# 規管服務業務概覽

# REGULATORY SERVICES ACHIEVEMENTS **OVERVIEW**

## 抱負 VISION

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

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

## 使命 MISSION

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

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

## 信念 VALUES

專業才能 **EXPERTISE**
誠信 **INTEGRITY**
可靠 **RELIABILITY**
承擔 **COMMITMENT**

# 高層管理人員
# SENIOR MANAGEMENT

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

**潘國英太平紳士**
**Mr Poon Kwok-ying, Raymond, JP**
署理副署長 / 規管服務
（助理署長 / 氣體及一般法例）
Deputy Director/
Regulatory Services (Acting)
(Assistant Director/
Gas and General Legislation)

**彭耀雄太平紳士**
**Mr Pang Yiu-hung, JP**
機電工程署署長
Director of Electrical and
Mechanical Services

**陳秋發太平紳士**
**Mr Chan Chau-fat, JP**
署理副署長 / 規管服務
（助理署長 / 鐵路）
Deputy Director/
Regulatory Services (Acting)
(Assistant Director/Railways)

**朱祺明先生**
**Mr Chu Kei-ming, Barry**
助理署長 / 電力及能源效益
Assistant Director/
Electricity and Energy Efficiency

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


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

* 賴漢忠太平紳士出任副署長 / 規管服務至2019年9月13日
Mr Lai Hon-chung, Harry, JP was Deputy Director/Regulatory Services up to 13 September 2020

* 黃奕進先生出任助理署長 / 電力及能源效益至2020年6月22日
Mr Vy Ek-chin was Assistant Director/Electricity and Energy Efficiency up to 22 June 2020

# 服務回顧
# OPERATIONS REVIEW

潘國英太平紳士
**Mr Poon Kwok-ying, Raymond, JP**
署理副署長 / 規管服務
Deputy Director/
Regulatory Services (Acting)

陳秋發太平紳士
**Mr Chan Chau-fat, JP**
署理副署長 / 規管服務
Deputy Director/
Regulatory Services (Acting)

## 工作亮點

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

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

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

## 規管者及其他角色

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

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

## HIGHLIGHTS

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

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

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

## MORE THAN A REGULATOR

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

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

# 服務回顧
# Operations Review

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

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

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

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

## 區域合作新發展

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

## NEW MOVES IN REGIONAL CO-OPERATION

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

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

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

## 公眾活動及2019冠狀病毒病疫情

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

## PUBLIC ORDER EVENTS AND COVID-19

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

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

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

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

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

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

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

## 智慧政府

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

## SMART GOVERNMENT

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

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

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

# 服務回顧
# Operations Review

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

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

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

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

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

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

## 來年重點

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

## PRIORITIES FOR NEXT YEAR

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

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

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

## 鳴謝

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

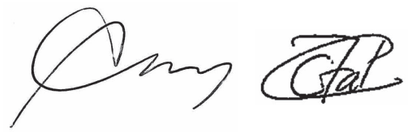
來年料將同樣充滿挑戰。深信在你們的支持下，規管服務定會緊守崗位，邁步向前。

## APPRECIATION

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

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

**潘國英、陳秋發**
署理機電工程署副署長/規管服務



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

# 年度亮點
# HIGHLIGHTS OF THE YEAR

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

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

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

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

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

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

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

屯馬綫一期開通前 BEFORE Commissioning of Tuen Ma Line Phase 1: **17** 分鐘 minutes

開通後 AFTER: **9** 分鐘 minutes

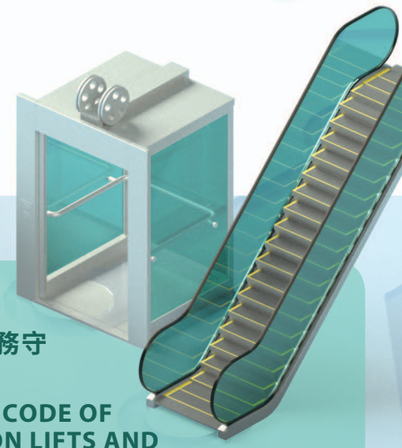
## 「採電學社」及重新校驗進展良好
## GOOD PROGRESS MADE IN SOLAR HARVEST AND RETRO-COMMISSIONING

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

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

重新校驗已於 Conducted RCx in **44** 幢政府大樓進行 **government buildings**

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



## 新版升降機及自動梯實務守則提升安全
## REVAMPED CODE OF PRACTICE ON LIFTS AND ESCALATORS ENHANCES SAFETY

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

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

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

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

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

# 重要數字
# KEY FIGURES

## 電業工程人員 ELECTRICAL WORKERS

### 註冊電業工程人員
### REGISTERED ELECTRICAL WORKERS

2018
**79 716** 名 NOS.

2019
**80 445** 名 NOS.

## 電業承辦商 ELECTRICAL CONTRACTORS

### 註冊電業承辦商
### REGISTERED ELECTRICAL CONTRACTORS

2018
**13 097** 間 NOS.

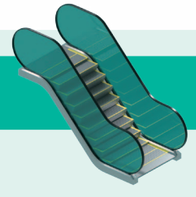
2019
**13 445** 間 NOS.

## 升降機及自動梯 LIFTS AND ESCALATORS

### 升降機
### LIFTS

2018
**68 177** 部 NOS.

2019
**69 543** 部 NOS.



### 自動梯
### ESCALATORS

2018
**9 709** 部 NOS.

2019
**9 934** 部 NOS.

## 燃氣供應 GAS SUPPLY

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

2018
**3 660** 公里 KM

2019
**3 676** 公里 KM

## 車輛維修技工 VEHICLE MECHANICS

### 註冊車輛維修技工
### REGISTERED VEHICLE MECHANICS

2018
**9 333** 名 NOS.

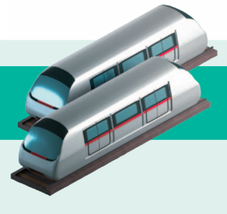
2019
**8 801** 名 NOS.

## 車輛維修工場 VEHICLE MAINTENANCE WORKSHOPS

### 註冊車輛維修工場
### REGISTERED VEHICLE MAINTENANCE WORKSHOPS

2018
**2 071** 間 NOS.

2019
**2 051** 間 NOS.



## 鐵路 RAILWAY

### 鐵路年度載客量
### RAILWAY ANNUAL PATRONAGE

2018
**1 993** 百萬 MILLION

2019
**1 862** 百萬 MILLION

# 保障公眾安全
# PROTECTING PUBLIC SAFETY

## 電力安全

### 電力事故持續下降

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

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

## ELECTRICAL SAFETY

### Electrical Incidents Still on Decline

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

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

**第三方損壞供電電纜事故數目**
**Number of Incidents of Third-party Damage to Electricity Supply Lines**


### 目標為本　加強電力安全宣傳

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

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

### Stepping Up Target-oriented Electrical Safety Promotion

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

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

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

超過 more than **1 800**

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

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

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

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

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

## 實務守則有序更新

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

## Codes of Practice Systematically Updated

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

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

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

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

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

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

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

## 配合可再生能源發展　加快發電設施註冊審批

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

## Expediting Registration to Facilitate Renewable Energy Development

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

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

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

# 保障公眾安全
# Protecting Public Safety


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

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

## 透過比賽交流　樹立業界典範

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

## Establishing Role Models for Trade Members through Competitions

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

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

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

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

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

## 協助業界應對疫情

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

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

## Supporting the Trade to Fight COVID-19

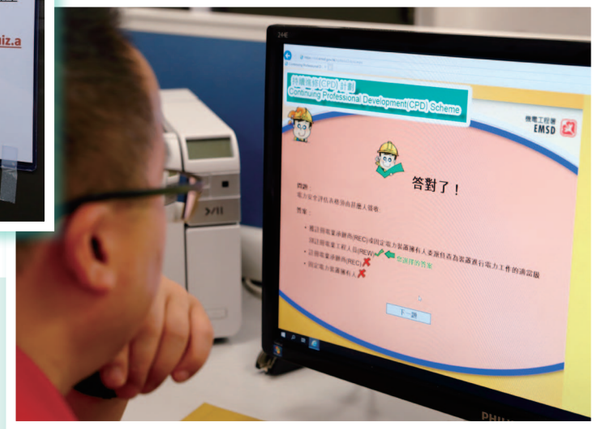
In view of the COVID-19 outbreak in early 2020, we introduced a range of contingency measures to ensure that the trade could continue to operate at minimised infection risks. For example, during the peak of the outbreak, the EMSD Registration and Permit Office was temporarily closed to combat the spread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

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

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

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


# 保障公眾安全
# Protecting Public Safety


疫情爆發後，我們建立了網上持續進修訓練平台，讓註冊電業工程人員得以完成持續進修訓練，避免因疫情而影響業界註冊續期。

After the COVID-19 outbreak, a web-based CPD training platform has been established for registered electrical workers to complete CPD training, so that their renewal of registration will not be affected by the pandemic.

## 深化與中國內地合作　加強跨境及國際聯繫

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

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

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

## Deepening the Mainland of China and International Collaborations

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

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

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

## 來年工作重點

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

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

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

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

## Priorities for the Year Ahead

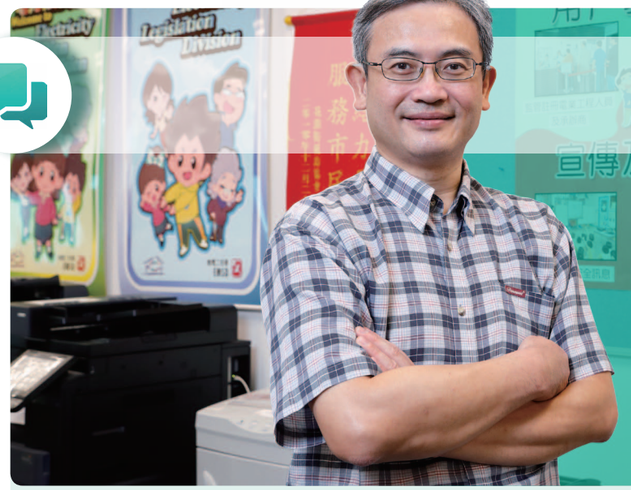
In the coming year, we will continue to review and revise the Code of Practice for the Electricity (Wiring) Regulations, targeting to release the new version by end 2020.

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

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

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

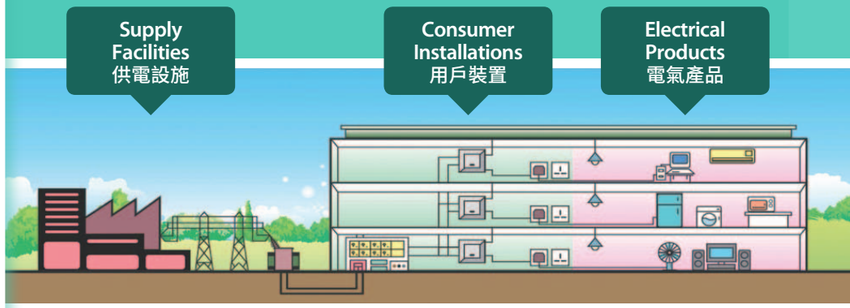
# 保障公眾安全
# Protecting Public Safety



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

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

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




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

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

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

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

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

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

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

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

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

## 氣體安全

### 氣體事故持續減少

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

## GAS SAFETY

### Gas Incidents on Decline

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


### 提高定期氣體安全檢查的覆蓋率

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

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

### Greater Coverage of Regular Safety Inspections

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

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


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

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

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

### 食肆氣體安全問卷調查及氣體裝置快速檢查計劃

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

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

### Restaurant Gas Safety Survey and Gas Installations "Quick Check"

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

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

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

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

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

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

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

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

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

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

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

## 善用科技　與時並進

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

## Leveraging Technology, Moving with the Times

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

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

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

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

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

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

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



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

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

## 深入社區推廣氣體安全

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

## Promoting Gas Safety in the Community

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

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

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

## 抗疫及其他應變措施

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

## Anti-epidemic and Other Contingency Measures

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

# 保障公眾安全
# Protecting Public Safety

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

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

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

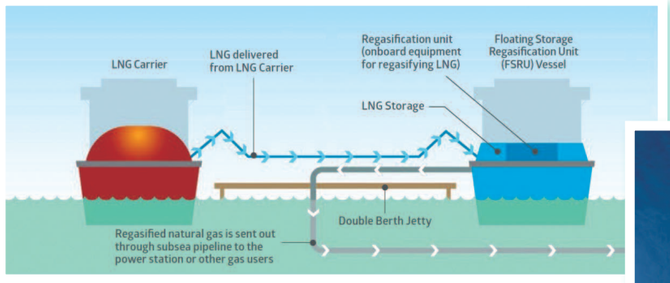
As the livelihood of practitioners in gas industry and vehicle maintenance trade was affected by the epidemic, we facilitated the inclusion of gas industry stakeholders, including registered gas contractors, registered gas installers and vehicle maintenance workshops, as beneficiaries of the Anti-epidemic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

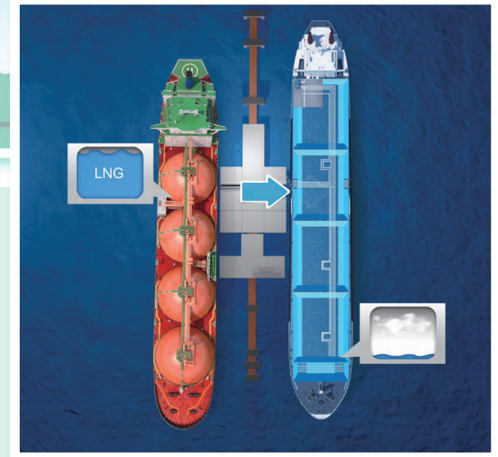
鑑於年內的公眾活動，我們也確保各個註冊氣體供應公司及石油氣加氣站營運商都因應評估而制訂了完善的應變計劃，提高警覺，並加強與其溝通的渠道，以保障公眾氣體設施的安全。公眾活動發生期間，我們每日更新事故報告，密切監察事態對氣體安全可能造成的影響。

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


機電署人員正審核註冊氣體承辦商的工作。這是我們的職責之一，以確保業界的作業方法完全符合法例及專業要求。

EMSD staff are auditing the work of a registered gas contractor, which is part of our duties to ensure that the trade's practices comply with all statutory and professional requirements.




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

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

（相片由中華電力有限公司提供）

(Photos from the CLP Power Hong Kong Limited)

## 為各環保項目的氣體安全把關

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

## Gatekeeping for Eco-friendly Gas Projects

During the year, the EMSD continued to conduct gas risk assessments, monitor the progress and provide safety advice for the project of offshore liquefied natural gas (LNG) terminal, which is under construction by the two power companies in the waters to the east of the Soko Islands. Upon commissioning, the terminal can berth an LNG carrier and a Floating Storage and Regasification Unit (FSRU) vessel with a capacity of up to 263 000 $m^3$. By then, the LNG received in the FSRU vessel will be regasified and supplied to the Black Point Power Station of CLP Power Hong Kong Limited and the Lamma Power Station of The Hongkong Electric Company Limited for power generation, via two separate subsea gas pipelines of 45 km and 18 km in length respectively. Being the first offshore LNG terminal in Hong Kong, it will significantly enhance the reliability of natural gas supply in Hong Kong upon commissioning. Besides, the increased usage of clean energy will give us momentum for achieving the target of reducing Hong Kong's carbon intensity by 50% to 60% (based on the 2005 level), which is equivalent to the lowering of absolute carbon emissions by about 20% and thus improving the air quality across the territory.

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

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

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

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

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

**2022 年目標 Target in 2022**

避免排放溫室氣體量
**Greenhouse gases prevented**
**67 000** 公噸 tonnes

避免產生的廚餘量
**Food waste prevented**
**110 000** 公噸 tonnes



## 統籌跨部門工作小組加快搶修工作

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

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

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

## 提醒公眾使用易燃雪種須知

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

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

## Safety Reminders on Using Flammable Refrigerants

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

## 提高車輛維修服務水平

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

## Raising Vehicle Maintenance Service Standards

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

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

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

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

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

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

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



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

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

## 來年展望

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

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

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

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

## Prospects for the Year Ahead

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

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

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

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

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

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

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

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

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

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

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

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

修復後的石油氣儲存設施，可更有效抵禦未來的颱風。

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

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

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

# 保障公眾安全
# Protecting Public Safety

## 機械安全

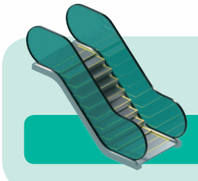
### 升降機及自動梯事故減少

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

## MECHANICAL SAFETY

### Fewer Lift and Escalator Incidents

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



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

**25 %**

### 修訂設計實務守則　以國際標準為藍本

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

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

### Design Code Revised as per International Standards

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

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

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

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

### 優化升降機資助計劃

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

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

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

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

### Lift Modernisation Subsidy Scheme

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

## 培育人才　促進業界健康發展

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

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

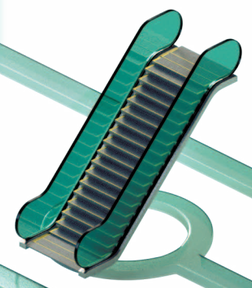
## Grooming Talent to Facilitate Healthy Development of Trade

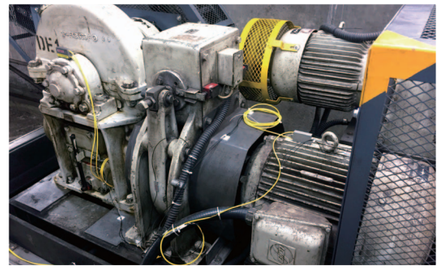
The EMSD has been making ongoing efforts with the Vocational Training Council (VTC) and the trade to groom and develop lift and escalator skilled workers. During the year, the annual intake of the vocational and professional education and training (VPET) programme (lift/escalator) of the VTC exceeded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

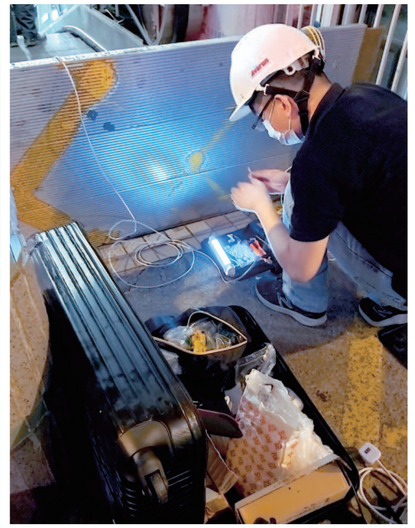
It is also essential to elevate the professional standards and expand the horizons of our staff. During the year, EMSD staff were sent on overseas study visits to find out more about the latest development of the lift and escalator industry. We also arranged for our colleagues to attend training at the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

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

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







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

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

## 運用創科　提高升降機及自動梯檢測效率

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

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

## Leveraging Technology to Enhance Lift and Escalator Monitoring

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

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

# 保障公眾安全
# Protecting Public Safety

## 機動遊戲機審批工作

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

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

## Vetting and Approval of Amusement Rides

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

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

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

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


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

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

## 疫情下昂坪360順利年檢

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

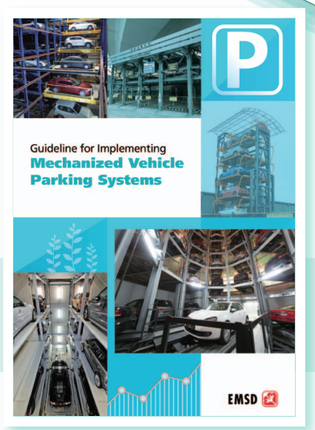
自2019冠狀病毒病於2020年1月在香港爆發後，機電署馬上採取相應措施，包括提醒各升降機和自動梯承辦商啟動緊急應變計劃，並敦促各承辦商檢視人手情況和零部件供應，確保本港升降機和自動梯的正常服務不受影響。在2019年的社會動盪中，我們也主動與多個註冊升降機及自動梯承辦商聯絡，以掌握每天遭損毀升降機及自動梯的數目，並監察和協調各承辦商的搶修工程，務求盡快為市民恢復正常的升降機及自動梯服務。

## Annual Examination of Ngong Ping 360 Completed amid COVID-19

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

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

# 保障公眾安全
# Protecting Public Safety




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

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

## 草擬機械化泊車系統指引

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

## Drafting Guidelines for Mechanised Vehicle Parking Systems

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

## 來年亮點

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

## Highlights of Next Year

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

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

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

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

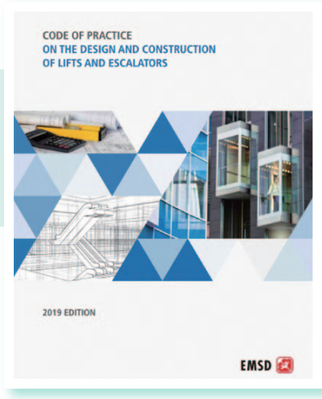
For the LIMSS, we will continue to provide technical support to ensure that the tender process is fair and transparent. A steering committee comprising representatives from the URA, DEVB and EMSD will monitor the progress of all LIMSS projects, and we will dedicate our best efforts to the work.

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

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

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

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




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

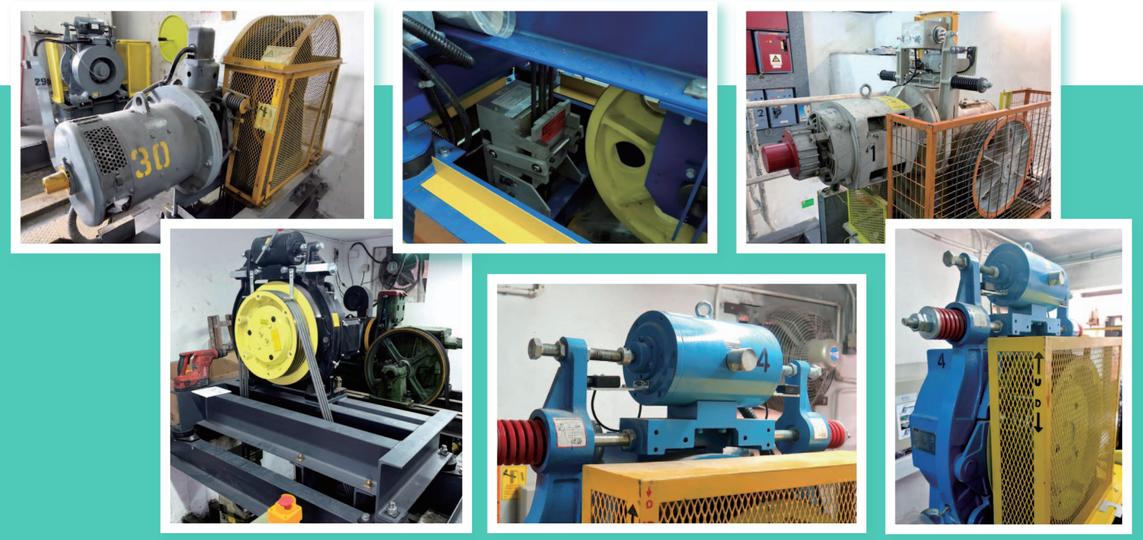
The newly revised edition of the Code of Practice on the Design and Construction of Lifts and Escalators makes it easier for international lift/escalator manufacturers to understand Hong Kong's regulations and help bring in a wider selection of lifts and escalators.

# 保障公眾安全
# Protecting Public Safety

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

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

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

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

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

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

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

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

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

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

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

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



## 鐵路安全

### 屯馬綫一期順利開通

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

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

## RAILWAY SAFETY

### Smooth Commissioning of Tuen Ma Line Phase 1

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

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

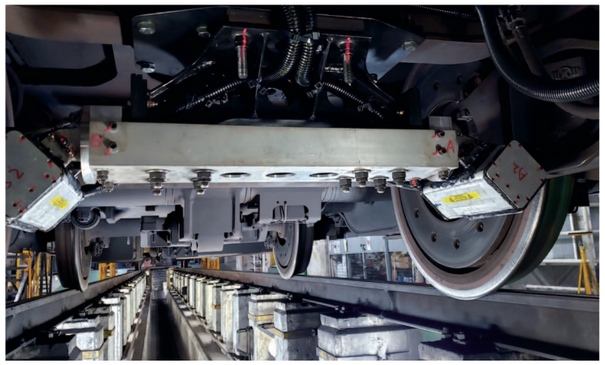

全新的顯徑站車站大堂。顯徑站是屯馬綫一期的車站之一，新綫已於2020年2月14日開通。

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

顯徑站於2020年2月14日啟用，乘客眾多。

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

# 保障公眾安全
# Protecting Public Safety



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

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

## 要求港鐵落實改善措施以提升鐵路安全

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

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

## Requesting MTRCL to Implement Improvement Measures to Enhance Railway Safety

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

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

## 增加人手編制深化鐵路安全審核

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

## Expanding Our Teams to Step Up Railway Safety Audits

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



我們的督察在顯徑站月台進行檢測工作。

Our inspector conducts testing on the Hin Keng Station platform.

顯徑站外觀。顯徑站是新近開通的屯馬綫一期的車站之一。

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

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

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

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

## 應對疫情及突發情況

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

## Responding to COVID-19 and Other Emergencies

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

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

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

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

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

## 監察山頂纜車優化工程

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

## Monitoring of Peak Tram Upgrade Project

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

## 推動業界善用創科提升鐵路安全

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

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

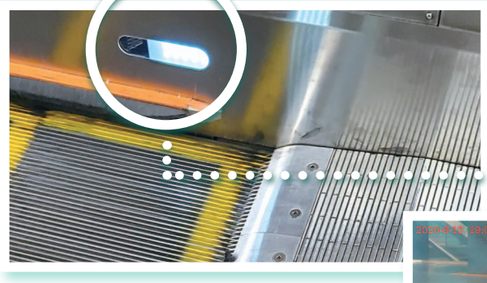
此外，機電署也主動進行創科項目測試，例如在車站入閘處安裝光學雷達物件偵測系統，如有攜帶大型物件的乘客，或行動不穩或不便者準備使用自動梯，裝置即會發出相關廣播及通報站內職員以提供協助，確保乘客安全。成功測試這類由機電署牽頭研發的創科項目後，我們會推動本地鐵路業界予以廣泛應用。

## Facilitating the Trade in Adopting I&T for Railway Safety

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

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

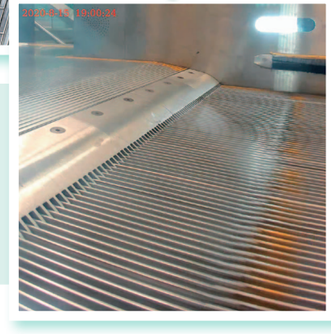
The EMSD also proactively conduct I&T trial projects such as the installation of a Light Detection and Ranging (LIDAR) object detection system at the entrance gates at stations. The system makes relevant public address announcement and alerts station staff for timely assistance if passengers carrying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



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

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

**攝影機視角 Camera View**



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

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

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

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

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

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

## 借鑑國際經驗強化鐵路安全規管

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

## Strengthening Railway Safety Regulatory Work with International Experience

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


港鐵的輕鐵系統網絡正進行新列車測試。這批新車將是輕鐵系統的第五代列車。

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

## 來年展望

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

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

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

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

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

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

## The Year Ahead

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

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

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

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

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

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

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

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

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

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

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

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

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

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

# 保障公眾安全
# Protecting Public Safety

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

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

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


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

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

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

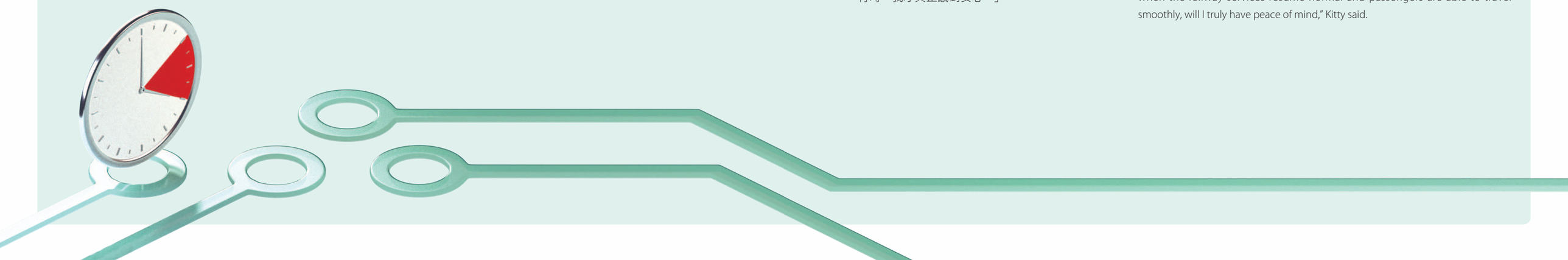
Kitty's team is responsible for the matters relating to the East Rail Line (EAL) and its extension from Hung Hom to Admiralty. While the works on the new section can be done during the day, all works involving the operating section have to be conducted within the two-hour window at night. "Even seemingly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

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

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

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

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



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

## 「採電學社」進展良好

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

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

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

## Remarkable Progress of Solar Harvest

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

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

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

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

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



我們的同事在巡查零售店鋪期間，以平板電腦核實和記錄能源標籤上的相關資料。

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

## 「強制性能源效益標籤計劃」第三階段全面實施

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

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

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

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

## Third Phase of Mandatory Energy Efficiency Labelling Scheme Fully Implemented

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

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

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

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

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

## 全民節能　各界響應

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

## Energy Saving for All Campaign on Track

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


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

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

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

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

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

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

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

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

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

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

## 上網電價計劃　推動可再生能源

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

## Feed-in Tariff Scheme Promotes Renewable Energy

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

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

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

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

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

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

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

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

## 綠色校園2.0

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

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

## Green Schools 2.0

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

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

## 推廣綠色創科

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

## Promoting Green Innovation and Technology

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

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

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

## 《建築物能源效益守則》和《能源審核守則》最新版本正式生效

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

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

## Latest Building Energy Code and Energy Audit Code Being Effective

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

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

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

## 區域供冷系統最新進展及國際殊榮

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

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

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

## Updates on Development of District Cooling Systems and International Recognition Gained

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

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

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

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

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

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

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


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

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

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

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

## 率先為政府建築物進行重新校驗　發揮示範作用

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

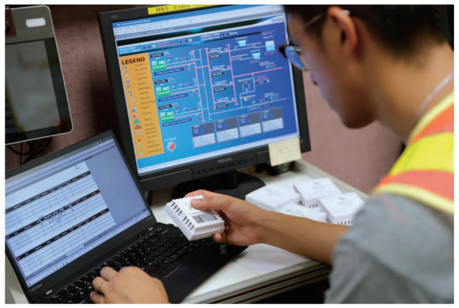
除政府建築物外，我們也致力在社區層面推動既有樓宇的重新校驗工作。香港共有40 000多幢私人樓宇，其中七成樓齡超過20年，可見當中有極大的節能空間。政府建築物率先進行重新校驗工作，能起牽頭作用，鼓勵私人樓宇跟隨。同時，機電署的重新校驗資源中心網站，也為從業員及建築物擁有人提供重新校驗資訊，包括屋宇裝備系統問題的診斷技術指引、中央控制管理系統數據範本和重新校驗的經驗分享等，從而鼓勵業主為樓宇「驗身」，以節約能源和減少電費開支。

## Retro-Commissioning Pilots in Government Buildings as Showcases

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

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

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



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

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

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

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

## 拓展區域及大灣區合作

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

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

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

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

## Expanding Regional and Greater Bay Area Collaboration

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

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

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

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

## 機電署再獲國際殊榮

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

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

## International Award in Recognition of EMSD's Achievements

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

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

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

**31 %**

## 來年展望

來年重點之一，是落實「綠色校園2.0」計劃，以配合政府應對氣候變化的工作。

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

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

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

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

## The Year Ahead

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

# 提升公眾安全及節能意識
# RAISING PUBLIC AWARENESS OF SAFETY AND ENERGY CONSERVATION

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

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

## 應對疫情及突發情況

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

## Responding to COVID-19 and Other Emergencies

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

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

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

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

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




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

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


杭州會議也是機電署與中國內地合作伙伴的第16次年度會議，雙方多年來就機電安全及能源效益事務一直合作無間。

The occasion in Hangzhou also marked the 16th annual meeting between the EMSD and our Mainland of China co-operation partner on matters relating to E&M safety and energy efficiency.

## 國際和區域交流進展

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

## International and Regional Connections

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

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

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

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


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

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

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

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

## 業界溝通添新猷

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

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

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

## New Initiatives in Trade Communication

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

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

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


調查公司在進行外展宣傳時，會向受訪食肆派發最新設計的定期安全檢查宣傳單張。

A newly designed leaflet for promotion of regular safety inspection was distributed to food premises by the survey contractor during outreach visits.

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

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

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

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

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

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

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


機電署與環境局於2019年8月合辦「綠色創科日」。

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

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

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

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

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

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

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

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

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

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

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

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

## 協作創新　加強公眾宣傳教育

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

## Enhancing Public Education through Collaboration and Innovation

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


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

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

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

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

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

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

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

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

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

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

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

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

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

## 機電青少年大使計劃穩步發展

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

## Making Steady Progress in the E&M Young Ambassador Programme

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

## 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。

## Media Gathering

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

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

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

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

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

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

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