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4%用電量計算。
6 2018/19財政年度經調整後的耗電量(扣除客戶使用量)。

1 All items apply to the EMSTF only, except items 7, 8 and 12 which apply to the EMSD as a whole.
2 Result from the survey conducted in 2018.
3 Result from the survey conducted in 2019.
4 This is an alert level, not a target.
5 The target is calculated using the electricity consumption (exclude client usage) in FY 2013/14 as the baseline with 4% energy saving.
6 Normalised electricity consumption (exclude client usage) as of FY 2018/19.

策略2：培育團隊

這個策略旨在培育一支具備國際視野及數碼化專門技術的卓越團隊。因此，營運基金致力促進本地、國家及國際層面的合作和交流，並擴大培訓範圍，以涵蓋數碼化技術和創科。

就此，機電工程署於2018年與本地及內地的對口單位簽訂了多份合作備忘錄。此外，營運基金由2018年4月起至2019年全年內，也陸續安排見習技術員和前線員工到廣州參加短期培訓課程。

Strategy 2: Excellent Work Team

Aiming to establish an excellent work team with global perspectives and professional expertise for digitisation, this strategy calls for more co-operation and exchange at local, national and international levels and expansion of the training scope to cover digitisation and I&T.

In this regard, the EMSD signed several memoranda of co-operation with local and Mainland counterparts in 2018. Furthermore, the EMSTF has been sending technician trainees and frontline staff to Guangzhou for short training courses since April 2018 and throughout 2019.

香港機電業推廣工作小組在機電署牽頭下舉辦了機電業博覽2019，以「機電新動力」為主題，向年青人介紹關於機電工程領域的培訓、職業前景和晉升途徑的最新資訊。

Led by the EMSD, the Hong Kong Electrical and Mechanical Trade Promotion Working Group organised the E&M Expo 2019 with the theme of "E&M New Momentum", introducing to the young people the latest information on training, career prospects and promotion pathways in the E&M engineering field.

機電工程署早於2012年牽頭成立香港機電業推廣工作小組，以推動機電業招募及培訓新血為主要工作。工作小組於年內繼續致力進行有關工作，包括在2019年3月在職業訓練局葵涌大樓舉辦年度活動機電業博覽。另一焦點活動為2018年9月舉行的第二屆「機電・啟航」迎新典禮，由政務司司長擔任主禮嘉賓，有逾660名新見習技術員出席，他們來自本港多個主要公營及私營機構舉辦的各類技術員培訓計劃。迎新典禮歡迎新學員加入機電行業，展開事業新篇章，而他們的家人也一同出席慶祝。活動當日更設有電子競技形式的互動問答遊戲，所有出席人士均可透過流動電話參與。

As early as 2012, the EMSD has facilitated in setting up the Hong Kong E&M Trade Promotion Working Group to mainly promote the recruitment and training of new talents for the E&M industry. The Working Group has continued with its efforts, such as organising the annual E&M Expo held in March 2019 at the Vocational Training Council Kwai Chung Complex. Another highlight was the second "E&M Go!" ceremony officiated by the Chief Secretary for Administration in September 2018. The event was attended by over 660 new trainees from various schemes organised by leading public and private organisations in Hong Kong. The ceremony celebrated the beginning of a new chapter for the trainees, with their family members in attendance. All participants were welcome to take an interactive mobile quiz in eSports style.

機電工程署於2018/19年度為員工提供的訓練日數超過24 000天，涵蓋的主題甚廣，包括創科及機電範疇的最新知識、管理技巧、個人效能和其他軟技能等。

In 2018/19, over 24 000 days of training were provided to staff, covering diverse subjects from latest knowhow in I&T and E&M disciplines to management techniques, personal effectiveness and other soft skills.

衞生工程部技術職系同事修畢由機電署與香港大學專業進修學院合辦的第一屆「生物醫學工程技術員文憑課程」。

Technical grade staff of the Health Sector Division completed the first Diploma for Biomedical Engineering Technician programme jointly organised by the EMSD and the HKU School of Professional and Continuing Education.

我們在2018年為前線員工推出不少重要的新培訓課程，當中包括與香港大學專業進修學院合辦的「生物醫學工程技術員文憑課程」。這是本港首個同類課程，並已獲香港學術及職業資歷評審局認可，屬資歷架構下第三級別的課程，顯示其課程質素及水平得到保證。

Among the notable new courses introduced in 2018 for frontline staff was the Diploma for Biomedical Engineering Technician programme, the first of its kind in Hong Kong. Jointly developed with the HKU School of Professional and Continuing Education, the course has been accredited by the Hong Kong Council for Accreditation of Academic and Vocational Qualifications at Level 3 of the Qualifications Framework, an assurance of its quality and standards.

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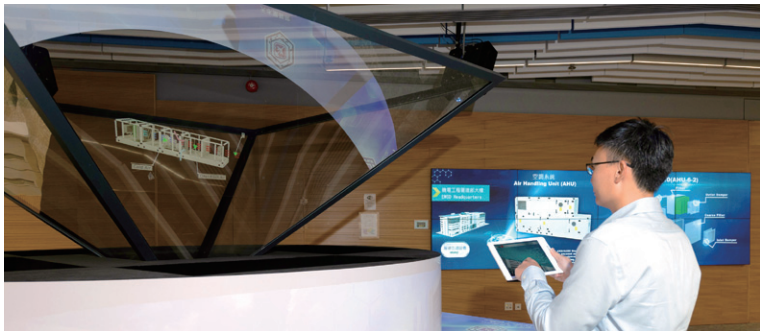

新落成的互動學習中心於2018年9月啟用。該中心配備全息影像及三維投影系統、虛擬實境技術和「洞穴式自動虛擬環境」等高科技設施，以促進技術培訓。

The newly completed Interactive Learning Centre, which commenced operation in September 2018, is equipped with high technology facilities including holographic image system, virtual reality technology and Cave Automatic Virtual Environment to facilitate technical training.

互動學習中心配備虛擬實境設施，讓見習技術員在不受天氣或環境限制的情況下熟習維修技巧。

Equipped with virtual reality facilities, the Interactive Learning Centre enables technician trainees to hone their maintenance skills without regard to weather or environmental constraints.

360°

http://bit.ly/emsd_ilc

我們以身作則，繼續運用新技術改善前線員工的技術培訓設施。經過多月的建造和籌備，全新的互動學習中心已於2018年9月在總部大樓正式啟用。互動學習中心的嶄新培訓設施利用全息影像及三維投影和虛擬實境技術，讓學員在不受制於天氣或場地具有潛在危險的環境下練習技能。

互動學習中心的另一亮點是「洞穴式自動虛擬環境」，這系統可以將三維場景投射到房間大小立方體的多面牆壁和天花板上，創建虛擬設施，例如醫院手術室，供學員在像真度高和安全的環境中熟習維修保養程序。

To lead by example, we have continued to apply new technologies to transform our technical training facilities for frontline staff. After months of construction and preparation, a new Interactive Learning Centre (ILC) was opened at our headquarters in September 2018. The ILC features new training facilities using hologram or virtual reality technology that allow trainees to practise their skills without being constrained by weather or potentially hazardous site conditions.

Another highlight of the ILC is the Cave Automatic Virtual Environment, a system that can project three-dimensional scenes onto the walls and ceiling of a room-sized cube to create a virtual facility such as a hospital operating theatre. This allows trainees to familiarise themselves with maintenance procedures in a highly realistic and safe environment.

360°

http://bit.ly/emsd_cave

「洞穴式自動虛擬環境」系統把虛擬的醫院工作環境投射到由五個平面所構成的立體空間，讓見習技術員在不影響醫院運作的情況下，熟悉實際工作環境(例如手術室)和熟習維修程序。

The Cave Automatic Virtual Environment system projects the virtual working environment of a hospital onto the five faces of a cube-sized room, enabling technician trainees to familiarise themselves with the actual working environment (such as an operating theatre) and maintenance procedures without interrupting the hospital's operation.

「品質及安全日」於2018年11月舉行，以表揚員工在推廣部門持續改善品質及安全方面的貢獻。「品質、環境及生產力推廣計劃」勝出隊伍正演繹得獎個案。

The Quality and Safety Day was held in November 2018 in recognition of the contribution of our staff in promoting the Department's continuous improvement on quality and safety. The award winning team of the Quality, Environmental and Productivity Promotion Programme is performing their winning project.

要建立一支高效的團隊，創科培訓固然重要，但品質、安全和員工福祉亦不容忽視。我們於2018年11月在香港科學館舉辦一年一度的「品質及安全日」，讓員工有機會分享持續改善工作效率的最佳作業方法。表現出色的團隊分別獲頒發「最佳增值服務獎」、「最佳改善個案獎」、「最佳職安健改善個案獎」和「最佳環保個案獎」。

Whilst I&T training is important as we continue to build an effective team, so too are quality, safety and staff well-being. Our annual Quality and Safety Day held in November 2018 at the Hong Kong Science Museum offered staff a chance to share their best practices for continuous improvement. Outstanding teams received the Best Service Delivery Enhancement Awards, Best Improvement Project Awards, Best Occupational Health and Safety Enhancement Project Awards and Best Green Project Awards.

我們明白承辦商的安全表現也同樣重要，因此於2018年7月舉辦以安全創新為主題的承辦商研討會，讓機電工程署人員及嘉賓講者與130多名承辦商員工分享他們在安全、創新及其他相關範疇的經驗。

We are mindful that contractors' safety performance is important too. A Contractors Forum themed "Innovation for Safety" was held in July 2018, in which EMSD officers and guest speakers shared their experiences in safety, innovation and other related aspects with over 130 staff members from our contractors.

我們繼續委託香港基督教服務處為所有員工(包括借調至其他部門的人員)提供輔導服務。年內，上述機構為我們的員工舉辦了多場關於精神、情緒和身體健康的簡介會和工作坊，並在有需要時安排輔導員提供羣組危機介入輔導環節，目的是促進同事的全面身心健康，推廣工作與生活平衡。

We continued to commission the Hong Kong Christian Service to provide counselling services to all staff, including those seconded to other departments. Briefings and workshops on mental, emotional and physical health were held throughout the year, while counsellors were available to provide group crisis intervention sessions where necessary. The aim is to promote all-round health and work-life balance to our colleagues.

「EM創新EM Fun」遊藝會於2019年2月舉行，同事攜同家人參與，樂在其中。是次遊藝會加入數項創新元素，包括機械人參與的開幕儀式、電子點票及電競地帶等。

Colleagues and their family members participated in and enjoyed the EMSD Fun Day which was held in February 2019. Several innovative elements were added on the Fun Day, including an opening ceremony with robot, electronic counting of votes and an eSports zone, etc.

我們舉辦了多個有關精神、情緒和身體健康的工作坊，以促進同事的工作與生活平衡和健康生活。參與「古法養生：拉走亞健康」工作坊的同事正進行眼部周圍的穴位按摩，消除疲勞。

We organised a number of workshops on mental, emotional and physical health to promote work-life balance and healthy living among colleagues. Participants of the "Say Goodbye to Subhealth" workshop are performing acupressure exercises around their eyes to eliminate fatigue.

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另外，機電工程署三位同事於2018年獲頒公務員事務局局長嘉許狀，表揚他們對部門以至廣大市民的持續優秀服務。同時，2018/19年度員工滿意度調查的結果大致令人滿意，以10分為滿分計，整體滿意度指數為6.8分，與2016年上一次調查得出的滿意度指數相同。

Also worth noting was that three EMSD colleagues received the Secretary for the Civil Service's Commendation Awards in 2018 for their sustained excellent service provided to the Department and the public. Meanwhile, results of the 2018/19 Staff Satisfaction Survey remained generally satisfactory, with an overall satisfaction rating of 6.8 out of 10, the same score as in the previous round in 2016.

在2018年公務員事務局局長嘉許狀頒發典禮上，本署有三位同事獲頒嘉許狀，以表揚他們持續優秀的工作表現及對部門作出的貢獻。

Three EMSD colleagues were awarded commendation in the Secretary for the Civil Service's Commendation Award Presentation Ceremony 2018 in recognition of their continued excellent performance at work and contribution to the Department.

策略3：科技 • 創新

這個策略的重點是建立新的組織架構、文化、工作模式和環境，使營運基金發展成為樂於採用創新科技和推動機電服務數碼化的機構。

營運基金架構重組是年內一項重要舉措，目的是為客戶提供以客為本、一站式、綜合和全面的機電操作、維修保養及項目管理服務；透過區域化的架構提供服務，從而提高效率和善用資源；以及推動創科的發展和應用，以提升工作成效和效率，並提供創新解決方案，以滿足客戶需要。

營運基金的新架構已於2018年10月1日實施。新架構由七個部別組成，包括邊境及運輸工程部、保安及車輛工程部、綜合工程部、衞生工程部、市政工程部、數碼科技部和企業服務部。

Strategy 3: Technology • Innovation

This strategy focuses on creating new organisational structures, cultures, working modes and environments, thereby developing the EMSTF into an organisation that is willing to leverage innovative technology and promote the digitisation of E&M services.

A key initiative was the re-organisation of the EMSTF, the objectives of which are to provide client-focused, one-stop, integrated and comprehensive E&M operation, maintenance and project management services; enhance efficiency and optimise resources through more regionalised delivery of services; and drive the development and application of I&T to enhance work effectiveness and efficiency as well as provide innovative solutions to meet clients' needs.

The new EMSTF structure, which was effected on 1 October 2018, comprises seven divisions, namely the Boundary Crossing Facilities and Transport Services Division, Security and Vehicle Services Division, General Engineering Services Division, Health Sector Division, Municipal Sector Division, Digitalisation and Technology Division and Corporate Services Division.

我們舉辦了策略制訂工作坊，優化第二個五年策略計劃，力求在創科方面持續革新，為客戶提供數碼化機電工程方案，並以社會利益為依歸，創造最大的公眾價值。

The Strategic Formulation Workshop was conducted to refine the second Five-year Strategic Plan, in which we would strive to continuously innovate in the areas of innovation and technology, provide digitised E&M engineering solutions for clients and maximise public value with the interests of the community in mind.

「Inno@E&M創新科技挑戰賽」啟動禮於2018年7月舉行。該比賽邀請機電署全體同事參與，鼓勵大家提出應用創科的方案，而得獎方案將獲得資助，並由專責人員實踐項目。

The launching ceremony of the Inno@E&M Challenge, a competition that invites and encourages submission of I&T application proposals from all EMSD staff, was held in July 2018. The winning proposals will be provided with funding for project implementation by dedicated officers.

新成立的數碼科技部(包括創新辦公室)主要協助營運基金把握創科商機，並在日常運作的各個方面充分利用創科。營運基金的新架構將有助部門更好地履行「創新促成者」的角色，務求推動在政府採用創新的機電方案。

為了培養創科文化，創新辦公室在年內為部門舉辦了多項活動，例如「Inno@E&M創新科技挑戰賽」。成功進入比賽第二階段的24個參賽項目將會落實推行，每個項目均為市場提供新的創科方案，有助滿足客戶的要求和我們的營運需要。

此外，我們還為員工舉辦了一連串創科活動，包括以人工智能、數據分析技術和支持創新的政府採購政策等為主題的簡介會和工作坊，以及參觀香港和深圳兩地的科技企業。

The Digitalisation and Technology Division, which includes the Inno-Office, is newly created to help the EMSTF capture I&T business opportunities and fully leverage I&T in all aspects of its operation. The new EMSTF structure will also enable the Department to better perform its designated role as the Innovation Facilitator to promote the adoption of innovative E&M solutions in the Government.

To foster an I&T culture, the Inno-Office organised various internal events during the year. An example was the Inno@E&M Challenge, under which 24 projects that entered the second stage would be put into implementation, each delivering a new-to-market I&T solution that helps address our clients' requests and our operation needs.

An InnoEvent Series was also organised for staff during the year, comprising briefings and workshops on topics such as artificial intelligence, data analytics and pro-innovation government procurement policy, as well as visits to technology enterprises in Hong Kong and Shenzhen.

年內，我們舉辦了一連串創科活動，當中包括多個創新科技交流日及研討會，例如於2018年9月舉行的「人工智能和數據分析工作坊」及2019年2月舉行的「智能機械人研討會」等。

During the year, we organised an InnoEvent Series, including a number of Inno Theme Days and seminars, such as the workshop on Artificial Intelligence and Data Analytics in September 2018 and the Robotic Innovation and Technology Seminar in February 2019, etc.

企業管理
Corporate Stewardship

企業服務部推出了各種新工作模式，令員工的工作更智能化，例如經優化的客戶服務中心，配合新推出的「顧客為本電子平台—工作管理」系統，協助我們更迅捷有效地處理客戶查詢，同時主動為客戶提供及時的工作進度更新。客戶服務中心的所有員工均已接受培訓，掌握無紙作業的數碼化工作流程，能透過流動應用程式而非電話或傳真方式向前線員工分派維修保養工作。前線員工亦已完成培訓，同樣能透過流動應用程式，實時追蹤和匯報工作進度，以便客戶服務中心的人員隨時透過網上平台檢索有關資料，迅速解答客戶的查詢。

The Corporate Services Division has introduced various new working modes to help staff work smarter. One example is the newly upgraded Customer Service Centre (CSC) with the newly launched Customer Centric e-Platform - Job Management system, which combine to help us handle customer enquiries more promptly and effectively while giving clients proactive and timely updates of work progress. All CSC staff were trained to use paperless and digitised workflow to dispatch maintenance jobs to frontline staff via mobile apps instead of telephone or fax, while frontline staff were trained to track and report job progress in real time via mobile apps so that CSC staff may retrieve the information from the online platforms anytime to answer customer enquiries promptly.

為了創造有利創新和協作的新環境，部分策略業務單位在年內翻新了辦公室。新辦公室的設計融入鼓勵創新文化的元素，包括採用更具活力的色調和自然採光，以及打造大量開放的連接空間，方便員工進行討論、分享和協作。

To create new environments conducive to innovation and collaboration, several SBUs renovated their offices during the year with pro-innovation design features. These include adopting office design with more vibrant colour schemes and natural sunlight, as well as creating plenty of open and connected spaces to facilitate staff discussion, sharing and co-working.

360°

http://bit.ly/emsd_svsd

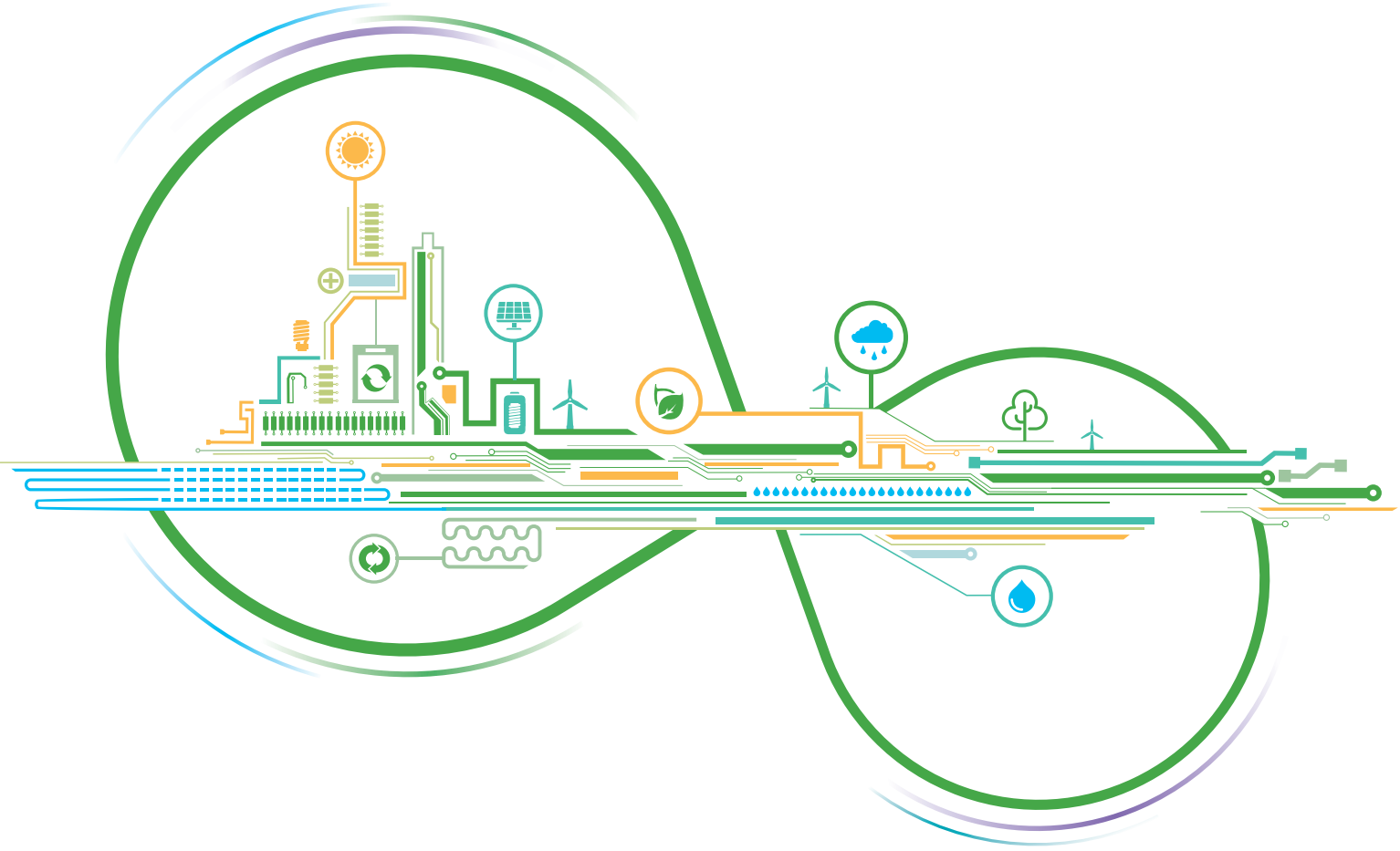
我們運用新的辦公室空間概念，翻新了保安及車輛工程部辦公室(左)和設於衞生工程部辦公室的茶水間(右)，為員工締造更舒適的工作環境之餘，亦提供更多共融空間。

A new office space concept was adopted in the renovation of the office of the Security and Vehicle Services Division (left) and the pantry in the office of the Health Sector Division (right). This not only creates a more comfortable working environment, but also provides more connecting space.

另一舉措是在機電工程署總部大樓設立「機電創科專區」，展示政府部門、初創企業和大學之間的各項創科協作項目，目前約有20項展品。「機電創科專區」是部門「創科之旅」參觀活動中，深受總部大樓訪客歡迎的景點，加上全新的互動學習中心，為員工、客戶及其他持份者打造出令人耳目一新和啟迪創意的環境。

Another initiative was the setting up of an E&M InnoZone at the EMSD Headquarters Building to showcase I&T project collaborations among government departments, start-ups and universities. Around 20 exhibits are currently featured there. As part of the InnoTour, the E&M InnoZone is highly popular with visitors to our headquarters and, together with the new ILC, creates a refreshing and stimulating environment for staff, clients and other stakeholders.

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2018/19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《環境管制人員適用環保報告指引》外，亦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議題披露指標和對照的報告章節已載於**全球報告倡議組織內容索引**。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172頁[4]。

本報告亦通過全球報告倡議組織標準的「實質性議題審核」。

報告範圍

本報告載述機電署由2018年4月1日至2019年3月31日[5]期間內主要的可持續發展成果和措施。除另外說明，報告中截至2019年3月31日止的所有數據均為部門所整合的標準化實際數字。報告披露截至2019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[6]。

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，營運基金進行架構重組，透過調配各部別工作以加強以客為本的服務及提升各部別的協同效益。營運基金自2018年10月1日開始採用新架構後，除架構變化外，於匯報期內權責關係、規模及供應鏈均無重大改變[7]。

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與規定，透過系統性流程界定報告的內容，當中步驟包括識別重要議題，以及舉行持份者參與活動。我們聘請第三方顧問以問卷調查形式[8]收集主要持份者組別[9]中學界、客戶和供應商/承辦商[10]的意見，然後展開重要性及邊界評估，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，本年度我們進一步評估及核實經界定的重要議題，最終歸納出16項重要議題並按優先次序排列[11]。

1 102-1 [2] 102-52 [3] 102-54 [4] 102-56 [5] 102-50 [6] 102-45 [7] 102-10 [8] 102-43

9 102-42 主要持份者組別主要參考其與機電署的運作之相關性而挑選及聯繫。

10 102-40 [11] 102-46

Reporting Principles

This is the annual[2] Social and Environmental Report (hereafter "the Report") of the Electrical and Mechanical Services Department (EMSD)[1]. The Report presents and summarises our major performance and achievements on environmental, social and economic aspects in the fiscal year 2018/19.

In addition to making reference to the Environmental Protection Department's A Guide to Environmental Reporting for Controlling Officers, this report has been prepared in accordance with the GRI Standards: Core option[3]. Please refer to the **GRI Content Index** for cross-referencing relevant disclosures to corresponding sessions of the 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 172[4].

The Report has also successfully completed the GRI Materiality Disclosures Service.

Reporting Scope

The Report highlights our key sustainability achievements and initiatives from 1 April 2018 to 31 March 2019[5]. Unless otherwise stated in this Report, all data are normalised and presented as absolute figures as of 31 March 2019, to the best of our knowledge. Financial data in the Report are disclosed for the financial year, which ended on 31 March 2019. All monetary values are expressed in Hong Kong Dollars[6].

The EMSD consists of two functional units, namely Regulatory Services and Trading Services, or better known as the Electrical and Mechanical Services Trading Fund (EMSTF). During the reporting year, the EMSTF underwent re-organisation to better sharpen customer focus and create larger synergy by re-organising the work among various Divisions. The new EMSTF structure took effect on 1 October 2018. Aside from structural change, there were no significant changes with regard to departmental ownership, size or its supply chain during the reporting period[7].

Material Topics and Boundary

With reference to the principles and the requirements stipulated in the GRI Standards, the content of the Report is defined through a systematic process that involves the identification of material topics, stakeholder engagement exercise in the form of questionnaire survey[8] with academia, clients and suppliers/contractors[10] who are our key stakeholder groups[9] via external consultant, followed by materiality and boundaries assessment to identify environmental, social and economic topics that are most relevant to the EMSD's operations and the shared interests of our stakeholders. To ensure completeness and balanced representation of the EMSD's sustainability performance and impacts, validation of identified material topics was further reviewed this year. As a result, a total of 16 material topics were consolidated and prioritised[11].

1 102-1 [2] 102-52 [3] 102-54 [4] 102-56 [5] 102-50 [6] 102-45 [7] 102-10 [8] 102-43

9 102-42 Major stakeholder groups are identified and engaged with reference to their relevance to the EMSD's operation.

10 102-40 [11] 102-46

類別 **Categories**	重要議題[12] **Material Topics**[12]	邊界[13] **Boundaries**[13] 機電署的運作 **Operations of the EMSD**	 主要供應商的運作 **Operations of our Major Suppliers**
環境 **Environmental**	生態保育 Ecological Conservation	✓	
	節約能源 Energy Conservation	✓	✓
	污水及廢物處理[14] Effluents and Waste Treatment[14]	✓	✓
	廢氣控制 Emissions Control	✓	
	節約用水[14] Water Conservation[14]	✓	✓
	物料使用[14] Use of Materials[14]	✓	✓
	評估供應商/承辦商的環境表現 Supplier/Contractor Environmental Assessment	✓	
經濟 **Economic**	財務表現 Financial Performance	✓	
	部門的採購政策 Departmental Procurement Practices	✓	✓
	間接經濟影響[14] Indirect Economic Impact[14]	✓	✓
	遵守市場行為法規 Market Behaviour Compliance	✓	
社會 **Social**	員工培訓及教育 Employee Training and Education	✓	
	職業健康及安全 Occupational Health and Safety	✓	
	多元化及平等機會 Diversity and Equal Opportunity	✓	
	員工政策及相關統計數據 Employment Policy and Statistics	✓	
	客戶健康及安全 Customer Health and Safety	✓	

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)[15]，就我們的運作、可持續發展方面的績效、報告內容和方式提出寶貴意見，以便我們持續改進。

This Report is available online. We welcome comments and suggestions from readers 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.hk[15].

[12] 102-44, 102-47 [13] 103-46 [14] 102-49 [15] 102-53

[12] 102-44, 102-47 [13] 103-46 [14] 102-49 [15] 102-53

可持續發展管理方針
Sustainability Management Approach

管理方針

機電署把可持續發展概念融入在日常營運和決策過程中。我們全力推行可持續發展方針，並且在環境、安全及健康政策和所有企業策略與計劃中明文表述。本署設有的管理系統具有詳細程序，使我們於營運過程中在環境、職安健和社會層面致力達致可持續發展。此外，機電署亦積極識別與可持續發展相關的風險及管理潛在影響，在可行的情況下發掘更多新機遇，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

為響應全球對氣候變化的呼籲，香港特別行政區政府已定下目標，於2030年前將本港的碳強度，從2005年水平，大幅降低65-70%。機電署一直積極發掘機遇，以加強能源管理的規管架構，從而協助香港實現相關的碳排放及節能目標。

在能源應用的效益和安全兩個範疇，機電署擔當規管角色，頒布、實施及檢討與公眾利益有關的主要法例和標準，其中包括《建築物能源效益條例》及「強制性能源效益標籤計劃」。「強制性能源效益標籤計劃」第三階段已於2018年6月正式生效，目的是擴大所涵蓋的電器產品範圍。

我們致力提供專業諮詢方案及技術支援，通過各類指引和計劃提升能源效益，主要例子包括《重新校驗技術指引》、淡水冷卻塔計劃及香港建築物能源效益註冊計劃。我們亦發布《屋宇裝備裝置能源效益實務守則》2018年版和《建築物能源審核實務守則》2018年版。本署不時舉辦技術論壇及行業教育活動，向業界推廣良好作業。例如，我們主辦兩年一度的「傑出註冊電業工程人員選舉」，向電業工程人員推廣工作安全意識。有關詳情請參閱**環保成效**和**社會成效**章節。

Management Approach

At the EMSD, we embed sustainability in 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 have adopted management systems with detailed procedures so that we are able to continuously attain sustainable operations in environmental, occupational health and safety, and social aspects. Furthermore, we endeavour to identify any sustainability-related risks, manage potential impacts and explore new opportunities when feasible, as well as offer a range of communication channels to maintain close dialogue with our stakeholders.

Sustainability Approach in our Regulatory Services

To echo with the global call for climate action, the Hong Kong Special Administrative Region (HKSAR) Government targets to reduce 65-70% of the city's carbon intensity by 2030 from the 2005 level. The EMSD remains active in seeking opportunities to enhance regulatory framework for energy management, and to help the city achieve associated carbon emission and energy-saving goals.

With regard to efficiency and safety of energy utilisation, the EMSD uptakes the regulatory role to enact, implements and reviews key legislations and standards for public interest, for examples, Buildings Energy Efficiency Ordinance (BEEO) and Mandatory Energy Efficiency Labelling Scheme (MEELS). The third phase of MEELS has commenced in June 2018, with an aim to extend the coverage of the MEELS in electrical products.

In addition to providing professional advisory solutions and technical support, the EMSD introduces various guidelines and schemes to enhance energy efficiency. Notable examples include the Technical Guidelines on Retro-commissioning, Fresh Water Cooling Towers Scheme and Hong Kong Energy Efficiency Registration Scheme for Buildings. We also published the Code of Practice for Energy Efficiency of Building Services Installation, 2018 Edition, and Code of Practice for Building Energy Audit, 2018 Edition. From time to time, we organise technical forums and trade education sessions to promote best practices with the industries. For instances, we organise the Outstanding Registered Electrical Worker Awards Scheme biennially to promote work safety awareness among electrical workers. More details can be found in the chapters of **Environmental Performance** and **Social Performance**.

營運服務的可持續發展方針

營運服務可持續發展方針涵蓋專業機電服務，並結合環保措施，藉此改善客戶場地的能源效益表現。我們嚴格遵守相關的環境及社會法規，並執行本署的環保、工作安全與健康政策。我們採用結合ISO 9001:2015、ISO 14001:2015及OHSAS 18001:2007認證的綜合管理系統，致力在品質、環境和職業安全健康等多個可持續發展層面尋找改善空間，作出改進。

多年來，機電工程營運基金與客戶建立了長遠伙伴關係，並與業界廣泛合作，共同推動香港可持續發展。為達致可持續發展的低碳經濟，機電工程營運基金將繼續為客戶提供適切的先進能源效益技術，助他們創造長遠的可持續發展價值。

管理可持續發展相關風險

奏效的風險管理是可持續發展的關鍵之一，有助我們為不同情況作好準備，藉以應對環境及社會的變化。

為確保專業服務，以及維持機電安全和品質，我們定期為客戶安排機電系統和設備的預防性維修保養，在日常營運和供應鏈則採取風險預防措施，務求在可行的情況下減少對環境和社會的負面影響。我們會根據評估結果發掘新的發展機遇，並納入企業及業務計劃作為日後的指引。

持份者的參與

我們定期與各持份者溝通聯繫，透過多種渠道聽取他們的意見，努力達致他們的期望。

持份者參與活動的範圍及界限涵蓋受機電署的營運、資源、產品及服務直接影響，或參與在內的持份者。

Sustainability Approach in our Trading Services

Our sustainability approach in trading services is well embedded throughout the provision of professional E&M service and incorporation of environmental practices to improve energy efficiency performance at our clients' premises. We strictly comply with relevant environmental and social regulations and adhere to our Environmental & Occupational Health and Safety Policies. We adopt an Integrated Management System (IMS) that comprises ISO 9001:2015, ISO 14001:2015, and OHSAS 18001:2007 to help us identify opportunities for improvement in a range of sustainability aspects such as quality, environmental, and occupational health and safety.

Over the years, the EMSTF has established long-term partnership with clients and extensive collaboration among the trade to make a positive impact on sustainable development of Hong Kong. Towards sustainable low carbon economy, the EMSTF will continue to apply state-of-the-art energy efficiency technologies where appropriate for clients to create lasting sustainability values.

Managing our Sustainability-related Risks

Effective risk management is a key component of sustainable development and helps us prepare for different conditions associated with environmental and social changes.

To upkeep professional service delivery and uphold the E&M safety and quality, we schedule preventive maintenance for E&M systems and equipment with our clients, and adopt a risk-based precautionary approach in our operations as well as along our supply chain to minimise negative environmental and social impacts where feasible. Based on our assessment results, new development opportunities are also identified and set out in the Corporate and Business Plan that guides our future direction.

Stakeholder Engagement

We maintain regular communication with our stakeholders while listening to their feedback and addressing expectations through a number of channels.

The scope and boundary of our stakeholder engagement activities cover stakeholders directly affected by or involved in the EMSD's operations, resources, products and services.

可持續發展管理方針
Sustainability Management Approach

我們的主要持份者及參與渠道 [16, 17]

Our Key Stakeholders and Engagement Channels [16, 17]

客戶 **Clients** **政府決策局及部門** **Government Bureaux and Departments**	客戶意見調查及訪問 Customer Opinion Surveys and Interviews 電話調查 Telephone Surveys 客戶通訊 Customer Newsletters 合作項目 Joint-projects 會議 Meetings 研討會及座談會 Symposiums and Seminars 持份者參與問卷調查 [18] Stakeholder Engagement Questionnaires[18]
供應商及承辦商 **Suppliers and Contractors**	持份者參與問卷調查 [18] Stakeholder Engagement Questionnaires[18] 會議 Meetings
員工 **Staff**	員工滿意度調查 Staff Satisfaction Surveys 員工工會及員工協商委員會 Staff Unions and Departmental Consultative Committees 焦點討論小組 Focus Groups 員工通訊 Staff Newsletters 高級管理層親善大使探訪 Ambassador Visits by Senior Management 培訓課程 Training Sessions 比賽及團隊建立活動 Competitions and Team-building activities 會議 Meetings 持份者參與問卷調查 [18] Stakeholder Engagement Questionnaires[18]

16 大多數持份者參與渠道每年進行至少一次。

17 102-43

18 持份者參與問卷調查為報告編製過程中特定進行的一部分。

16 Majority of the engagement channels take place at least once every year.

17 102-43

18 Stakeholder Engagement Questionnaires were undertaken specifically as part of the report preparation process.

專業團體及行業公會 **Professional and Trade Associations** **受規管行業** **Regulated Trades** 	業界參與計劃 Trade Engagement Programme 研討會及座談會 Symposiums and Seminars 工作小組 Working Groups 會議 Meetings
公眾人士 **General Public** **學術團體** **Academia** **非政府組織** **Non-governmental Organisations** **培訓機構** **Training Institutes** 	機電安全及節能社區推廣活動 Community-wide Promotion of E&M Safety and Energy Efficiency 合作項目 Joint-projects 研討會及座談會 Symposiums and Seminars 會議 Meetings 通訊 Newsletters YouTube
傳媒 **Media** 	傳媒聚會 Media Gatherings 就傳媒查詢回應及發表意見 Feedback and Responses to Media Enquiries

可持續發展管理方針
Sustainability Management Approach

聯繫我們的客戶

我們積極為客戶提升機電服務的標準和質素。為此，本署每兩年委託獨立市場研究公司進行一次客戶意見調查，以協助我們提升客戶體驗。最近期的客戶意見調查在2018年進行，調查結果顯示我們的客戶滿意指數達到6.61分（8分為滿分），再創歷史新高。

我們不斷提升對客戶的服務質素，並於2018年設立新的客戶服務中心。我們在機電工程營運基金策略計劃中訂明目標，致力與客戶推行數碼化，利用現有的「顧客為本電子平台 — 工作管理」系統推行無紙環保作業，增進用戶的體驗。

在處理客戶私隱方面，我們嚴格遵從《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。年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

機電署的產品及服務不但符合法律規定，並會參照國際環境及職安健標準。承辦商和供應商與我們緊密合作，協力提供安全優質的機電服務，以及供應與機電安裝、操作和維修相關的零件、設備及服務。與此同時，我們也積極管理供應鏈衍生出的能源、廢物及用水以至物料消耗對環境的影響，機電署要求承辦商和供應商嚴守ISO 14001:2015標準訂明的環境規定。

在甄選承辦商和供應商時，我們依從公開及公平的程序進行。我們歡迎所有供應商登記納入機電署供應商名冊，以及讓他們的環保產品記錄於本署的數據庫上。我們向承辦商、顧問公司及供應商提供《指引：機電工程署規管服務單位致承辦商、顧問公司及供應商的環保指引》，鼓勵他們盡量以可持續的方式提供優質的產品和服務。我們亦會定期檢討承辦商的表現，確保他們已設有穩健的安全管理系統。此外，機電署亦遵守所有管制反競爭行為的本地法律及規例。

Engaging our Clients

We strive to uplift our E&M service standards and service quality to our clients. As such, we have appointed an independent market research company to conduct a Customer Opinion Survey (COS) every two years to assist us in enhancing customer experience. The latest COS was conducted in 2018, and the survey result, of which – Customer Satisfaction Index, hits a record high of 6.61 out of 8.

To continue to excel in our customer services, the new Customer Service Centre (CSC) was put into operation in 2018. As set out in the EMSTF Strategic Plan, we target to implement digitisation with the participation of clients and foster user experience in a paperless and environment-friendly approach using our Customer Centric e-Platform – Job Management system.

When it comes to customer data privacy, we strictly adhere to the Personal Data (Privacy) Ordinance and our Privacy Policy to ensure that all personal data are properly handled. During the year, we did not record any complaints or breaches regarding customer privacy and losses of customer data.

Managing our Supply Chain

Our products and services are not only in compliance with legal requirements, but also often in reference to international environmental and safety and health standards. Our contractors and suppliers work closely with us in delivering safe and quality E&M service as well as in provision of parts or equipment and services related to E&M installation, operation and maintenance. Regarding managing environmental impacts of energy, waste and water along our supply chain, as well as those arising from material consumption, we request our contractors and suppliers to stringently observe the environmental requirements as stipulated by the ISO 14001:2015 standard.

When selecting contractors and suppliers, we follow an open and fair process. All suppliers are welcomed to register on the EMSD Suppliers List and their environmental-friendly products would be recorded in our database. We share with our contractors, consultants and suppliers a Guidance Note: for Contractors, Consultants and Suppliers of EMSD Regulatory Services to encourage them to provide quality goods and services in a sustainable manner wherever applicable and available. Regularly, we review the performance of contractors and ensure that they have a robust safety management system in place. In addition, the EMSD is committed to complying with any local law and regulations that guard against anti-competitive conduct.

為促進香港長遠可持續發展，我們鼓勵在供應鏈上注重公德，竭力紓減負面影響。多年來，我們的承辦商都悉力達致「零意外」，並在工作上大大表現出對工人、社區和環境的關顧。同時機電署亦鼓勵承辦商構思創新意念，改進他們在施工時的表現。

To facilitate long-term sustainable growth in Hong Kong, we encourage consideration and every effort to be made in the supply chain to minimise negative impact. Over the years, our contractors continuously target to achieve "Zero Accidents" while demonstrating great consideration to workers, neighbours and the environment at work. We also encourage contractors to provide innovative ideas for better performance on-site.

在2018/19年度，我們共有兩項維修、保養、改建及加建工程合約於第24屆公德地盤嘉許計劃中獲得銅獎和優異獎。機電署的管理層及監督人員與承辦商出席頒獎典禮，共同分享喜悅。

In 2018/19, two of our repair, maintenance, alteration and addition works contracts were granted the Bronze Award and the Merit Award in the 24th Considerate Contractors Site Award Scheme. The EMSD management and supervisory staff shared the joy with our contractors at the prize presentation ceremony.

可持續發展的卓越成果

我們銳意推進可持續發展，欣然與持份者分享在可持續發展路上的重要時刻，並且感謝他們的支持。我們亦很榮幸於匯報年度內在多個獎項計劃及比賽中脱穎而出，獲得肯定。

Sustainability Excellence

On our way towards sustainable development, we share important moments with our stakeholders, and appreciate their support. Also, we are honoured to be recognised in multiple awards and competitions for the reporting year.

可持續發展管理方針
Sustainability Management Approach

獎項及嘉許

機電署於匯報年度獲得多個業界獎項及嘉許。透過參與各種比賽及計劃，有助我們與業界在表現上進行基準比較，並學習良好作業和緊貼先進的創新及科技，讓香港成為一個綠色及智慧城市。

Awards and Recognitions

In the reporting year, we received awards and recognitions from the industry. By engaging in various competitions and schemes, we can benchmark our performance and learn about best practices and advanced innovations and technologies that will transform Hong Kong into a green and smart city.

世界技能大賽香港代表選拔賽2018
WorldSkills Hong Kong Competition 2018

機電署鼓勵年青的見習技術員參加各類技能比賽，挑戰自我。2018年4月，本署三位二級見習技術員（電氣），包括何培楓先生（左三）、陳宇泰先生（中）及陳浩賢先生（右二），在「世界技能大賽香港代表選拔賽2018」的「電氣安裝」類別中取得頭三名。陳宇泰先生更參加於俄羅斯舉行的2019年喀山「世界技能大賽」，代表香港角逐殊榮。

The EMSD encourages young technician trainees to challenge themselves in technical competitions. In April 2018, three of our Technician Trainees II (Electrical), Mr Ho Pui-fung (third left), Mr Chan Yu-tai (middle) and Mr Chan Ho-yin (second right), won the first three places in the "Electrical Installations" trade of WorldSkills Hong Kong Competition 2018. Mr Chan Yu-tai would represent Hong Kong to compete in the WorldSkills Kazan 2019 in Russia.

建造業議會可持續建築大獎
Construction Industry Council Sustainable Construction Award

2018年10月，機電署助理工程師羅婷丰女士（左五）榮獲建造業議會可持續建築大獎的年青從業員卓越獎，嘉許她在啟德發展區推廣區域供冷系統應用創新技術解決方案，促進可持續發展。

In October 2018, our assistant engineer, Miss Law Ting-fung, Michelle (fifth left), was presented with the Young Practitioner – Excellent Award, under the Construction Industry Council Sustainable Construction Award, for promoting the use of innovative technologies solution for sustainable development in the District Cooling System at Kai Tak Development.

榮獲美國能源工程師協會亞太區區域能源項目獎

Regional Energy Project of the Year Award for the Asia-Pacific region by the Association of Energy Engineers

2018年10月，機電署獲美國能源工程師協會頒發亞太區區域能源項目獎。獲獎項目由機電署、香港中華煤氣有限公司與醫院管理局攜手研發。這是本港首個在醫院應用的熱電聯產發電項目，利用堆填區產生的沼氣為大埔雅麗氏何妙齡那打素醫院發電，實踐轉廢為能。

In October 2018, the EMSD was awarded the Regional Energy Project of the Year Award for the Asia-Pacific region by the Association of Energy Engineers. This award-winning project was jointly developed under the collaboration of the EMSD, the Hong Kong and China Gas Company Limited, and the Hospital Authority. It is the first combined heat and power electricity generation project for Hong Kong hospitals, which utilises biogas generated from landfills to produce electricity for Alice Ho Miu Ling Nethersole Hospital, turning waste into energy.

香港工程師學會青年會員創意獎2019及傑出青年工程師獎2019

Hong Kong Institution of Engineers (HKIE) Innovation Awards for Young Members 2019 and the Young Engineer of the Year Award 2019

機電署一向不遺餘力應用創新工程知識，令公共服務達致更卓越水平。2019年3月，本署與香港科技大學聯合研發的智能發燒偵測系統奪得「香港工程師學會青年會員創意獎2019（組別I — 發明）大獎」。我們的「智能眼碌碌」空調控制系統亦於另一組別（組別II — 創新應用）贏得優異獎。機電署的工程師陸珮群女士（後排右三）更獲頒本年度「傑出青年工程師獎」。

The EMSD was devoted to applying innovative engineering knowledge to enhance public services quality. In March 2019, the Smart Fever Screening System jointly developed by the EMSD and the Hong Kong University of Science and Technology was awarded a grand prize of the HKIE Innovation Awards for Young Members 2019 (Category I – An Invention). Our NeuroSmart Eyes Air-conditioning Control System also won a merit award in another category (Category II – An Innovative Application of Engineering Theories). In addition, the Young Engineer of the Year Award 2019 was presented to our engineer, Miss Luk Pui-kwan, Clare (third right, last row).

可持續發展管理方針
Sustainability Management Approach

2018年傑出學徒獎勵計劃
2018 Outstanding Apprentices Award

2019年3月，其中一名參與本署技術員訓練計劃的見習電子技術員李穎聰先生（前排右三），在242名被提名參加職業訓練局舉辦的傑出學徒獎勵計劃的候選人中，獲選為2018年傑出學徒。

In March 2019, one of our electronics technician trainees under the Technician Training Scheme, Mr Lee Wing-chung, Vincent (third right, front row), was selected as one of the 2018 Outstanding Apprentices by the Vocational Training Council out of 242 nominations.

機場管理局工程承包商安全運動2018/19
Airport Authority's Technical Services Department (TSD) Contractors Safety Campaign 2018/19

我們負責機場工程的同事的安全表現獲得香港機場管理局（機管局）認同。在機管局工程及維修部所舉辦的工程承包商安全運動2018/19中，何德成先生（右一）、孫瑋泰先生（右四）及劉晨杰先生（右五）獲得安全知識比賽亞軍。機電署亦於工程及維修部承包商安全運動2018/19中獲得企業嘉許獎。

Our colleagues responsible for airport engineering services received a high recognition in their excellent safety performance from the Airport Authority Hong Kong. Mr Ho Tak-shing (first right), Mr Suen Wai-tai (fourth right) and Mr Lau Sen-kit (fifth right) won the first runner-up in the Safety Knowledge Competition. The EMSD also received the Corporate Recognition Award in the TSD Contractors Safety Campaign 2018/19.

ARC AWARDS INTERNATIONAL XXXIII
2019 WINNER

機電工程署的《社會及環保報告2017/18》在專業傳訊評選機構 MerComm, Inc.主辦的2019年ARC國際年報大獎「非牟利機構（網上年報）：綠色/環保年報」組別中榮獲銀獎。ARC國際年報大獎是備受業界尊崇的國際年度年報比賽，旨在評估和表彰卓越、清晰、有效和具創意的溝通。

The EMSD Social and Environmental Report 2017/18 won the Silver Award in the category of "Non-Profit Organisation (Online A.R.): Green/Environmentally Sound Report" at the 2019 International Annual Report Competition (ARC) Awards, curated by MerComm, Inc., a professional communication awards organisation. The award is a highly respected and prestigious competition in the industry that evaluates and honours the excellence, clarity, effectiveness and creativity of communication.

機電工程署的社會及環保報告2017/18
The Social and Environmental Report 2017/18 of the EMSD

年度重點 Highlights of the Year

2018年6月
June 2018

與廣州市工貿技師學院簽署《人才培訓合作備忘錄》。

Signed the Memorandum of Co-operation for Talent Training with the Guangzhou Industry and Trade Technician College.

2018年11月
November 2018

與廣州市人力資源和社會保障局簽署《機電人才發展合作備忘錄》。

Signed the Memorandum of Co-operation on E&M Talent Development with the Guangzhou Municipal Human Resources and Social Security Bureau.

2018年4月
April 2018

機電工程營運基金制訂第二個五年策略計劃，擬定三套策略：機電數碼化、培育團隊及科技 • 創新。

Commenced the EMSTF's second Five-year Strategic Plan with three strategies: E&M Digitisation; Excellent Work Team, and Technology • Innovation.

2018年9月
September 2018

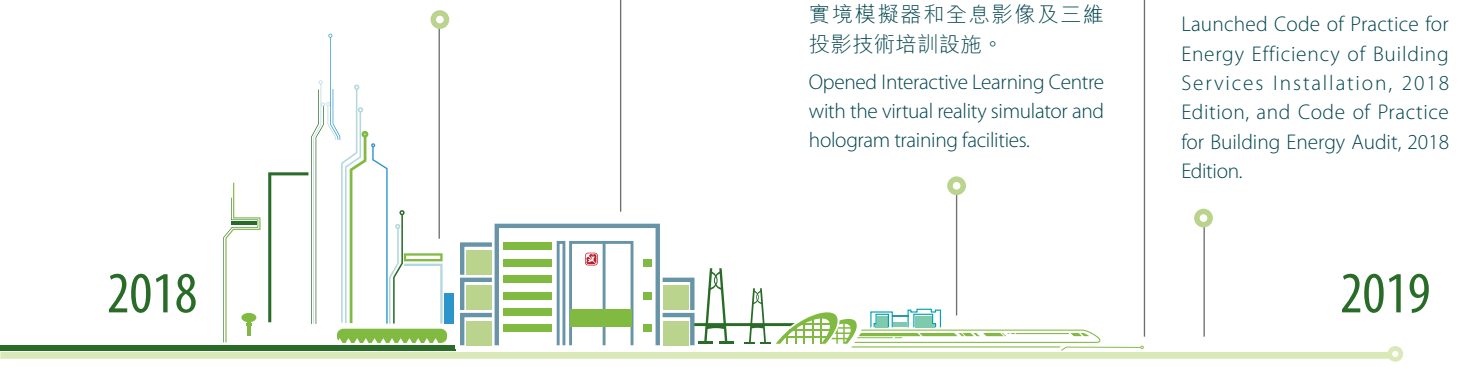
開設互動學習中心，配備虛擬實境模擬器和全息影像及三維投影技術培訓設施。

Opened Interactive Learning Centre with the virtual reality simulator and hologram training facilities.

2018年11月
November 2018

發布《屋宇裝備裝置能源效益實務守則》2018年版及《建築物能源審核實務守則》2018年版。

Launched Code of Practice for Energy Efficiency of Building Services Installation, 2018 Edition, and Code of Practice for Building Energy Audit, 2018 Edition.



2018年5月
May 2018

代表中國香港主辦亞太經濟合作組織(亞太經合組織)能源工作組第55次會議，共商減少能源強度及使用可再生能源的目標。

Hosted the 55th Asia-Pacific Economic Cooperation (APEC) Energy Working Group meetings on behalf of Hong Kong, China, to discuss goals for reducing energy intensity and the use of renewable energy.

2018年9月
September 2018

舉行機電署七十周年典禮。

Held the EMSD 70th Anniversary Ceremony.

2018年11月
November 2018

於機電工程署研討會2018上簽署《粵港澳大灣區建築物重新校驗(再調適)合作備忘錄》。

Signed the Memorandum of Co-operation on Retro-commissioning (RCx) of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area in the EMSD Symposium 2018.

2019年1月
January 2019

發出《建築信息模擬 — 資產管理標準及指引》(2.0版)。

Issued the Building Information Modelling for Asset Management (BIM-AM) Standards and Guidelines (Version 2.0).

2018年12月
December 2018

發布更新的《重新校驗技術指引(2018)》。

Updated and issued the Technical Guidelines on Retro-commissioning (2018).

環保成效
Environmental Performance

為達到香港政府訂下於2030年把碳強度由2005年水平降低65%至70%的目標，機電署多年來高度重視保護環境，轄下所有服務和業務也周全考慮環境因素。我們會繼續檢討法例、政策倡議及計劃以制訂監管要求，和提高公眾對能源效益的意識，為香港的可持續發展作出貢獻。與此同時，我們在日常營運積極優化能源使用，盡量減少耗用資源和產生碳排放。機電署透過執行環境管理系統，並且依從環保採購指引，致力實施環保措施，以及持續加強相關工作。

To attain the goal of Hong Kong Government 65% to 70% carbon intensity reduction in 2030 compared to 2005 level, we have attached great importance to environmental protection over the years, taking both our services and operations into consideration. We continue to review legislations, policy initiatives and schemes to set regulatory requirements and promote public awareness in energy efficiency to contribute to the city's sustainable development. Meanwhile, we strive for optimisation of energy use throughout our operations to minimise resource consumption and carbon emission. By implementing Environmental Management System and adopting green procurement guidelines, we are committed to introducing environmental measures and enhancing our practices on an on-going basis.

優化香港的能源效益

機電署提供專業技術，並且與廣大社會分享推動能源效益的使命。我們的服務涵蓋多個範疇，其中包括發布指引和實務守則，例如《建築物能源效益守則》，以及與各行各業合作推廣善用電能等。我們亦不斷研究先進的節能技術，並與業界分享有關能源效益和可再生能源技術的最佳作業方法。以下是機電署於本匯報年度為優化香港能源效益而推行的各項重要措施。

Enhancing Energy Efficiency for the City

At the EMSD, we provide technical expertise and share the mission of driving energy efficiency for the city. Our services span across a range of areas, including issuing guidelines and codes of practices such as Building Energy Code, working with trades to promote the efficient use of electricity. We also continue to explore advanced energy efficiency technologies and share good practices with the industry on energy efficiency as well as renewable energy technologies. The following are the highlights of the EMSD's initiatives in enhancing energy efficiency for the city in the reporting year.

強制性能源效益標籤計劃

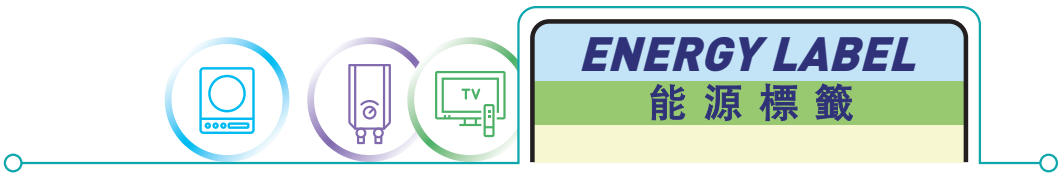
為協助市民選購高能源效益的電器，並提高公眾的節能意識，機電署自2009年推出「強制性能源效益標籤計劃」，規定在香港售賣的訂明產品需貼上能源標籤，讓消費者得知標籤上所標明產品的能源效益表現。

「強制性能源效益標籤計劃」第三階段已於2018年6月1日起正式生效，此階段新增三種電氣產品，包括電視機、儲水式電熱水器及電磁爐。除此之外，計劃亦擴大現行兩類訂明產品的涵蓋範圍，納入逆轉循環型空調機的供暖功能和額定洗衣量超過7公斤但不超過10公斤的洗衣機。

Mandatory Energy Efficiency Labelling Scheme

To facilitate the public in choosing energy-efficient appliances and raising public awareness on energy saving, the EMSD has introduced the Mandatory Energy Efficiency Labelling Scheme (MEELS) since 2009 in which energy labels were required to be shown on prescribed products in Hong Kong to inform consumers of their energy efficiency performance.

The MEELS entered its third phase on 1 June 2018. Three additional types of electrical products were covered now under the scheme, namely televisions, storage type electric water heaters, and induction cookers. Furthermore, the scope of two existing types of prescribed products was expanded to include the heating performance of reverse cycle type room air-conditioners and washing machines with rated washing capacity exceeding 7 kg but not exceeding 10 kg.



建築物能源效益

《建築物能源效益條例》

政府於2012年9月實施《建築物能源效益條例》以監管建築物的能源效益，而機電署同年開始發布《建築物能源效益守則》及《能源審核守則》，規管屋宇裝備裝置，確保符合指定的設計標準，並規定商業樓宇業主每十年進行一次能源審核。

機電署於2018年年底完成了《建築物能源效益守則》及《能源審核守則》的修訂工作，正式發布2018年版的《屋宇裝備裝置能源效益實務守則》(亦簡稱《建築物能源效益守則》)和《建築物能源審核實務守則》(亦簡稱《能源審核守則》)，使建築物達到更高能源效益。最新版的《建築物能源效益守則》進一步收緊屋宇裝備裝置的能源效益標準和規定，比2012年版提高約18%。隨着新版《建築物能源效益守則》於2019年生效，《建築物能源效益條例》預期在2012年至2028年期間可為本港所有新建和現有建築物節省約270億千瓦小時電力，相當於減少約1 900萬公噸二氧化碳排放。而新的《能源審核守則》則對能源審核的技術規範訂明更嚴格的要求。

Buildings Energy Efficiency

Buildings Energy Efficiency Ordinance

To regulate buildings' energy efficiency in Hong Kong, the Buildings Energy Efficiency Ordinance (BEEO) has been effective since September 2012. In the same year, the EMSD started to promulgate the Building Energy Code (BEC) and Energy Audit Code (EAC) to regulate building services installation for compliance of the stipulated design standards, and to require owners of commercial buildings to carry out energy audit once every ten years respectively.

The EMSD completed the revision of the BEC and EAC in late 2018, and published the 2018 Edition of Code of Practice for Energy Efficiency of Building Services Installation (also known as Building Energy Code (BEC)) and Code of Practice for Building Energy Audit (also known as Energy Audit Code (EAC)) aiming to further enhance the energy efficiency of buildings. The energy efficiency standards and requirements of building services installations are further tightened in the new edition of BEC, resulting in an over 18% improvement compared with the 2012 Edition. With the new edition of the BEC taking effect in 2019, it is expected that the implementation of BEEO will achieve an energy saving of about 27 billion kWh from both new buildings and existing buildings in Hong Kong between 2012 and 2028, which is equivalent to a reduction in carbon dioxide emissions of about 19 million tonnes. Meanwhile, the new edition of EAC imposes more stringent requirements on the technical aspects for conducting energy audits.

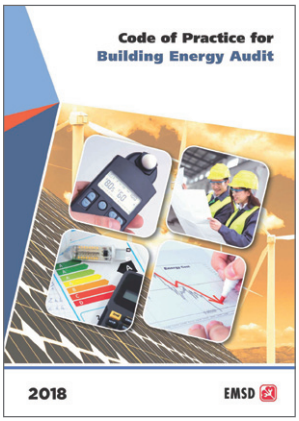
2018年版《屋宇裝備裝置能源效益實務守則》於2019年5月16日起適用於新建建築物，並於2019年8月16日起適用於現有建築物。

The Code of Practice for Energy Efficiency of Building Services Installation, 2018 Edition, is applicable to newly constructed buildings effective on 16 May 2019 and to existing buildings effective on 16 August 2019.

環保成效
Environmental Performance

2018年版《建築物能源審核實務守則》於2019年8月16日生效。

The Code of Practice for Building Energy Audit, 2018 Edition, effective on 16 August 2019.



建築物重新校驗

我們除了提倡高能源效益的建築設計，也積極推動重新校驗的發展和應用，透過改善現有樓宇的運作效率節省能源。繼2017年發布首份《重新校驗技術指引》後，機電署於2018年12月發布更新的《重新校驗技術指引(2018)》，新增內容包括重新校驗的籌備工作、數據管理和中央控制管理系統的要求，向樓宇業主、操作人員及其他持份者提供更全面及詳細的程序指引，以便進行重新校驗。

年內，我們在重新校驗的發展路上再立里程碑。2018年11月15日，機電署與香港、澳門及內地多個機構簽訂《粵港澳大灣區建築物重新校驗(再調適)合作備忘錄》，促進粵港澳大灣區以及其他內地城市的進一步合作，協力推廣和採用重新校驗作為提升建築物能源效益的新方案。此合作備忘錄為各方合作奠下基石，透過經驗分享和資訊交流提高技術才能。

Retro-commissioning of Buildings

In addition to building energy efficiency designs, we actively promote the development and application of Retro-commissioning (RCx), so as to improve the operational efficiency of existing buildings for energy saving. Following the launch of the first Technical Guidelines on Retro-commissioning (TG-RCx) in 2017, the EMSD updated and issued the Technical Guidelines on Retro-commissioning (2018) (TG-RCx 2018) in December 2018. New topics, including the preparation of RCx, data management, requirements on Central Control Management System were added in the TG-RCx 2018 to provide more comprehensive and detailed procedural guidance to the buildings' owners, operators and other stakeholders in carrying out RCx.

Another milestone was achieved for the RCx development on 15 November 2018 when we signed a Memorandum of Co-operation (MoC) on RCx of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area with various organisations in Hong Kong, Macau and Mainland China. The MoC fosters further collaboration among the Greater Bay Area and other Mainland cities to promote and adopt RCx as a new solution for achieving higher buildings energy efficiency. The MoC also laid down a solid foundation for different parties to develop technical competence through experience sharing and information exchange.

《粵港澳大灣區建築物重新校驗(再調適)合作備忘錄》簽署儀式。

The Signing Ceremony of Memorandum of Co-operation on Retro-commissioning (RCx) of Buildings in the Guangdong-Hong Kong-Macao Greater Bay Area.

提倡使用可再生能源

政府一直致力推廣發展可再生能源，鼓勵香港各界廣泛使用，並於2018/19年度撥款8億元在現有政府建築物、場地和社區設施安裝可再生能源設備。下圖列出機電署於匯報年度推廣可再生能源的主要項目。

Promoting the Use of Renewable Energy

The Government actively promotes the development of renewable energy (RE) and encourages wider adoption of RE in Hong Kong. In 2018/19, the Government allocated $800 million for the provision of the RE installations in existing government buildings, venues and community facilities. The following figure highlighted our promotion of RE during the reporting year.

2018年5月
May 2018

網頁升級後的「香港可再生能源網」，方便公眾查詢可再生能源的最新資訊及參考材料。

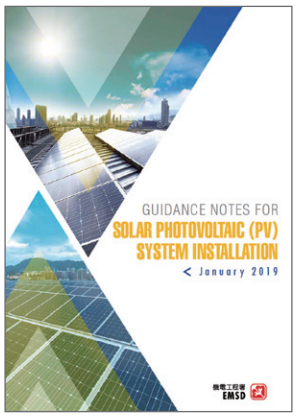
The revamped website of Hong Kong Renewable Energy Net launched to improve public access to the latest information and reference materials on RE.

2019年3月
March 2019

推出「採電學社：學校及非政府福利機構太陽能支援計劃」，倡導合資格學校和非政府福利機構使用可再生能源。這項免費計劃為合資格申請者提供一站式服務，協助他們安裝太陽能光伏系統及加入上網電價計劃。

The Solar Harvest – Solar Energy Support Scheme for Schools and Welfare Non-governmental Organisations was introduced to promote the use of RE in eligible schools and welfare non-governmental organisations. This free-of-charge scheme provides eligible applicants with one-stop service on solar PV system installation and how to join the Feed-in Tariff Scheme.

2018 4 5 6 7 8 9 10 11 12 1 2 3 4 2019



2019年1月
January 2019

發布《太陽能光伏系統安裝指南》，加深公眾對太陽能光伏系統的認識及了解申請上網電價的程序。

The Guidance Notes for Solar Photovoltaic (PV) System Installation issued to assist the public to better understand solar PV system installation and the Feed-in Tariff application procedures.

環保成效
Environmental Performance

淡水冷卻塔計劃

淡水冷卻塔計劃自2000年推行以來，一直以非住宅樓宇為目標，旨在鼓勵於這類建築物更廣泛採用淡水冷卻塔的高能效空調系統，截至2019年3月，機電署合共接獲1 150項有關申請，當中有2 600[19]個淡水冷卻塔已落成並投入運作。按照估計，已落成的裝置每年可節省5.3億千瓦小時用電量，相當於每年減少排放約370 000公噸二氧化碳。為管理淡水冷卻塔的水質，機電署於2018/19年度採集了980個淡水冷卻塔的水質樣本，檢驗退伍軍人桿菌總數有否超出指定上限。

啟德區域供冷系統

啟德區域供冷系統是大型中央空調系統，設有中央製冷機組供應冷凍水，透過地下水管網絡輸送到啟德發展區內的建築物。此計劃的第I、II期及第III期(組合甲)的工程已經先後於2013年、2014年及2017年落成，第III期(組合乙)及(組合丙)的工程將於2020年啟用，進一步促進用戶對區域供冷系統的使用，為用戶帶來多重效益。截至2019年3月，區內共有十座建築物使用區域供冷系統。

按照估計，區域供冷系統的用電量分別比傳統風冷式系統和獨立水冷式系統減少35%及20%，因此啟德發展區使用區域供冷系統每年可節省約8 500萬千瓦小時電力，相等於每年減少59 500公噸碳排放。

啟德發展計劃區域供冷系統用戶(截至2019年3月)

Fresh Water Cooling Towers Scheme

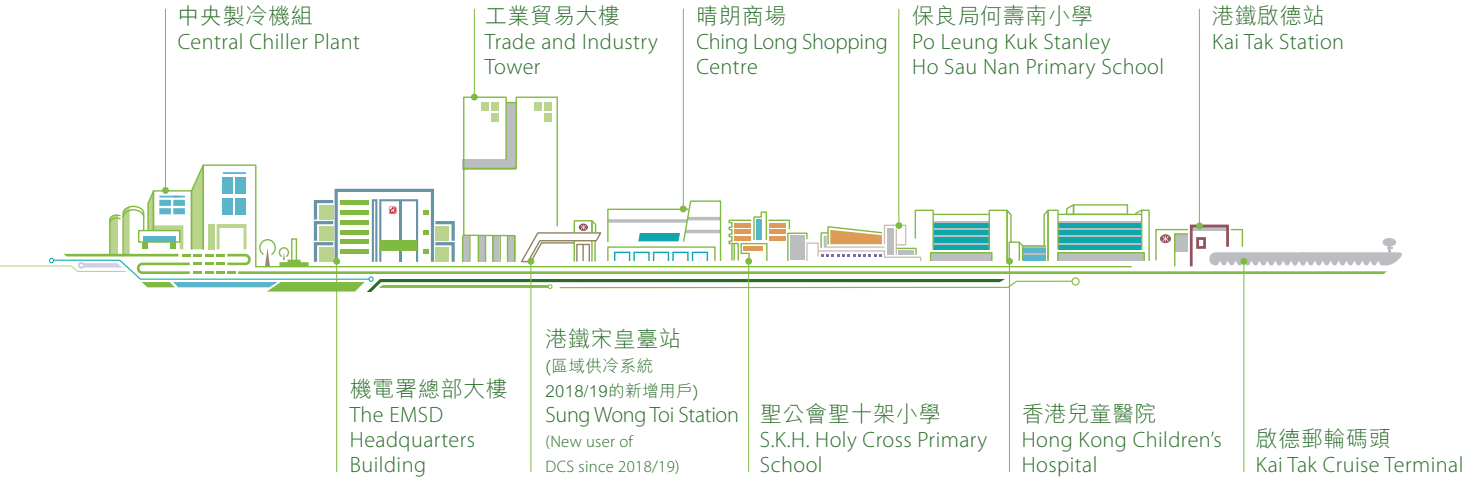
Since its launch in 2000, the Fresh Water Cooling Towers (FWCT) Scheme has been targeting at the non-domestic buildings to encourage a wider use of fresh water cooling towers for energy-efficient air-conditioning. As of the end of March 2019, the EMSD had received 1 150 applications since the introduction of FWCT Scheme. Amongst them, 2 600[19] FWCTs have been completed and put into operation. It is estimated that these successful installations could save up to about 530 million kWh electricity annually, which is equivalent to around 370 000 of tonnes carbon reduction. To manage the water quality of the FWCTs, the EMSD took 980 water samples in 2018/19 from FWCTs to check the total legionella count in water samples are within the stipulated threshold.

District Cooling System at the Kai Tak Development

The District Cooling System (DCS) is a large scale centralised air-conditioning system that uses chilled water from the central plants to provide cooling to multiple buildings at Kai Tak Development (KTD) connected by an underground water piping system. Phase I, II and III (Package A) of the KTD DCS project were completed in 2013, 2014 and 2017 respectively, while Phase III (Package B) and (Package C) will be scheduled to be put into operation in 2020 with an aim to further promote the uptake of DCS that can bring multiple benefits to users. As of March 2019, ten buildings were using DCS.

It is estimated that DCS consumes 35% and 20% less electricity as compared to traditional air-cooled systems and individual water-cooled systems respectively. As a result, the use of DCS at KTD can save approximately 85 million kWh electricity annually, equivalent to 59 500 tonnes of carbon reduction per annum.

Users of DCS at KTD (as of March 2019)



[19] 每個淡水冷卻塔申請可能涉及一個或以上的淡水冷卻塔。

[19] Each FWCT application may involve one or more than one cooling tower(s).

機電署綠色工作環境

機電署的員工嚴格遵守環保政策，致力採取環保措施，在工作場所培養綠色文化，以減少營運對環境的影響。早於2000年，我們已實施環境管理系統，並持續管理空氣、水、噪音、土地污染、資源使用和動植物生態各方面的環保工作，以實現妥善的環境管理。

環保目標

Green Workplace at the EMSD

At the EMSD, our staff adhere closely to Environmental Policy. We strive to adopt environment-friendly measures and cultivate a green culture at workplace to reduce environmental impacts of our operations. With the adoption of the Environmental Management System since 2000, we continue to control our environmental aspects covering air, water, noise, land contamination, resource use, flora and fauna to achieve good environmental management.

Environmental Targets

2018/19年度環保目標 Environmental Targets in 2018/19	2018/19年度工作進展 Progress in 2018/19	2018/19年度工作成果 Achievements in 2018/19
機電署場地[20]經調整後用電量不超過10 405 200千瓦小時 Normalised electricity consumption for the EMSD venues[20] not exceeding 10 405 200 kWh	達標 Achieved	9 625 397千瓦小時 9 625 397 kWh
設定用紙量配額為31 068令 Paper consumption quotas are 31 068 reams	達標 Achieved	28 184令 28 184 reams

[20] 包括機電署總部、企業數據中心(不包括客戶用電量)、以及策略業務單位。

[20] Including the EMSD Headquarters, Corporate Data Centre (exclude client's usage) and Strategic Business Units.

廢物管理

辦公室紙品及碳粉盒廢物量趨勢

機電署產生的廢物主要來自辦公室及工場作業。為減低對環境的影響，我們嚴格遵從環境管理系統的措施，盡量回收廢舊物料以紓緩堆填區的壓力。從辦公室回收的廢棄物主要是紙張、碳粉盒和光管。

機電署自2001年開始採用再造紙，直至2018/19年度，我們全面採用回收再造紙品，而匯報期內的紙張採購總量為28 184令。

本署工場的作業包括翻新舊車胎及零件，和其他機電工程，例如安裝、保養及修理等。工場作業產生的廢物包括充電池、金屬廢料、含水銀照明燈及車胎。具體回收數據請參閱**統計資料摘要**。

Waste Management

Office Paper and Toner Waste Trend

The majority of the waste generated at the EMSD comes from office operation and workshop activities. Following the environmental procedures under the Environmental Management System, we recycle waste materials as far as practicable in order to minimise the impacts to landfill. The office waste that we recycle consists of paper, toner cartridges and fluorescent tubes.

We have implemented the adoption of recycled paper since 2001. In 2018/19, all our paper consumed was recycled paper and we purchased a total of 28 184 reams of paper.

As for our workshop activities that involve the restoration of worn vehicle tyres and parts as well as E&M works such as installations, maintenance and repairs, etc., the waste arising from workshop activities are rechargeable batteries, metal scraps, mercury lamps, and vehicle tyres. More data on waste recycling of these materials can be found in the **Summary of Statistics**.

環保成效
Environmental Performance

減少氣體排放

車隊的廢氣排放

我們對日常作業設有嚴格的溫室氣體管制措施，由於機電署部分的碳足印源自部門的車隊，因此我們會確保妥善的車輛維修，再配合完善的內務管理和定期升級改良，盡量減低車輛的廢氣排放。目前機電署車隊的燃油耗用量比體積相近的傳統車輛少40%，有助降低本港的路邊空氣污染和碳排放。截至2019年3月31日，機電署轄下共有203部車輛，當中包括貨車、小型貨車、轎車及電單車，其中13部為電動車，6部為混合動力車輛。

機電署於2018/19年度的碳足跡(公噸)列表如下。

溫室氣體排放
公噸(二氧化碳當量)
Tonnes of CO_2-equivalent

7 251
總排放
Total Emissions

1 186
直接排放(範圍一)
Direct Emissions (Scope 1)

6 065
能源間接排放(範圍二)
Energy Indirect Emissions (Scope 2)

建築物排放量

除了車輛運輸，辦公室和工場用電亦是主要的溫室氣體排放源。於2018/19年度，除由第三方營運的員工飯堂及基建設施外(例如連接總部的行人天橋和無線電站)，我們轄下各政府建築物(例如總部大樓、工場、租用辦公室及數據中心)的總用電量較2013/14年度減少12%[21]。用電量下降是多項節能措施的成果，包括以發光二極管照明設備取代傳統燈具、辦公室於午飯時間關燈、調整通風系統運作時間、連接冷氣系統至區域供冷系統等。2018/19年度的能源強度為每平方米2 111千瓦小時。

[21] 此計算比較於2013/14至2018/19年度仍然運作的營運單位淨耗電量的改變。

Emission Reduction

Emission from Vehicle Fleet

We place tight control in greenhouse gas (GHG) emissions throughout our operations. A part of our carbon footprint comes from our vehicle fleet. As such, we keep our transportation emission as low as possible through proper vehicle maintenance, good housekeeping and regular upgrade for our vehicles. Currently, our vehicle fleet consumes 40% less fuel than conventional vehicles of similar size for reducing roadside air pollution and carbon emissions. As of 31 March 2019, the EMSD owned 203 vehicles including lorries, vans, saloon cars and motorcycles, of which 13 were electric vehicles and 6 were hybrid vehicles.

The graph below shows the breakdown of carbon footprint of the EMSD in 2018/19 (in tonnes).

Greenhouse Gas Emissions

Emission from Buildings

Apart from transportation, electricity consumption in our offices and workshops are the major GHG emissions sources. In 2018/19, the total electricity consumption of our government buildings (e.g. the headquarters, depots, rented offices and data centre) excluding staff canteen operated by the third party and infrastructure (e.g. the footbridge connecting to the headquarters, and radio stations) decreased by 12%[21] compared to 2013/14 level. This reduction was mainly contributed by replacing traditional luminaires with LED lights, switching off the lights during lunch time, adjusting the operation hours of the ventilation system, connecting our air-conditioning system to the District Cooling System, etc. In 2018/19, the energy intensity is 2 111kWh per m^2.

[21] The calculation compares the net consumption changes for operating units that are still under operations from 2013/14 to 2018/19.

本署政府建築物[22] 2013/14年度至2018/19年度的用電量列表如下：

Electricity consumption of our government buildings[22] from 2013/14 to 2018/19 is tabulated below:

	用電量 Electricity consumption		於相若運作情況下的用電量[21] Electricity consumption under comparable operating conditions[21]	
	千兆焦耳 GJ	'000千瓦小時 '000 kWh	千兆焦耳 GJ	'000千瓦小時 '000 kWh
2013/14 (基線 Baseline)[23]	53 057	14 738	/	/
2014/15	53 712	14 920 (+1.2%)	52 481	14 578 (-1.1%)
2015/16	53 993	14 998 (+1.8%)	52 495	14 582 (-1.1%)
2016/17	52 276	14 521 (-1.5%)	51 102	14 195 (-3.7%)
2017/18	42 818	11 894 (-19.3%)	47 671	13 242 (-10.1%)
2018/19	42 304	11 751 (-20.3%)	46 710	12 975 (-12.0%)

22 用電量包括機電署總部、企業數據中心、加路連山廠房以及所有策略業務單位的工場、廠房及中心。

23 此基準年乃參考政府公布的《香港都市節能藍圖2015~2025+》，當中以2013/14年為基準，訂定政府建築物的能源消耗五年內(即2019/20年)減少5%。

22 The electricity consumption covers the EMSD Headquarters, Corporate Data Centre, Caroline Hill Depot, and all Strategic Business Units' workshops, depots and centres.

23 This baseline year made reference to Energy Saving Plan for Hong Kong's Built Environment 2015~2025+ published by the Government, that used 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. 2019/20).

綠化總部大樓

多年來，機電署先後融入高能源效益的建築設計和採用節能技術，改善內務管理方式，致力減低總部的能源耗用量。本署總部大樓採用了下列措施以減少耗能及相關的碳足跡。

- 機電署總部大樓是首棟連接啟德區域供冷系統的現有建築物，能源效益比使用普通水冷式空調系統設置多個獨立冷卻塔的建築物高約20%
- 機電署總部大樓屋頂安裝了太陽能光伏系統，最高可產出350千瓦的再生能源。系統於2005年投入運作，迄今截至2019年3月底已為大樓供應220萬千瓦小時電力

Greening our Headquarters Building

Over the years, the EMSD has been incorporating energy-efficient building designs, implementing energy efficiency technologies, and optimising housekeeping practices, to reduce energy consumption at the headquarters. We have implemented the following measures at the headquarters building to reduce energy consumption and associated carbon footprint.

- As the first existing building connected to DCS at KTD, the building is about 20% more efficient than a building that uses a regular water-cooled air-conditioning system equipped with separate cooling towers
- A photovoltaic system installed on the rooftop can generate a maximum output of 350 kW of renewable energy. Since its inception in 2005, a total of 2.2 million kWh had been supplied for the building's use up to the end of March 2019

環保成效
Environmental Performance

- 辦公室、汽車維修站、火警逃生路線、洗手間及行車道等的所有傳統燈具均已改裝發光二極管照明設備
- 辦公室裝設智能風機盤管控制器
- 會議室加裝多功能傳感器探測人員移動、溫度和濕度
- 辦公室裝設多個光探測器調節人工照明設備
- 「綠建環評既有建築」最終鉑金級認證

- All traditional luminaires in the offices, vehicle workshops, fire escape routes, washrooms, driveways, etc. have been replaced with LED lights
- A Smart Fan Coil Unit Control System has been installed in offices
- Multi-functional sensors were added in meeting rooms to detect motion, temperature and humidity
- A number of photodetectors were installed in offices to regulate artificial lighting
- Final Platinum Rating in BEAM Plus Existing Buildings

掃描此二維碼或登入以下網址可連結至機電署總部大樓的「能源儀錶板」資訊。
The information on the "Energy Dashboard" can be accessed through scanning this QR Code or visit: https://bems.emsd.gov.hk/bems/ faces/dist/public.10031.139.xhtml.

節約用水

我們矢志減少整體食水用量，特設中水處理系統回收洗手盆及沐浴設施的廢水，經處理後作沖廁用途。洗手間亦廣泛採用節水傳感器控制用水量，以及在屋頂設置雨水回用系統，收集雨水並用於灌溉和洗車。上述措施推行後，本署的用水量持續在匯報年度下降。

此外，機電署總部大樓已連接啟德區域供冷系統，利用海水作冷卻媒體，用後可排出大海，取代了耗用淡水的傳統空調系統。我們確保污水在排入排水渠和水體前符合本地政府要求。

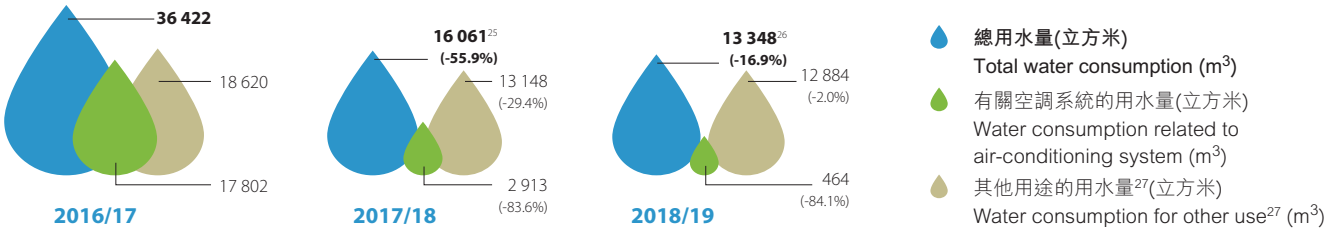
Water Conservation

The EMSD is committed to reducing our total potable water usage. We have adopted a grey water system to collect and process the waste water from the water basin and shower areas, and the processed water is used for toilet flushing. Water-saving sensor equipped water taps are widely applied in the toilets to help control water consumption. In addition, we have set up a rainwater collection system to collect rainwater from the roof for irrigation and car washing. With these measures in place, we continue to lower our water consumption throughout the reporting year.

By utilising DCS at the EMSD Headquarters Building, seawater was used as a cooling medium and then discharged to the sea to replace fresh water that was used in traditional air-conditioning systems. We ensure water discharge to drainage systems and water bodies were in compliance with local government requirements.

我們定期每年監察用水量，機電署的用水量列圖如下[24]：

Water consumption is monitored regularly every year. The water consumption at the EMSD is shown in the figure below[24]:



24 報告期內未訂立用水量相關目標。

25 用水量包括總部大樓(由第三方營運的飯堂除外)和加路連山工場。2017/18年度用水量的明顯跌幅主要由於機電署總部大樓自2017年5月應用區域供冷系統所致。

26 自2018年7月25日之後，加路連山工場的水冷式空調系統終止，令加路連山工場再無用水量，因此2018/19年度總用水量進一步下降。

27 包括用於機電署總部大樓及工場的灌溉、清潔及一般淋浴的用水。

24 No water-related goals and targets were set during the reporting period.

25 The water consumption covers the headquarters (excluding staff canteen operated by third party) and workshops in Caroline Hill. The significant drop of water consumption in 2017/18 was due to the application of District Cooling System since May 2017 at the EMSD Headquarters.

26 No more water was consumed at workshops in Caroline Hill after 25 July 2018 due to the termination of water-cooled air-conditioning system, resulting in further drop in total water consumption in 2018/19.

27 Including water use for irrigation, cleansing and general ablution purpose for the EMSD Headquarters Building and workshops.

環保採購

我們非常關注所有產品及服務的整個生命周期對環境影響，在任何適用及可行的情況下，會在採購指引加入環保要求。機電署甄選供應商時必會考慮他們的環保表現，鼓勵可供應環保產品的供應商登記成為機電署供應商。於2018/19年度，機電署供應商名冊共有837間環保供應商。年內，本署共斥資3,782萬元採購環保產品，佔部門總採購金額的8.25%以上。

Green Procurement

At the EMSD, we place a strong focus on the environmental implications of products and services throughout their lifecycles. Our procurement guidelines incorporate environmental requirements wherever applicable and available. When selecting suppliers, we consider their environmental performance and encourage those who are able to provide green products to register on the EMSD Suppliers List. In 2018/19, the EMSD Suppliers Lists consisted of 837 environment-friendly suppliers. During the year, we spent a total of $37.82 million (over 8.25%) of the total purchased value to procure green products.

為釐清服務及辦公室用品的採購規定或規格，我們於2010年成立了環保採購工作小組，協助員工就各類機電工程選定符合環保要求的材料、產品、系統及建造方法。此外，我們亦會按環境保護署擬備的環保規格作出參考。

Regarding procurement requirements or specifications for our services, we have a Working Group on Green Procurement in E&M Works since 2010 to identify appropriate green materials and products, systems and construction methodologies for E&M works. We also take reference from the green specifications established by the Environmental Protection Department.

社會成效
Social Performance

作為政府部門及領頭的機電工程服務供應商，機電署充分理解其在社會所擔當的獨特角色，致力貢獻社會。憑藉部門的資源與人才，我們不斷提升服務，滿足市民的需要。作為一個有社會責任感的僱主，我們亦重視對員工的關愛，致力提供良好安全的工作環境和多元化的培訓發展機會。

As both a government body and a leading E&M engineering service provider, the EMSD fully appreciates its unique role to contribute to the society. Leveraging on our resources and talents, we endeavour to continuously make improvement throughout our services to better address the needs of the community. As a socially responsible employer, we also place high importance on caring for our staff, providing a safe and sound working environment, as well as a variety of training and development opportunities.

社會目標

於匯報年度，我們擬定了具體目標，把社會責任的承諾實踐至具體行動，同時持續監察達標進度。

Social Targets

During the year, we set up specific targets to convert our commitment on social responsibilities to detailed actions, and continued to monitor our progress against the set targets.

2018/19年度社會目標 Social Targets in 2018/19	2018/19年度工作進展 Progress in 2018/19	2018/19年度工作成果 Achievements in 2018/19
在2021年3月前將機電署營運服務的OHSAS 18001職業健康及安全管理系統過渡至最新的ISO 45001職業健康及安全管理系統 Transit from OHSAS 18001 to new Occupational Health and Safety Management System, ISO 45001, for Trading Services of the EMSD before March 2021	進行中 In Progress	於2019年2月完成將OHSAS 18001過渡至ISO 45001的差距評估 Gap Assessment for the conversion of OHSAS 18001 to ISO 45001 completed in February 2019
目標於2016年至2020年期間，為業界每年培訓100名四年制二級技術員 Train up to 100 nos. of Technician Trainee II (four-year) for the industry between 2016 and 2020 every year	進行中 In Progress	已招募303名四年制二級技術員 303 nos. of Technician Trainee II (four-year) recruited
每千名員工呈報的意外宗數不超過5宗 Not more than 5 nos. of in-house staff reportable accident per 1 000 staff	達標 Achieved	每千名員工呈報的意外宗數為4.7宗 4.7 nos. of in-house staff reportable accident per 1 000 staff
客戶滿意指數達到6.6分(以8分為滿分計) Reach Customer Satisfaction Index of 6.6 (on an 8-point scale)	達標 Achieved	6.61分 Index of 6.61
每名員工培訓日數達到4.5日 Reach 4.5 training days per staff	達標 Achieved	每名員工培訓日數為5.43日 5.43 training days per staff
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75項建議書 Obtain 75 Awards for Staff Suggestion Scheme and Work Improvement Team Scheme/Business Process Improvement Proposals	達標 Achieved	116項 116 nos.

提升本港的機電工程服務

機電署多年來一直為本港的機電裝置提供各種諮詢及規管服務，範圍涵蓋機械安全、氣體安全、電力安全、鐵路安全以至能源效益和機電公用設施監察等。我們對機電服務要求標準高，藉此為市民提供更安全及優質的生活。

提高業界技能

機電署向來在分享專業知識和加強業界雙向溝通方面發揮主導作用。多年來，我們經常籌辦技術研討會、講座、論壇及嘉年華活動，積極向機電業界推廣和交流機電工程服務、能源效益、綠色作業、創新科技、職安健等良好作業方式。此外，我們從2012年起在香港機電業推廣工作小組擔當領導角色，讓來自公營機構、行業組織和工會的成員一同向年青一代推廣機電業，鼓勵他們投身業界。以下是簡介機電署於匯報年度推廣行業及增進知識的計劃和活動亮點。

車輛維修自願註冊計劃

為提升車輛維修業的服務水平及優化業界的專業形象，機電署先後於2007年及2015年推出「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」。我們希望透過「車輛維修工場自願註冊計劃」，確認合規格車輛維修車房符合技術、環境、安全、員工培訓、服務及文件處理等範疇的要求。截至匯報年度年底，在上述兩項計劃下，已有約9 300名車輛維修技工及2 060間車輛維修工場獲批准註冊。

約 Approximately
9 300 名 nos.

註冊車輛維修技工
Registered vehicle mechanics

約 Approximately
2 060 間 nos.

註冊車輛維修工場
Registered vehicle maintenance workshops

Improving Electrical & Mechanical Service for the City

The EMSD has been providing various advisory and regulatory services for the city's E&M installations, including mechanical safety, gas safety, electrical safety, railway safety as well as energy efficiency and utilities monitoring. We pursue a high E&M standard to enhance the safety and quality of city life.

Enhancing Industry Capabilities

The EMSD takes a lead in sharing professional knowledge and facilitating two-way communication with the industry. Over the years, we have hosted technical seminars, symposiums, forums and carnivals to help promote and exchange best practices on E&M engineering services, energy efficiency, green operation, innovation and technology, and occupational health and safety, among the E&M trade. We have also been taking the lead in the Hong Kong Electrical and Mechanical Trade Promotion Working Group, involving different practitioners from public organisations, trade associations and unions since 2012 to promote the E&M trade as a desirable career pathway to the younger generations. The following examples are the highlights of our trade promotion and knowledge enhancement schemes and programmes in the reporting year.

Voluntary Registration Schemes for Vehicle Maintenance

To advance the service standard of the vehicle maintenance industry and uplift the professional image of the trade, the EMSD launched the Voluntary Registration Scheme for Vehicle Mechanics in 2007, and the Voluntary Registration Scheme for Vehicle Maintenance Workshops in 2015. We aim to recognise the compliance of the registered vehicle maintenance workshops in terms of technical, environmental, safety, staff training, service and documentation aspects. As of the end of the reporting year, there were approximately 9 300 vehicle mechanics and 2 060 workshops registered under the respective schemes.

社會成效
Social Performance

承辦商研討會

為維持卓越表現，確保客戶及廣大市民享有優良的服務，我們定期舉辦承辦商研討會交流技術和知識。2018年7月4日，本署的安全分部舉辦了一場以安全創新為主題的承辦商研討會，除了安排同事與承辦商分享最佳作業，亦介紹了機電署新成立的「機電創科網上平台」，促進廣泛應用新科技和創新。

Contractors Forum

We engage and exchange expertise with contractors on a regular basis to maintain service excellence for our clients and the public. On 4 July 2018, our Safety Sub-division organised a Contractors Forum, focusing on the theme of "Innovation for Safety". Besides sharing safety best practices with the contractors, our colleagues introduced the establishment of E&M InnoPortal in enhancing the wide application for new technology and innovation.

研討會吸引約130名承辦商出席，交流安全及創新的知識。

The forum drew a crowd of approximately 130 contractors to share knowledge on safety and innovation.

機電工程署研討會2018

為促進業界專家、學者及政府部門分享創科經驗和在創科研究上的突破，我們於2018年11月15日假香港科學園舉辦「共創智慧未來」研討會。活動有超過350位參加者，客戶部門和業界代表聚首一堂，分享彼此的心得及透過專題小組討論探討如何創建更好的綠色未來，研討的議題包括能源管理、紓緩氣候變化及營造利好創新的環境。

EMSD Symposium 2018

To foster the sharing of experiences and research breakthroughs on technology and innovation, among industry experts, academics and government departments, we organised the EMSD Symposium with a theme, "Co-creating a Smart Future", on 15 November 2018 at the Hong Kong Science Park, attracting over 350 attendees. Representatives from client departments and the trade shared insights and explored ways to create a better green future through panel discussions, touched upon issues that include but not limited to energy management, climate change mitigation, and fostering an environment for innovation.

客戶部門和業界踴躍參與機電工程署研討會2018。
The EMSD Symposium 2018 attracted a large crowd from client departments and the trade.

淡水冷卻塔和建築物能源效益技術研討會

機電署於2018年12月14日舉辦淡水冷卻塔和建築物能源效益技術研討會，吸引了600多名參加者。我們向業界介紹「淡水冷卻塔計劃」的主要事項及淡水冷卻塔的正確供水事宜。此外，機電署人員亦對新推出的《屋宇裝備裝置能源效益實務守則》及《建築物能源審核實務守則》2018年版中的主要更新作出講解。一如往年，研討會也邀請了去年「慳神有計大比拼」比賽得獎的物業管理公司，講述其節能措施及成果。

Technical Forum on Fresh Water Cooling Towers and Buildings Energy Efficiency

The Technical Forum on Fresh Water Cooling Towers (FWCTs) and Buildings Energy Efficiency was held by the EMSD on 14 December 2018. Attracting over 600 attendees, we highlighted major aspects under the FWCTs Scheme as well as proper water connection to FWCTs. In addition, our colleagues also presented major updates on the newly published Code of Practice for Energy Efficiency of Building Services Installation 2018 Edition and Code of Practice for Building Energy Audit 2018 Edition. Similar to previous years, we invited a property management company that was an awardee of Energy Saving Championship Scheme in the previous year to share their measures and achievement in energy saving.

建造業安全周嘉年華

於2018年5月，本署繼續支持第七屆「建造業安全周」的主要年度活動「建造業安全周嘉年華」。今年的嘉年華以「協力提升工地安全」為主題，我們設立有趣及具教育意義的遊戲攤位，讓建造業工友和公眾認識建造業安全，推廣建築地盤「零意外」。

Construction Safety Week Carnival

In May 2018, we continued to support the annual Construction Safety Week Carnival, a major event at the Seventh Construction Safety Week with the theme of "Partnering for Safety Enhancement". In the Construction Safety Week Carnival, the EMSD set up interesting educational game booths for construction workers and the public to promote "zero accidents" at construction sites.

機電署署長薛永恒先生(右九)出席「建造業安全周嘉年華」開幕禮。
Director of Electrical and Mechanical Services, Mr Sit Wing-hang, Alfred (ninth right), attended the opening ceremony of the Construction Safety Week Carnival.

社會成效
Social Performance

2018年「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於2018年9月20日舉辦第二屆「機電 • 啟航」迎新典禮，歡迎逾660位年青學員參加機電培訓計劃。現今數碼科技一日千里，今年的活動特別注重提倡學員在機電業應用創新技術，同時宣傳機電業的就業和發展前景。

"E&M GO! 2018" Orientation Ceremony

The Hong Kong Electrical and Mechanical Trade Promotion Working Group, led by the EMSD, welcomed over 660 young trainees who joined E&M training schemes. The "E&M GO!" Orientation Ceremony was organised for a second year on 20 September 2018. In light of new digital technologies, this year we put a strong focus on enhancing the trainees' awareness of applying technological innovations in the E&M industry, as well as promoting the trade's career prospects and development.

「機電 • 啟航」迎新典禮的出席盛況。
"E&M GO!" Orientation Ceremony was very well received.

機電創科網上平台

我們努力為機電業引入新科技，並協助創科企業將研發成果商品化。機電署特別設立「機電創科網上平台」，就政府部門、公營機構的需要與初創企業和學界提供的相關創科解決方案進行配對，另亦提供本署總部大樓及安排合適場地進行機電相關項目的實地測試，以核實其成效和表現。

E&M InnoPortal

We strive to assist the E&M trade in uptaking new technologies and supporting the commercialisation of research and development achievements from innovation and technology (I&T) enterprises. Our E&M InnoPortal was set up as a platform to match technology development needs from government departments and public organisations, with relevant I&T solutions offered by start-ups and academic institutions. We also offered our headquarters building and arranged suitable venues to field-test E&M-related projects and validate their effectiveness and performance.

社區教育計劃

除了加強與公眾的關係，透過社區外展活動，可提高公眾對能源效益和使用可再生能源的意識，以及加深他們了解本署規管電力、氣體及機械安全的職能。年內，機電署在社區推行多項宣傳計劃及巡迴展覽，向不同的關注團體介紹我們的工作和宣傳機電知識。

Community Educational Programmes

On top of strengthening our relationship with the public, community outreach is essential for us to enhance public awareness of energy efficiency and renewable energy, as well as our regulatory functions in electrical, gas and mechanical safety. Within the year, the EMSD hosted a wide array of promotional events and roving exhibitions to introduce our work and E&M knowledge to different interest groups.

機電青少年大使計劃

我們透過「機電青少年大使」計劃招募學童及青少年成為機電署的大使，向他們灌輸機電安全、能源效益和機電工程的知識。於匯報年度，本計劃安排大使到不同機電設施參觀考察，包括以下具代表性的活動：

E&M Young Ambassador Programme

Through recruiting children and teenagers to become Ambassadors in our E&M Young Ambassador Programme, we instill in Ambassadors solid knowledge on E&M safety, energy efficiency and E&M engineering. During the reporting year, a number of site visits were organised for the Ambassadors, including the following signatory events:

2018年4月
April 2018

參觀「機電 • 夢飛翔」展覽館
Visit to the EMSD Gallery

為機電青少年大使安排導賞團參觀「機電 • 夢飛翔」展覽館，與環境局局長黃錦星先生對話。

Ambassadors were given a guided tour to the EMSD Gallery where they had a dialogue with Mr Wong Kam-sing, Secretary for the Environment.

機電青少年大使周年聚會
E&M Young Ambassador Annual Gathering

2018年8月
August 2018

參觀九龍站及其港鐵展廊
Visit to Kowloon Station and MTR Gallery

參觀機場民航處航空教育徑
Visit to Education Path of Civil Aviation Department

參觀T • PARK[源 • 區]
Visit to T • PARK

為機電青少年大使暑假期間安排了參觀T • PARK [源 • 區]，讓他們在課堂外學習機電知識概念。

Tour visits were arranged for the Ambassadors to T • PARK during the summer holiday to enhance their E&M knowledge outside classroom.

機電工作體驗日
E&M Young Ambassador Job Shadow Day

2018年12月
December 2018

參觀青馬管制區
Visit to Tsing Ma Control Area

機電青少年大使參加青馬管制區導賞團，了解區內的機電設施，例如隧道照明系統、通風系統及控制監察系統。

Ambassadors joined a guided tour to the Tsing Ma Control Area to learn about its E&M facilities, e.g. tunnel lighting system, ventilation system as well as the control and surveillance system.

2018

1 2 3 4 5 6 7 8 9 10 11 12

社會成效
Social Performance

2018國際環保博覽

在2018年，本署參與第13屆國際環保博覽，設置攤位向參觀者介紹本署在推廣能源效益及節能的工作成果，並且透過一系列展板和短片，介紹「機電創科網上平台」，講解如何協助機電初創企業利用「機電創科網上平台」在業界內應用創新科技。

Eco Expo Asia 2018

At the 13th Eco Expo Asia in 2018, we set up a booth to showcase the Department's achievement in promoting energy efficiency and conservation. We also set up a series of panels and videos this year to introduce the E&M InnoPortal and its work in supporting E&M start-ups for applying innovative technologies to the E&M trade via E&M InnoPortal.

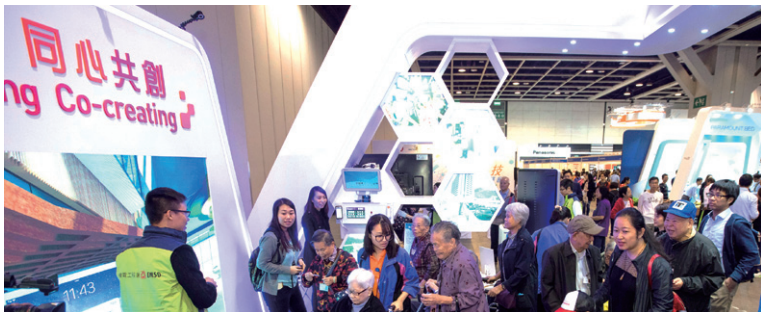
推廣樂齡科技

於2018年11月，我們參與「樂齡科技博覽暨高峰會」，宣傳樂齡科技，向公眾推廣改善長者生活質素的創新科技和其應用。我們的參展攤位展出多種專為長者而設的健康管理技術，以及一款創新的電動輪椅，後者在機電署與香港社會服務聯會合辦的「樂齡科技顯愛心」比賽奪得中學組金獎。

Promoting Gerontechnology

The EMSD promoted gerontechnology at the Gerontech and Innovation Expo cum Summit in November 2018 to raise public awareness on innovative technologies and applications in enhancing the quality of life of the elderly. Our exhibition booth displayed different types of technologies to aid the elderly's health management, as well as an innovative electric wheelchair that had won the gold prize in the secondary school category of the Gerontech Youth Challenge organised by the EMSD and the Hong Kong Council of Social Service.

我們的展覽攤位展示多項樂齡科技。
Our exhibition booth showcased gerontechnology.



機電業博覽2019—「機電新動力」

由機電署牽頭的香港機電業推廣工作小組於2019年3月8日主辦機電業博覽2019，吸引逾2 000人參加。今年博覽主題為「機電新動力」，展示機電業塑造智能香港所作出的努力，並提供培訓、入職途徑、就業前景及晉升階梯等資訊，鼓勵青年人投身業界。

E&M Expo 2019 – E&M New Momentum

On 8 March, the E&M Expo 2019, organised by the Hong Kong E&M Trade Promotion Working Group leading by the EMSD, attracted over 2 000 participants. The Expo, entitled "E&M New Momentum", showcased the efforts of E&M trade in developing a smart Hong Kong. Latest information on training, entry paths and career prospects were provided to encourage young people to join the industry.

機電業博覽2019吸引中學生、家長和教師出席，讓他們對機電業就業前景有更多了解。
E&M Expo 2019 attracted secondary school students, their parents and teachers to join, so then they can know more about career prospects of the E&M trade.

其他業界及公眾參與活動
Other Trade and Public Engagement Events

車輛維修自願註冊計劃
Voluntary Registration Schemes for Vehicle Maintenance

- 製作專題報道分享參與計劃的好處。報道於2019年3月在政府新聞處網站、Facebook和YouTube發布。
  Produced a feature story that shared the advantages of participating in the schemes and published the story on Information Services Department's website, Facebook and YouTube channels in March 2019.
- 到訪逾 **270** 間尚未註冊參與「車輛維修工場自願註冊計劃」的車輛維修工場。
  Visited over **270** vehicle maintenance workshops not yet registered under the Voluntary Registration Scheme for Vehicle Maintenance Workshops.

《重新校驗技術指引》
Technical Guidelines on Retro-commissioning

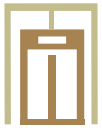
- 舉辦 **29** 場簡報會或分享會向各界機構講解指引。
  Delivered **29** presentations/sharing sessions to various organisations.

能源效益
Energy Efficiency

- 舉辦 **72** 場外展講座，及安排 **330** 次機電署總部教育徑參觀活動，當中包括了 **21 189** 名來自不同機構和學校的訪客。
  Organised **72** outreach talks and **330** visits to the Education Path of the EMSD Headquarters for **21 189** visitors from different organisations and schools.
- 舉行 **108** 個有關「強制性能源效益標籤計劃」的學校展覽。
  Conducted **108** school exhibitions on the Mandatory Energy Efficiency Labelling Scheme.

淡水冷卻
Fresh Water Cooling

- 舉辦 **5** 場外展講座提倡採用淡水冷卻塔。
  Organised **5** outreach talks to promote the use of fresh water cooling tower.



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

- 在幼稚園、青年中心及長者中心舉辦了 **457** 場外展講座，向超過 **26 960** 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 **457** sessions of outreach talk for kindergartens, youth centres and elderly centres, reaching over **26 960** 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 **63** 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、優化改善和使用安全。
  Conducted **63** 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 management, modernisation and safe use of lifts and escalators.

氣體安全
Gas Safety

- 為氣體用戶、業界和工程承辦商舉辦 **56** 場氣體安全講座及研討會，並為推廣《避免損壞氣體喉管工作守則》，進行 **187** 次工地坑道巡查。
  Conducted **56** gas safety talks and seminars for gas users, trades and works contractors, and carried out **187** trench inspections to construction sites to promote Code of Practice on Avoidance of Damage to Gas Pipes.

義工服務
Voluntary Services

- 本署的員工共花了 **432** 小時完成 **10** 個義工項目，成功籌得 **29,265** 元。受惠機構包括華懋集團、保良局、公益金、義務工作發展局及建造業關懷基金。
  10 volunteering projects were completed by our staff who had spent a total of **432** man-hours. Our staff had successfully raised **$29,265**. Beneficiaries include Chinachem Group, Po Leung Kuk, the Community Chest of Hong Kong, Agency for Volunteer Service and Construction Charity Fund.

社會成效
Social Performance

關懷我們的員工

我們根據政府的公務員聘用條款和非公務員合約僱員計劃，提供具競爭力的薪酬及福利，與此同時，我們亦為員工提供多元化的培訓機會。此外，我們致力履行企業公民責任，更連續第五年榮獲香港社會服務聯會頒發「同心展關懷」標誌。

員工數據

截至2019年3月，機電署共有5 566名員工(包括全職、常任制及合約制員工)，其中605名員工為新入職人員(約佔員工總人數10.9%)。年內並無聘用兼職員工。本匯報年度的離職率為3.1%。

Caring for our Staff

Apart from following the Government's civil service employment terms and the non-civil service contract staff scheme to offer competitive remuneration and benefits, we also provide diverse staff training opportunities. Furthermore, underlining our dedicated commitment in responsible corporate citizenship, we have been awarded the Caring Organisation Logo by the Hong Kong Council of Social Service for the fifth consecutive year.

Employment Statistics

As of March 2019, we had a total of 5 566 staff (including full-time, permanent and contract), out of which 605 were new hires (around 10.9%). No part-time staff was recorded during the year. The turnover rate was 3.1% in this reporting year.

按性別劃分
Breakdown by Gender

男性 Male
4 940 (88.8%)

女性 Female
626 (11.2%)

按職級劃分
Breakdown by Grade

技術職系 Technical
4 406 (79.2%)

專業職系 Professional
498 (8.9%)

行政及輔助職系 Administrative and Support
662 (11.9%)

多元化與平等機會

機電署絕不容許工作間出現任何形式的歧視行為。我們在部門內實行共融，並恪守平等機會原則，以確保員工不會受到騷擾或誹謗。

年內我們繼續參與《有能者・聘之約章》及共融機構嘉許計劃的僱主機構，積極推動有特殊需要的人士就業。於匯報期內，我們共僱用200名輕度殘疾人士，約佔員工總人數3.6%。我們致力提供和諧體諒的共融工作環境，並秉持企業文化，尊重員工的人權和他們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。匯報年內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。

Diversity and Equal Opportunities

The EMSD considers all forms of discrimination to be unacceptable in the workplace. We embrace the diversity within the organisation and are committed to the goal of equal opportunities. We ensure our staff are free from harassment and vilification.

We continued to take part in the Talent-Wise Employment Charter and Inclusive Organisations Recognition Scheme as an Employer Organisation to promote employment with special needs. During the period, we employed a total of 200 staff members with minor disabilities, equivalent to about 3.6% of our total workforce. We strive to provide a harmonious, considerate and inclusive working environment. Our respect to human and workplace rights is ingrained in our culture where the use of forced or compulsory labour is forbidden at all of our units. In this reporting year, we did not identify any operations or suppliers in breaching the laws and regulations in relation to the child and forced labour.

職業安全與健康

機電署各部別均已設立綜合管理系統，負責規劃、實施、評估及持續改善職業安全與健康(職安健)的措施和良好作業守則。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。

Occupational Safety and Health

Integrated Management System (IMS) has been put in place in our divisions to govern the planning, implementation, evaluation and continuous improvement of Occupational Safety and Health (OSH) practices. We strictly adhere to the EMSD Safety and Health Policy that stipulates work safety as the foremost consideration when our staff delivers any E&M services.

職安健委員會

我們按照OHSAS 18001標準(只適用於營運服務)設立職安健管理系統，藉此確保員工和承辦商的作業安全及健康，此外並成立策導委員會，全面統籌及監察本署營運上所有事宜。職業安全及健康策導委員會轄下的部別職安健委員會職責是加強溝通，推行可保障工作間安全及健康的作業方法。截至2019年3月31日，全體員工均在部別職安健委員會中設有代表。

OSH Committees

We have established an OSH management system in accordance with the standard of OHSAS 18001 (applicable to Trading Services only) to ensure workplace safety and health for our staff and contractors. A steering committee has been formed to oversee and monitor all OSH issues of our operations. Overseen by the Steering Committee on OSH, the Divisional Occupational Safety and Health Committees (DivOSHCs) enhance communication and adoption of workplace safety and health practices. All workforce was represented by the DivOSHCs as of 31 March 2019.

職安健委員會的角色與職責

Roles and Responsibilities of OSH Committees

職安健策導委員會
Steering Committee on OSH

- 成員來自高級管理層，並由助理署長主持
  Comprises senior management staff and chaired by Assistant Director
- 制訂部門職安健政策和措施，以提高內部的安全意識及培養安全文化
  Formulates departmental OSH policies and initiatives on promoting safety awareness and safety culture throughout the organisation
- 監察職安健政策和措施的實施成效及進行情況，持續改善安全及健康表現
  Monitors the effectiveness and compliance of OSH policies and initiatives for continuous improvement
- 檢討內部及承辦商的工傷事件
  Reviews in-house and contractor accidents
- 每三至六個月開會一次
  Meets every three to six months

部別職安健委員會
Divisional OSH Committees

- 成員來自管理層及部別的員工代表，並由總工程師或其代表主持
  Comprise management and staff representatives from divisions and chaired by Chief Engineer or his delegate
- 商討職安健議題及推行職安健措施
  Discuss OSH issues and implement OSH initiatives
- 向員工推廣職安健
  Promote OSH among staff
- 每三個月開會一次
  Meet every three months

針對重大職安健風險的指引

我們在綜合管理系統的框架下編製了系統程序手冊，訂明識別作業相關危險和評估風險的程序。本署的技術通告載有發現風險及危險時作出通報及調查的詳細程序。我們亦進行內部審計以評估及減低潛在的風險，並持續改進我們的職業健康及安全管理系統。機電署轄下的策略業務單位會根據各自的業務性質進行風險評估，並會擬定相關的作業指示，以防範職安健危險和緩解潛在影響。員工遇到與工作有關的危害，應向直屬上司報告，並轉由組別安全督導員或部別安全主任跟進。為保護員工免被解僱或被報復，我們會就任何與工作有關的危害進行調查，並處理所有合理的查詢。員工應確保在安全環境下工作，如有疑問應向直屬上司尋求建議。

Guidelines to Address High OSH Risks

We formulate a System Procedure Manual under our IMS to set out the process of identification of work-related hazards and risk assessment. Our Technical Circular details the reporting and investigation procedure upon identification of risks and hazards. We also conduct internal audits to evaluate and mitigate potential risks, as well as ensure continuous improvement to our health and safety management system. Each of our Strategic Business Unit executes own risk assessment regarding its specific business nature, and establishes relevant work instructions to prevent OSH hazards and mitigate potential impacts. In face of work-related hazards, staff are requested to report to their immediate supervisors, which then are to be followed up by Sectional Safety Supervisor or Safety Officer of the division. To protect staff against reprisals, we will conduct investigation in relation to any work-related hazards and answer to all reasonable enquiries. Staff should always ensure they are working under safe conditions and seek supervisor's advice in case of doubt.

社會成效
Social Performance

職安健培訓及推廣

我們通過員工培訓、職安健計劃和顧問服務等渠道強調職安健的重要性，同時定期向員工派發職安健宣傳物料，員工亦可在部門內聯網的「安全角」查閱相關資訊。此外，本署並會安排職安健講座和舉辦各類比賽，提高員工的職安健意識。本署的訓練組也定期安排平安卡培訓、安全督導員培訓及一般職安健培訓課程，為不同崗位的同事提供職安健知識。在醫療方面，機電署公務員根據其受僱、合約條款可享有《公務員事務規例》及公務員事務局通告和通函列明的醫療及牙科護理福利。如員工需要情緒支援，我們亦提供熱線等心理支援服務。

機電署舉辦承辦商研討會以確保承辦商在工地上的安全標準，並推廣最新的良好工地安全措施。承辦商亦需根照《工地安全特別規格》，為工地工人提供必要的安全培訓。

培訓及發展

機電署透過見習工程師及技術員訓練計劃為新入職員工提供專業及技術培訓，並且投資六億元，在2020年前招募和培訓逾千位見習技術員。為確保團隊可在個人及專業層面持續發展，我們每年均會制訂部門培訓發展計劃，詳細擬定及推行員工培訓及發展計劃。員工可按個人需要報讀技術技能、證書、職業發展和職安健等課程。

Training and Promotion of OSH

We use different channels, for examples, staff training, OSH programmes and consultancy service, to emphasise the importance of OSH. OSH promotional materials are delivered to our staff regularly. The staff can access the related information at the "Safety Corner" in departmental intranet. In addition, we arrange OSH seminars and competitions to increase staff awareness. Besides, our Training Unit organises regular Green Card Training, Safety Supervisor Training, and General OSH Training to enable the staff in different job positions to receive OSH education. Regarding healthcare services, those EMSD staff appointed on civil services and non-civil service terms are entitled to a range of medical and dental benefits, based on their employment terms, given that they meet eligibility criteria as set out in the Civil Service Regulations and Civil Service Bureau Circulars and Circular Memoranda. Psychological support service through hotline service is also offered to staff if they would like to reach out for emotional support.

To upkeep the high safety standards of the EMSD contractors in their works and to promote the latest development of good site safety measures on workers' behaviour, an EMSD Contractors Forum has been arranged. Contractors are also required to provide necessary safety training for site personnel as listed out in "Particular Specifications on Site Safety".

Training and Development

Alongside the EMSD's Engineering Graduate and Technician Training Schemes that offer professional and technical trainings, a total of $600 million will be invested in recruiting and training over a thousand of technician trainees by 2020. To further ensure a holistic personal and professional growth of our staff, we prepare a Departmental Training and Development Plan on an annual basis to detail planning and implementation of all staff training and development programmes in the EMSD. Different programmes ranging from technical skills, certificate courses, career development and OSH related courses are available for our staff to apply.

2018/19年度員工培訓數據
Staff Training Statistics in 2018/19

超過 Over **3 400**

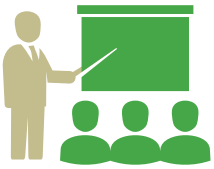
培訓及發展活動次數
Number of training and development activities

約 Around **40 000**

參加人數
Attendees

超過 Over **24 000**

培訓日數
Training days



平均 Average **5.43**

每名員工每年受訓日數
Training days per staff member per year

見習工程師訓練計劃

2018/19 年度共有20位見習工程師受訓，分別來自電力、機械、電子、屋宇裝備、資訊科技及生物醫學工程等背景。我們安排見習工程師轉換到本署的不同部別和其他政府部門接受工作培訓，讓他們汲取理論知識和實習訓練，掌握實用技能，為長遠事業發展打好基礎。

技術員訓練計劃

技術員訓練計劃為學員提供技術訓練，安排實習學員分配到政府轄下不同場所工作，加深對操作各類機電工程系統的技術。於匯報年度，我們成功招募217位見習技術員，包括99位四年制的見習二級技術員、68位三年制的見習二級技術員及50位三年制的見習一級技術員。

此外，五名機電署見習學員亦被挑選參加海外交流計劃，分別負笈蘇格蘭、南韓及日本，修讀實用技能課程和參觀多間企業。除了與當地學徒交流技術外，亦學習了不同主題，包括如何應用建築信息模擬技術和虛擬實境技術協助查找建築物的潛在風險。

Engineering Graduate Training Scheme

In 2018/19, 20 engineering graduates were recruited from the field of electrical, mechanical, electronics, building services, information technology and biomedical engineering. We train the graduates in different divisions of the EMSD and other governmental departments on a rotational basis, aiming to instill them with theoretical knowledge, hands-on training as well as practical skills that are essential for their long-term career development.

Technician Training Scheme

Under the Technician Training Scheme, our trainees have opportunities to brush up their skills through operating E&M engineering systems at different government premises. During the reporting year, we successfully recruited 217 trainees, including 99 technician trainees II (four-year), 68 technician trainees II (three-year), and 50 technician trainees I (three-year) respectively.

Five of our trainees were selected for an overseas exchange programme to Scotland, Korea and Japan respectively, where they were offered with practical skill classes and firm visits. Participants were not only able to exchange their skills with local apprentices, but also studied various topics including Building Information Modelling and virtual reality that can help investigate the potential risk of a building.

機電署見習學員參觀蘇格蘭的建築工地。
The EMSD trainees paid a visit to a construction site in Scotland.

中期實習計劃

我們除了為見習工程師和見習技術員提供職業訓練，另亦於2015年開始推出為期一年的中期實習計劃，旨在扶植在學的工程學生，讓他們汲取更多實際工作經驗，為投身機電業作好準備。

Medium Term Internship Programme

Besides the provision of vocational training to the graduates and technicians, we have implemented a one-year Medium Term Internship Programme since 2015, which is designed to help the engineering undergraduates better equip themselves with actual working experience before entering the E&M industry.

社會成效
Social Performance

培訓發展合作項目

年內我們與大灣區機構一同加強機電人才培訓及發展方面的合作，主要活動和計劃如下：

Collaboration on Training Development

During the year, we partnered with the institutions in the Greater Bay Area to strengthen collaboration on E&M talent training. Some of the activities and initiatives are highlighted below:

員工溝通

工作場所的開放溝通是高效營運的關鍵。正因如此，我們致力與員工保持雙向溝通，鼓勵他們發表意見和提出創新意念。

員工滿意度調查

每隔兩至三年，我們會聘請獨立專門機構進行員工滿意度調查，收集員工的意見和了解他們的看法。最近一次調查於2019年3月進行，並舉行十場調查前焦點小組討論，以收集對問卷調查設計的意見。以10分為滿分計，2019員工滿意度為6.8分。我們會在緊接的財政年度進行調查後的跟進工作，成立焦點小組，擬定行動方案回應員工關注的議題。

Staff Communication

Open communication in the workplace is vital to efficient and productive operation. In view of this, a range of two-way communication channels is offered to our staff to encourage feedback and innovative ideas.

Staff Satisfaction Survey

We appoint an independent specialist to conduct a staff satisfaction survey every two to three years to collect opinion and thoughts from our staff. The latest survey was conducted in March 2019 where ten sessions of the pre-survey focus group discussion were organised to gather the opinion of the survey design. The Staff Satisfaction Rating in 2019 was 6.8 out of a scale of 10. Following up with the survey, focus groups will be organised in the coming financial year with a view to working out action plans to address staff concerns.

員工諮詢途徑

為進一步加強內部溝通，我們設有四個部門協商委員會和五個部別協商委員會，定期與管理層會面，表達員工的意見。員工既可參加上述的協商委員會，亦可自由參加11個部門工會和組織，表達他們的意見和關注議題，以作為集體談判。除此之外，我們亦廣開輕鬆的渠道讓員工傾談他們關注的事項，例如午餐會及茶聚等。

為確保員工的投訴得到妥善處理，我們制訂了員工投訴程序，讓員工就任何不滿發表意見。所有關於勞工措施的申訴均會記錄在案，並透過正式機制處理和解決。

員工建議計劃

為鼓勵員工提高部門的生產力和表現，我們定期舉辦各類型員工建議計劃，例如工作改善小組計劃、員工建議書計劃及業務流程改善計劃，就工作效率、職安健及善用資源等提出建議。於2018/19年度，我們共收到34份員工建議書，這些得獎建議其後上載到機電署內聯網供同事分享交流。此外，我們亦推行多項計劃，改善員工福利和工作環境及優化工作流程。

Staff Consultation Channels

To further reinforce internal communication, we have set up four departmental consultative committees and five divisional consultative committees to allow regular exchanges of the staff views with the senior management. We welcome staff members to take part in these consultative committees, as well as 11 staff unions and associations, to share their feedback and concerns for collective negotiation. In addition, informal channels, such as luncheon and tea gatherings, are available for the staff to discuss their interested matters.

To ensure proper handling of staff complaints, the Staff Complaints Procedure is a mechanism that allows our staff to report complaints. Grievance associated with labour practices are filed, addressed, and resolved through formal mechanisms.

Staff Suggestion Programmes

We have been organising various staff suggestion programmes, such as the Work Improvement Team Scheme, the Staff Suggestion Scheme, and the Business Process Improvement to incentivise our staff to improve the Department's productivity and performance. Suggestions made relate to work efficiency, OSH, resources conservation, etc. In 2018/19, a total of 34 staff suggestion proposals were received. These award-winning ideas were then uploaded to our intranet for sharing and exchanging among colleagues. Moreover, we have also implemented several initiatives to improve the staff's welfare, working environment and optimisation of workflow.

培養員工創新的潛能

Unleash the Potential in Innovation within our Staff

於第二個五年策略計劃，其中一項策略是在部門應用創新，為此我們舉辦了「Inno@E&M創新科技挑戰賽」，邀請機電署員工作出提議，建議如何利用創科提高機電署或其他政府部門的服務質素。我們一共接獲140項建議，分別涵蓋物聯網、自動化科技、人工智能和能源效益等範疇。

In light of the second Five-year Strategic Plan, one of our strategies is to promote the application of innovation within the Department. Inno@E&M Challenge was a contest which invited the EMSD staff to submit proposals of using I&T to improve the service quality of the EMSD or other government departments. We received a total of 140 proposals that covered aspects including Internet of Things, automation technology, artificial intelligence, and energy efficiency.

社會成效
Social Performance

表揚傑出員工

我們感謝員工提供卓越服務，並定期表揚他們的傑出表現和貢獻。署長嘉許狀是頒發給對提高部門的效率或福利有重大貢獻的同事。本匯報年度共有103位員工獲頒發此獎狀。

Staff Recognition

We express compliments to our staff regularly in order to recognise them for their outstanding service and contribution. The Director's Commendation is presented to the staff who contributed to the Department's working efficiency and well-being. In this reporting year, a total of 103 staff received this award.

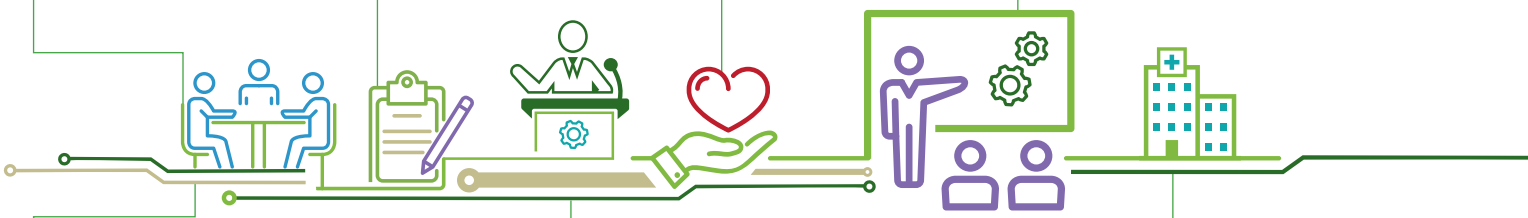
2018/19年度員工活動

我們在年內舉辦了多項員工活動，部分列表如下：

Staff Engagement Activities in 2018/19

A number of staff engagement activities were organised during the year. Some of them are listed below:

- 規管服務於2018年12月7日及2019年2月22日舉行年度**管理工作坊**。
  Held the Regulatory Services' annual **Management Workshops** on 7 December 2018 and 22 February 2019.
- 機電工程營運基金於本年度舉行了**三次針對內部客戶意見調查的焦點小組會議**，蒐集策略業務單位對部門內部所提供支援服務的意見。
  Held **three sessions** of EMSTF Internal **Customer Opinion Survey-Focus Group Meeting** to collect Strategic Business Units' opinion on corporate supporting services provided.
- 組織**84次親善探訪**活動，安排首長級人員到訪185個場地。
  Carried out **84 ambassador visits** by directorate officers at 185 venues.
- 為部門的專業員工、外調的督察級、技術級及初級員工舉行**五次周年論壇**。
  Ran **five sessions of the Yearly Forum** for professional staff, seconded inspectorate, technical and junior staff.



- 機電工程營運基金於2018年11月23日舉行了年度**策略制訂工作坊**。
  Organised EMSTF's annual **Strategy Formulation Workshop** on 23 November 2018.
- 於2018年11月至12月舉行**三場署長簡報會**。
  Arranged **three sessions** of **Director's Briefing** from November to December 2018.
- 與部門員工工會舉行**兩次聯席會議**。
  Conducted **two joint meetings with staff unions** of the EMSD.
- 為抱恙或住院員工進行了**10次家訪**、**51次醫院探訪**、**23次工作間探訪**、**520次電話問候**，以及**18次吊唁探訪**。
  Conducted **10 home visits, 51 hospital visits, 23 workplace visits, 520 goodwill phone calls** to sick or hospitalised staff, and **18 condolence visits**.

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對於本報告的英文版，全球報告倡議組織確認本報告按要求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. 120	✓
	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	機構總部的位置 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	屬於香港特區政府的一部分 Part of the Hong Kong SAR Government	–	✓
	102-6	所服務的市場 Markets served	香港 Hong Kong	–	✓
	102-7	機構的規模 Scale of the organisation	機電工程署二零一八至一九年年報 EMSD Annual Report 2018/19 社會成效 Social Performance	p. 22-23, 81 p. 150	✓
	102-8	有關僱員及其他員工的資料 Information on employees and other workers	可持續發展管理方針 Sustainability Management Approach 社會成效 Social Performance 統計資料摘要 Summary of Statistics	p. 126 p. 150 p. 168-169	✓
	102-9	供應鏈 Supply chain	可持續發展管理方針 Sustainability Management Approach *機電工程署聘請了2 529名供應商，他們大多負責提供機電安裝、運作及保養相關的配件/設備及服務。 * There are 2 529 suppliers engaged by the EMSD. They are mainly involved in provision of parts/ equipment and services related to E&M installation, operation and maintenance.	p. 126	✓
	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. 120	✓
	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. 123	✓
	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. 127-131	✓
	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： * The EMSD holds membership in the following associations. 1) 美國能源工程師學會 Association of Energy Engineers 2) 香港照明學會 CIE (Hong Kong) Limited 3) 國際鐵路安全議會 International Railway Safety Council 4) 保障資料主任聯會 Data Protection Officers' Club 5) 綠十字會 Green Cross Group 6) 香港職業安全衛生協會 Hong Kong Occupational Safety and Health Association	–	✓

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策略 Strategy				
102-14	最高決策者的聲明 Statement from senior decision-maker	機電工程署二零一八至一九年年報 EMSD Annual Report 2018/19	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. 122-123	✓
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	機電工程署二零一八至一九年年報 EMSD Annual Report 2018/19	p. 11, 75	✓
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/ * Our governance structure is listed on our website at: https://www.emsd.gov.hk/en/about_us/our_organisation/ 我們的品質、環境及生產力策導委員會及職安健策導委員會負責經濟、環境和社會主題的決策。 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.	–	✓
持份者參與 Stakeholder Engagement				
102-40	持份群體清單 List of stakeholder groups	關於本報告 About this Report 可持續發展管理方針 Sustainability Management Approach	p. 120 p. 124-125	✓
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	p. 120	✓
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. 120 p. 124-125	✓
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. 121	✓

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. 120	✓
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. 120-121	✓
102-47	重要議題清單 List of material topics	關於本報告 About this Report	p. 121	✓
102-48	重整信息 Restatements of information	統計資料摘要 Summary of Statistics	p. 165-167	✓
102-49	匯報上的改變 Changes in reporting	關於本報告 About this Report *「避免對員工強迫勞動」和「保安政策及培訓」沒有被納入重要議題列表。「關於本報告」部分亦概述了新添加的議題邊界。 * "Avoid Forced Labour" and "Security Policy and Training" were removed from the list of material topics. Newly added topic boundaries were also outlined in "About this Report".	p. 121	✓
102-50	匯報期 Reporting period	關於本報告 About this Report	p. 120	✓
102-51	上一份報告的日期 Date of most recent report	2018年12月 December 2018	–	✓
102-52	匯報周期 Reporting cycle	關於本報告 About this Report	p. 120	✓
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. 121	✓
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. 120	✓
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. 157-164	✓
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. 120 p. 172-175	✓

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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 Economic Performance（財務表現 Financial Performance）					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		機電工程署二零一八至一九年年報 EMSD Annual Report 2018/19 關於本報告 About this Report	p. 81 p. 121	✓
GRI 201：經濟成效 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	機電工程署二零一八至一九年年報 EMSD Annual Report 2018/19	p. 81	✓
間接經濟影響 Indirect Economic Impacts					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 社會成效 Social Performance	p. 121 p. 142-149	✓
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	機電工程署二零一八至一九年年報 EMSD Annual Report 2018/19	p. 14-19, 80-85	✓
	203-2	重大間接經濟影響 Significant indirect economic impacts	社會成效 Social Performance	p. 142-149	✓
採購實務 Procurement Practices					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance	p. 121 p. 141	✓
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2018/19年度只佔大約0.02%。 * 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 0.02% in 2018/19.	–	✓
遵守市場行為法規 Market Behaviour Compliance					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 可持續發展管理方針 Sustainability Management Approach	p. 121 p. 122-123, 126-127	✓
GRI 206：反競爭行為 2016 GRI 206: Anti-competitive Behaviour 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. 171	✓
環境 Environmental					
物料 Materials					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance	p. 121 p. 137	✓
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. 166	✓
能源 Energy					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance	p. 121 p. 138-140	✓

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. 138-139 p. 165	✓
	302-3	能源強度 Energy intensity	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 138 p. 165	✓
	302-4	減少能源的消耗 Reduction of energy consumption	環保成效 Environmental Performance	p. 138-140	✓
水 Water					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance	p. 121 p. 140-141	✓
GRI 303：水 2018 GRI 303: Water 2018	303-1	水資源共享的處理 Interactions with water as a shared resources	環保成效 Environmental Performance	p. 140-141	✓
	303-2	排水管理及影響 Management of water discharge-related impacts	環保成效 Environmental Performance	p. 140-141	✓
	303-5	耗水量 Water consumption	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics * 香港沒有特定地區遭受缺水威脅。 * No specific regions are water stressed in Hong Kong.	p. 141 p. 165	✓
生物多樣性 Biodiversity (生態保育 Ecological Conservation)					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance * 所有運營點均不在環境保護區或其他具有重要生物多樣性價值的地區或其毗鄰地區。在接近自然生態的運營點，我們密切監測生物多樣性的狀況。報告期內，我們並沒有收到任何有關影響本地生物多樣性的投訴。 * No operation sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas. At operational sites that are of close proximity to natural habitats, we closely monitor the status of biodiversity. During the reporting year, we did not receive any complaints on affecting the local biodiversity.	p. 121 p. 137	✓
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其他高生物多樣性價值的地區 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	* 所有運營點均不在環境保護區或其他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.	–	✓

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排放物 Emissions					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance	p. 121 p. 138	✓
GRI 305：排放物 2016 GRI 305: Emissions 2016	305-1	直接溫室氣體排放（範疇 1） Direct (Scope 1) GHG emissions	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 138 p. 166	✓
	305-2	能源間接溫室氣體排放（範疇 2） Energy indirect (Scope 2) GHG emissions	環保成效 Environmental Performance 統計資料摘要 Summary of Statistics	p. 138 p. 166	✓
污水及廢物 Effluent and Wastes					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance	p. 121 p. 137	✓
GRI 306：污水及廢物 2016 GRI 306: Effluent and Wastes 2016	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 統計資料摘要 Summary of Statistics	p. 137 p. 167	✓
評估供應商 / 承辦商的環境表現 Supplier Environmental Assessment					
GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 環保成效 Environmental Performance	p. 121 p. 141	✓
GRI 308：評估供應商 / 承辦商的環境表現 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	103-1 103-2 103-3		關於本報告 About this Report 社會成效 Social Performance	p. 121 p. 150	✓
GRI 401：僱員關係 2016 GRI 401: Employment 2016	401-1	新入職員工及員工離職率 New employee hires and employee turnover	社會成效 Social Performance 統計資料摘要 Summary of Statistics	p. 150 p. 168-169	✓
	401-2	不提供予臨時或兼職員工的全職員工福利 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.	–	✓

職業健康及安全 Occupational Health and Safety

GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 社會成效 Social Performance	p. 121 p. 142, 151-152	✓
GRI 403：職業健康及安全 2018 GRI 403: Occupational Health and Safety 2018	403-1	職業健康與安全管理體系 Occupational health and safety management system	社會成效 Social Performance	p. 151-152	✓
	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. 151-152	✓
	403-3	職業健康服務 Occupational health services	社會成效 Social Performance	p. 151-152	✓
	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 *機電署的規管及營運服務中的全體員工，均參與了部別職安健委員會及職安健策導委員會。 * Both Regulatory and Trading Services of the EMSD, which represented the whole workforce of the EMSD, participated in the Divisional Occupational Safety and Health Committees and Steering Committee on Occupational Safety and Health.	p. 151-152	✓
	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. 151-152	✓
	403-6	促進員工健康 Promotion of worker health	社會成效 Social Performance	p. 151-152	✓
	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. 151-152	✓
	403-9	因工受傷 Work-related injuries	統計資料摘要 Summary of Statistics	p. 170	✓

培訓與教育 Training and Education

GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 社會成效 Social Performance	p. 121 p. 152-154	✓
GRI 404：培訓與教育 2016 GRI 404: Training and Education 2016	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	103-1 103-2 103-3		關於本報告 About this Report 社會成效 Social Performance	p. 121 p. 150	✓
GRI 405：多元化與平等機會 2016 GRI 405: Diversity and Equal Opportunity 2016	405-1	管治機構及員工多樣性 Diversity of governance bodies and employees	社會成效 Social Performance 統計資料摘要 Summary of Statistics *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.	p. 150 p. 168-169	✓

全球報告倡議組織內容索引
GRI Content Index

客戶健康及安全 Customer Health and Safety

GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		機電工程署二零一八至一九年年報 EMSD Annual Report 2018/19 關於本報告 About this Report	p. 24-48 p. 121	✓
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	統計資料摘要 Summary of Statistics	p. 171	✓

客戶私隱 Customer Privacy

GRI 103：管理方針 2016 GRI 103: Management Approach 2016	103-1 103-2 103-3		關於本報告 About this Report 可持續發展管理方針 Sustainability Management Approach	p. 121 p. 126	✓
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	統計資料摘要 Summary of Statistics	p. 171	✓

統計資料摘要
Summary of Statistics

環境 Environment

	單位 Unit	2016/17	2017/18	2018/19
能源[1] Energy[1]				
非再生能源燃料 Non-renewable Sources				
柴油 Diesel	千兆焦耳[2] GJ[2] (升 L)	4 795 (133 184)	3 298 (91 618)	2 790 (77 507)
汽油 Gasoline	千兆焦耳[2] GJ[2] (升 L)	10 721 (324 864)	11 068 (335 405)[3]	11 848 (359 034)
總用電量[4] Total Electricity Consumption[4]	千兆焦耳[2] GJ[2] ('000 千瓦小時 '000 kWh)	52 276 (14 521)	42 818 (11 894)	42 305 (11 751)
能源強度 Energy Intensity	千瓦小時 / 員工 kWh per employee	2 901	2 171	2 111
區域供冷系統的用電量 Electricity Consumed for District Cooling System	千兆焦耳[2] GJ[2] ('000 千瓦小時 '000 kWh)	/	23 623 (6 562)	30 717 (8 532)
可再生能源燃料 Renewable Source				
太陽能光伏系統所生產的電力[5] Electricity Generated from Solar Photovoltaic System[5]	千兆焦耳[2] GJ[2] (千瓦小時 kWh)	/	/	633 (175 631)
水[6] Water[6]				
水 Water	立方米 m^3	36 422	16 061	13 348

1 302-1

2 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)。

3 102-48，個別部別修訂 2017/18 年度汽油的用量，所以更正數字。

4 因耗用購買的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：0.80 kg $CO_{2\text{-}e}$/kWh(香港電燈)及 0.51 kg $CO_{2\text{-}e}$/kWh(中電)。

5 只供內部使用。2016/17及2017/18年度的數據沒有記錄。

6 303-5

1 302-1

2 Conversion factors used to standardise the units to gigajoules (GJ): diesel (0.036GJ/L), gasoline (0.033GJ/L), electricity (0.0036GJ/kWh).

3 102-48. 2017/18 figures updated due to revision of gasoline consumption in a division.

4 The emission factors of greenhouse gas emissions due to electricity consumption are obtained from the sustainability reports of the two local electricity companies: 0.80 kg $CO_{2\text{-}e}$/kWh (Hong Kong Electric) and 0.51 kg $CO_{2\text{-}e}$/kWh (CLP).

5 For internal use only. No data record keeping in 2016/17 and 2017/18.

6 303-5

統計資料摘要
Summary of Statistics

自2017/18年度，機電署已調整以下資料範圍，以涵蓋純粹機電署內部的碳排放、棄置量及物料消耗量。
Since 2017/18, the following data scope covered the carbon emission, disposal and materials consumption by the EMSD internal use only.

	單位 Unit	2017/18	2018/19
溫室氣體排放[7] GHG Emissions[7]			
直接排放（範疇一） Direct Emissions (Scope 1)	噸 tonnes	1 152[8]	1 186
能源間接排放（範疇二） Energy Indirect Emissions (Scope 2)	噸 tonnes	6 152	6 065
物料[9] Material[9]			
不可再生材料 Non-renewable Materials			
油漆及溶劑 Paint & Solvent	升 L	149	493
潤滑油 Lubrication Oil	升 L	1 809[10]	2 378
油脂 Grease	公斤 kg	249	492
工業用氣體 Industrial Gas	立方米 m^3	25	0
蓄電池電解液 Battery Electrolyte	升 L	0[10]	0
原子車胎 Tubeless Tyre	條 No.	220	230
外車胎 Outer Cover Tyre	條 No.	160	0
車胎內膽 Inner Tube	條 No.	30	0
可再生材料 Renewable Materials			
紙張[11] Paper[11]	令 ream	25 870	28 184

7 305-1，305-2，計算參考《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。

8 102-48，由於修訂2017/18年度汽油的用量，所以更正數字。

9 301-1

10 102-48，由於修訂2017/18年度的用量，所以更正數字。

11 機電署購買和使用的紙張全都是再造紙。

7 305-1, 305-2. Calculation methodology made reference to the Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings of Commercial, Residential or Institutional Purposes in Hong Kong (by Environmental Protection Department & EMSD), greenhouse gas types include CO_2, CH_4, N_2O and HFCs.

8 102-48. 2017/18 figures updated due to revision of gasoline consumption.

9 301-1

10 102-48. 2017/18 figures updated due to revision of consumption.

11 At the EMSD, we purchase and consume paper with recycled content.

	單位 Unit	2017/18 棄置 Disposed	2017/18 回收 Recycled	2018/19 棄置 Disposed	2018/19 回收 Recycled
污水及廢物[12] Effluent and Wastes[12]					
無害廢物[13] Non-hazardous Waste[13]					
廢紙 Waste Paper	公斤 kg	6 895	26 431	4 307	30 596
鋁罐及金屬罐 Aluminium and Metal Cans	個 No.	–	27 063	–	20 750
膠樽 Plastic Bottles	個 No.	–	6 156	–	6 375
即棄電池 Disposable Batteries	公斤 kg	667	529	546	310
金屬廢料 Metal Scraps	公斤 kg	13 897	5 691	9 789	7 149
有害廢物[14] Hazardous Waste[14]					
碳粉盒 Toner Cartridges	個 No.	–	2 589	2 640	2 500
可充電電池 Rechargeable Batteries	公斤 kg	–	960[15]	–	1 394
廢油 Waste Oil	升 L	–	2 895[15]	–	4 801
舊車胎 Used Vehicle Tyre	條 No.	–	278[15]	–	58
舊光管 / 含水銀照明燈 Spent Fluorescent/Mercury Lamp	盞 No.	–	7 179	–	9 230

12 306-2

13 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。

14 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。

15 102-48，更正了2017/18年度的數字以撇除客戶的回收表現。

12 306-2

13 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.

14 Disposal method determined based on compliance with local government requirements. All hazardous waste are collected by licensed contractors for recycling.

15 102-48. 2017/18 figures updated to exclude clients' recycling performance.

統計資料摘要
Summary of Statistics

社會 Social

僱員人數[16] Employees Statistics[16]

	截至2019年3月31日 As of 31 March 2019	百分比 Percentage
總人數 Total Number	5 566	–
男女分佈 By Gender		
男性 Male	4 940	88.8%
女性 Female	626	11.2%
合約類型分佈 By Employment Type		
常任制 Permanent		
男性 Male	3 399	87.3%
女性 Female	494	12.7%
合約制 Contract		
男性 Male	1 541	92.1%
女性 Female	132	7.9%
年齡分佈 By Age Group		
50歲或以上 Aged 50 or above	1 696	30.5%
30–49歲 Aged 30-49	2 593	46.6%
29歲或以下 Aged 29 or lower	1 277	22.9%

2018/19新入職員工[17] 2018/19 New Hires[17]

	截至2019年3月31日 As of 31 March 2019	百分比 Percentage
總人數 Total Number	605	佔總員工10.9% 10.9% of total employee
年齡分佈 By Age Group		
50歲或以上 Aged 50 or above	86	14.2%
30–49歲 Aged 30-49	147	24.3%
29歲或以下 Aged 29 or lower	372	61.5%
男女分佈 By Gender		
男性 Male	530	87.6%
女性 Female	75	12.4%

16 102-8，405-1，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。

16 102-8, 405-1. The EMSD does not employ workers who are not employees. All staff are based in Hong Kong.

17 401-1

17 401-1

離職員工[17] Turnover[17]

	截至2019年3月31日 As of 31 March 2019	百分比 Percentage
總人數 Total Number	172	佔總員工3.1% 3.1% of total employee
年齡分佈 By Age Group		
50歲或以上 Aged 50 or above	160	93.0%
30–49歲 Aged 30-49	2	1.2%
29歲或以下 Aged 29 or lower	10	5.8%
男女分佈 By Gender		
男性 Male	153	89.0%
女性 Female	19	11.0%

管理層的結構[18] Composition of Senior Management[18]

	截至2019年3月31日 As of 31 March 2019	百分比 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
年齡分佈 By Age Group		
50歲或以上 Aged 50 or above	107	66.0%
30–49歲 Aged 30-49	55	34.0%
29歲或以下 Aged 29 or lower	0	0
男女分佈 By Gender		
男性 Male	148	91.4%
女性 Female	14	8.6%

[18] 405-1

[18] 405-1

統計資料摘要
Summary of Statistics

職業健康及安全指標[19] Occupational Health and Safety Indicators[19]

			2018/19
機電署員工 The EMSD Employees	死亡 Fatalities	數字 Number	0
		比率 Rate	0
	嚴重工傷[20] High-consequence work-related injuries[20]	數字 Number	0
		比率 Rate	0
	工傷[21] Recordable work-related injuries[21]	數字 Number	26
		比率 Rate (按每200 000工時計算) (number per 200 000 man-hours)	0.41
	工作小時 Number of hours worked	小時 Hour	12 617 592
機電署承辦商 The EMSD Contractors	死亡 Fatalities	數字 Number	0
		比率 Rate	0
	嚴重工傷[20] High-consequence work-related injuries[20]	數字 Number	0
		比率 Rate	0
	工傷[22] Recordable work-related injuries[22]	數字 Number	5
		比率 Rate (按每200 000工時計算) (number per 200 000 man-hours)	0.15
	工作小時 Number of hours worked	小時 Hour	6 735 766

19 403-2

20 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。

21 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。2018/19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與固定或不動的物件碰撞。

22 2018/19年度機電署承辦商工傷主要類型是受困於物件之內或物件之間、高處墮下以及滑倒、絆倒或在同一高度跌倒。

19 403-2

20 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.

21 Any accidents 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 2018/19 for the EMSD employees were slip, trip or fall on the same level and striking against fixed or stationary object.

22 Main types of work-related injury reported in 2018/19 for the EMSD contractors were trapped in or between objects, fall of person and slip, trip or fall on the same level.

其他社會指標 Other Social Indicators

	單位 Unit	2016/17	2017/18	2018/19
須予呈報意外宗數 Reportable Accidents	宗/千名員工 No./1 000 staff	4.90	3.65	4.70
平均培訓日數(目標：4.5) Average Training Days (Target: 4.5)	日/員工 Days/staff	5.41	5.29	5.43
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	未能提供數據 Figure not available	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	未能提供數據 Figure not available	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	未能提供數據 Figure not available	0	0

獨立保證意見聲明書

聲明書號碼：**SRA-HK-718204**

機電工程署
社會及環保報告 2018/19

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 2018/19（以下簡稱「報告」）進行評估和核查外，與機電署並無任何財務上的關係。

本獨立保證意見聲明書的目的，僅作為對下列有關機電署社會及環保報告所界定範圍內的相關事項進行保證之結論，而不作為其他之用途。除對查證事實提出獨立保證意見聲明書外，對於關於其他目的之使用，或閱讀此獨立保證意見聲明書的任何人，英國標準協會並不負有或承擔任何有關法律或其他之責任。本獨立保證意見聲明書供機電署之持份者及管理人員使用。

本獨立保證意見聲明書是基於機電署提供予英國標準協會之相關資料審查所作成之結論，因此審查範圍乃基於並只限在這些提供的資料內容之內，英國標準協會認為這些資料內容都是完整且準確的。

對於這份獨立保證意見聲明書所載內容或相關事項之任何疑問，只能向機電署提出。

核查範圍

機電署與英國標準協會協議的核查範圍包括：

1. 整份報告及焦點放於系統與活動，包括機電署於 2018 年 4 月 1 日 至 2019 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，以及對指定可持續發展的資料/數據作出評估。

本聲明書以英文編製，中文翻譯本只供參考。

意見聲明

我們可以總結，本報告年度的報告為機電署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。

這次核查工作是由一組具有可持續發展報告核查能力之團隊執行。透過策劃和進行核查時所獲得的資料及說明，我們認為機電署就符合全球報告倡議組織標準的核心選項之聲明，是屬公允的描述。

核查方法

為了收集能讓我們得出結論的證據，我們執行了以下工作：

- 對來自外部團體關於機電署政策的議題，進行高階管理層的審查，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：

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、通訊、會議、研討會、座談會、持份者參與問卷調查、員工滿意度調查、員工工會及員工協商委員會、焦點討論小組、高級管理層親善大使探訪、培訓課程、比賽及團隊建立活動、業界參與計劃、工作小組、機電安全及節能社區推廣活動、合作項目、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

機電署發佈可持續發展資訊，讓持份者對機電署的管理及表現可作出有事實根據的判斷。我們專業的意見認為，報告遵循實質性原則，並透過合適的方法識別出機電署的實質範疇，以重要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行背景，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：

陳肇雄先生
英國標準協會亞太區營運總監

2019 年 10 月 30 日

Independent Assurance Opinion Statement

By Royal Charter

Statement No.: **SRA-HK-718204**

Electrical and Mechanical Services Department Social and Environmental Report 2018/19

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 EMSD other than for the assessment and assurance of EMSD's Social and Environmental Report 2018/19 ("Report").

This independent assurance opinion statement has been prepared for EMSD only for the purposes of assuring its statements relating to the Report, more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read. This statement is intended to be used by stakeholders & management of EMSD.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by 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 EMSD only.

Scope

The scope of engagement agreed upon with EMSD includes the following:

1. The assurance covers the whole Report, and focuses on systems and activities of EMSD in Hong Kong, which include Regulatory Services and Trading Services during the period from 1st April 2018 to 31st March 2019. 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 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.

This statement was prepared in English and translated into Chinese for reference only.

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 EMSD's efforts being made to pursue sustainable development are widely recognized by its stakeholders.

Our work was carried out by a team of sustainability report assurors. We planned and performed this part of our work to obtain the necessary information and explanations. We considered 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 EMSD's policies to provide a check on the appropriateness of statements made in the Report
- Discussion with senior executives on 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:

Inclusivity

The Report has reflected a fact that EMSD is seeking the engagement of its stakeholders through numerous channels such as Customer Opinion Surveys and Interviews, Telephone Surveys, Newsletters, Meetings, Symposiums, Seminars, Stakeholder Engagement Questionnaires, Staff Satisfaction Surveys, Staff Unions and Departmental Consultative Committees, Focus Groups, Ambassador Visits by Senior Management, Training Sessions, Competitions and Team-building activities, Trade Engagement Programme, Working Groups, Community-wide Promotion of E&M Safety and Energy Efficiency, Joint Projects, YouTube, Media Gatherings, Feedback and Responses to Media Enquiries, and more.

EMSD's operation involves various methods of engaging its stakeholders on daily basis. The Report covers economic, social and environmental aspects concerned by its stakeholder with a fair level of disclosures. In our professional opinion, EMSD adheres to the principle of Inclusivity. Our view in area for enhancement to the Report was adopted by EMSD before issue of this opinion statement.

Materiality

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 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 EMSD before issue of this opinion statement.

Responsiveness

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, EMSD adheres to the principle of Responsiveness. Area for enhancement to the Report was adopted by EMSD before issue of this opinion statement.

GRI Standards Reporting

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 EMSD's social responsibility and sustainability issues. Areas for enhancement of the Report were adopted by EMSD before the issue of this opinion statement.

Assurance Level

The Type 1 Moderate Level of Assurance provided in our review is defined by the scope and methodology described in this statement.

Responsibility

It is the responsibility of EMSD's senior management to ensure the information being presented in the Report is accurate. 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:

Mr. Wilfred Chan
Head of Operations, BSI Asia Pacific

Hong Kong
2019-10-30

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
食物環境衞生署	Food and Environmental Hygiene Department
政府物流服務署	Government Logistics Department
政府產業署	Government Property Agency
路政署	Highways Department
香港兒童醫院	Hong Kong Children's Hospital
香港消防處	Hong Kong Fire Services Department
醫院管理局	Hospital Authority
入境事務處	Immigration Department
康樂及文化事務署	Leisure and Cultural Services Department
海事處	Marine Department
香港鐵路有限公司	Mass Transit Railway Corporation Limited
昂坪360有限公司	Ngong Ping 360 Limited
東區尤德夫人那打素醫院	Pamela Youde Nethersole Eastern Hospital
伊利沙伯醫院	Queen Elizabeth Hospital
運輸署	Transport Department
職業訓練局	Vocational Training Council
水務署	Water Supplies Department

Design and Production 設計和製作：i.Link Group Limited www.ilinkfin.com

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