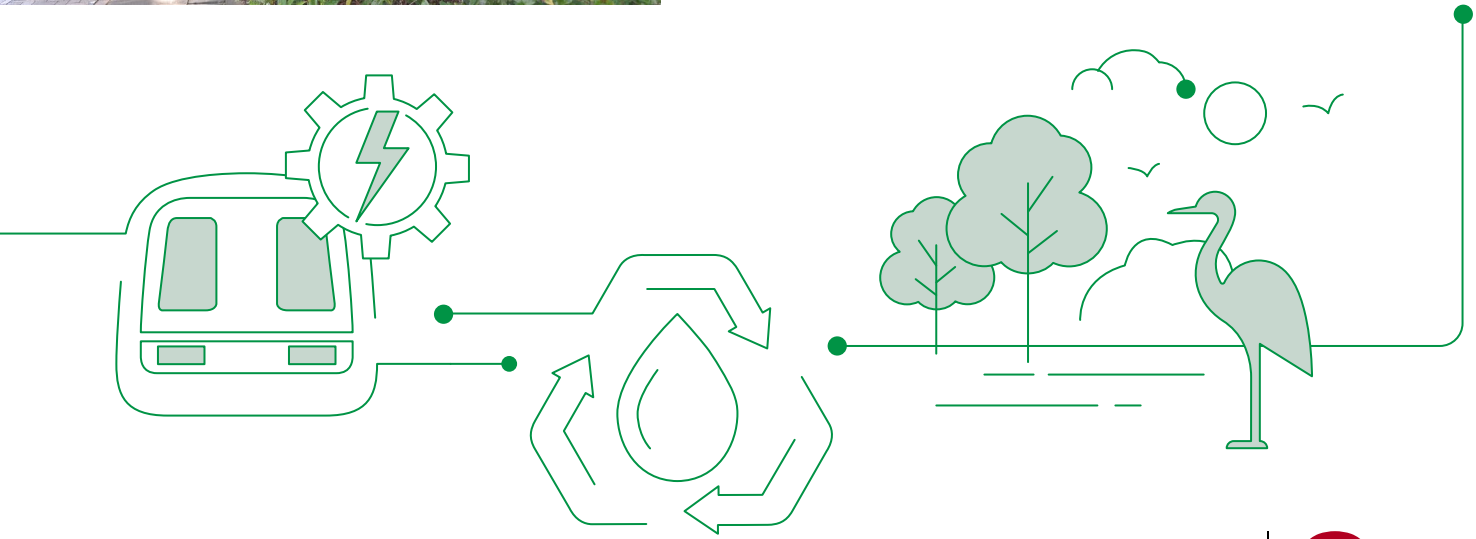
GREEN FINANCE REPORT 2018



caring for life's journeys | MTR

Introduction

The MTR Green Bond Framework was established in October 2016. By the end of 2017, MTR had issued a total of 6 green bonds under the Framework as reported in the 2017 Green Bond Report. In June 2018 MTR established a Green Finance Framework to broaden MTR's green financing scope to include green bonds, loans and other credit facilities.

The Green Bond Framework took guidance from the core components and recommendations of the Green Bond Principles (issued by the International Capital Market Association "ICMA"), and the Green Finance Framework expanded from this foundation to also factor in the recommendations of the Green Loan Principles (issued by Asia Pacific Loan Market Association "APLMA"), providing guidance on the execution, use of proceeds and reporting of the green financings. These frameworks further integrate MTR's environmental, social and corporate governance into its financing and decision-making processes.

In 2018, MTR issued a total of three green bonds via private placement and also concluded one green bilateral revolving credit facility.

According to the Green Bond Market Briefing published by the Climate Bond Initiatives in February 2019, MTR was the largest and most frequent Green Bond Issuer in Hong Kong as at the end of 2018. The various green financings help diversify MTR's funding sources and promote the local green financing market in line with the Hong Kong Government's efforts to establish "Hong Kong as a regional green finance hub".

Green Finance Portfolio

At the end of 2018, MTR's green bond portfolio consists of nine bonds in three different currencies. The bonds were issued either directly by MTR or by its issuance vehicle MTR Corporation (C.I.) Limited ("MTR CI") with guarantee of MTR. In addition to the green bonds, MTR also concluded a 5-year green revolving credit facility. The following tables list out all the green financings.

Green Bonds

Year Issued	Identifier/ISIN	Issuer	Currency	Coupon (p.a.)	Maturity Date	Principal Amount
2016	MTRCIGB_USD_261102 XS1509084775	MTR CI	USD	2.500%	2 Nov 2026	USD 600,000,000
2017	MTRCIGB_AUD_270628 XS1637858546	MTR CI	AUD	3.300%	28 Jun 2027	AUD 171,000,000
2017	MTRCIGB_HKD_320920 HK0000365228	MTR CI	HKD	2.460%	20 Sep 2032	HKD 722,000,000
2017	MTRGB_HKD_470717 HK0000352432	MTR	HKD	2.980%	17 Jul 2047	HKD 338,000,000
2017	MTRCIGB_HKD_470906 HK0000362761	MTR CI	HKD	2.830%	06 Sep 2047	HKD 315,000,000
2017	MTRGB_USD_470927 XS1690683211	MTR	USD	3.375%	27 Sep 2047	USD 100,000,000
2018	MTRCIGB_HKD_200629 HK0000427812	MTR CI	HKD	2.520%	29 Jun 2020	HKD 348,000,000
2018	MTRCIGB_HKD_210502 HK0000416609	MTR CI	HKD	2.560%	2 May 2021	HKD 413,000,000
2018	MTRCIGB_HKD_480328 HK0000409455	MTR CI	HKD	3.150%	28 Mar 2048	HKD 230,000,000

Green Loans/Credit Facilities

Year Executed	Identifier	Currency	Maturity Date	Principal Amount
2018	MTRGL_HKD_230626	HKD	26 Jun 2023	HKD 2,500,000,000

Project Portfolio

MTR's Project Portfolio funded by our green finance proceeds remained unchanged from the previous year, but the cost incurred in several of the projects increased as these projects progressed further.

Details of the projects are given in page 4-8.

#	Name of Project	Classification	Total Project Amount	Cost Incurred up to Dec 2018	Amount Financed by Green Finance Proceeds
A	Kwun Tong Line Extension	Low carbon transport	HK$ 6.9 billion	HK$ 6.0 billion	HK$ 3.403 billion
B	South Island Line	Low carbon transport	HK$ 17.2 billion	HK$ 16.6 billion	HK$ 7.723 billion
C	Air Cooled Chiller Replacement	Energy Efficiency	HK$ 1.1 billion	HK$ 172 million	HK$ 172 million
D	Trackside Energy Storage (pilot)	Energy Efficiency	HK$ 20 million	HK$ 19 million	HK$ 19 million
E	Lok Ma Chau Wetland	Biodiversity preservation	HK$ 4 million per year	HK$ 8 million (from 2017)	HK$ 8 million
				Total:	**HK$ 11.325 billion**

Use of Proceeds

The following table lists out how the green finance proceeds were allocated to the different projects. Please refer to 2016/2017 reports for the allocations of the respective years.

Year Raised	Description/ Identifier/ISIN	Principal Amount (HKD million)	Allocation in Projects (HKD million)				
			A	B	C	D	E
2016	1 green bond	4,654	1,305	3,349			
2017	5 green bonds	3,180	968	2,157	32	19	4
2018	MTRCIGB_HKD_200629 HK0000427812	348	100	244			4
2018	MTRCIGB_HKD_210502 HK0000416609	413	150	263			
2018	MTRCIGB_HKD_480328 HK0000409455	230	80	150			
2018	MTRGL_HKD_230626	2,500	800	1,560	140		
	Total	**11,325**	**3,403**	**7,723**	**172**	**19**	**8**

MTR Green Bond and Green Finance Frameworks

MTR set up a Green Bond Framework ("GBF") in October 2016. Sustainalytics provided a second opinion that the Framework was aligned with the four pillars of the Green Bond Principles (2016) of the International Capital Market Association.

In June 2018, MTR expanded upon the foundation of the GBF and established the Green Finance Framework ("GFF") to cover other forms of green financing, taking into account the recommendation of the Green Loan Principles issued by the Asia Pacific Loan Market.

The Frameworks set out how the Corporation uses green finance proceeds to fund initiatives to enhance long-term service levels and environmental performances, as well as the reporting thereon, thereby integrating environmental, social and corporate governance into its financing and decision-making processes.

Summary of our Frameworks are as follows:

MTR Frameworks:

- MTR Green Bond Framework established in October 2016
- MTR Green Finance Framework established in June 2018
- Proceeds of green financings will be used to fund or refinance, in whole or in part, Eligible Investments.
- Proceeds of green financings may be used to repay borrowings under MTR's general credit facilities pending allocation to Eligible Investments.
- Eligible Investments include projects in the following sectors:
  - » Low Carbon Transportation
  - » Energy Efficiency
  - » Sustainable Transit Stations and Real Estate Properties
  - » Adaptation to Climate Change
  - » Biodiversity and Conservation
  - » Water Management
  - » Waste Management
  - » Pollution Prevention

Green Project Descriptions and Environmental Benefits

Name of Investment	(#A) Kwun Tong Line Extension
Total Investment Amount	HK$6.9 billion
Investment Amount Funded by Green Finance	HK$3.403 billion
Category of Eligible Investment	Low Carbon Transportation
Description of Investments	In May 2011, the Company entered into project agreements with the Hong Kong SAR Government to design, construct and operate the Kwun Tong Line Extension ("KTE") and the South Island Line ("SIL"). KTE extends the existing Kwun Tong Line from Yau Ma Tei station by 2.6km, with two new stations at Ho Man Tin and Whampoa. The KTE commenced operation in October 2016.
Benefits of Projects	The project provides low carbon transportation services to densely populated areas and helps to reduce road traffic congestions experienced by the residents.
Passenger Trips for 2018	45,365,000 (40,546,000 in 2017)
Equivalent Carbon Offset (GHG Emission Avoided in tonnes CO_2e)	**22,900 tonnes CO_2 equivalent** [1] (21,000 tonnes CO_2 equivalent in 2017)
Carbon Offset per Million Investment (HK$)	**3.32 tonnes** (3.04 tonnes in 2017)
Other Benefits	• Reduction of road traffic and congestion around the new stations as fewer cars are needed to transport passengers from the area. • Energy conservation measures such as regenerative braking systems, full platform screen doors and efficient chiller equipment were implemented.

Note [1 and 2]: Please see Appendix I for the method of estimating the CO_2 avoided for projects #A and #B.

Name of Investment	(#B) South Island Line
Total Investment Amount	HK$17.2 billion
Investment Amount Funded by Green Finance	HK$ 7.723 billion
Category of Eligible Investment	Low Carbon Transportation
Description of Investments	In May 2011, the Company entered into project agreements with the Hong Kong SAR Government to design, construct and operate the Kwun Tong Line Extension ("KTE") and the South Island Line ("SIL"). SIL is a 7km medium capacity metro line connecting existing Admiralty station to the Southern District of Hong Kong, with four new stations at Ocean Park, Wong Chuk Hang, Lei Tung and South Horizons. The SIL commenced operation in December 2016.
Benefits of Projects	The project provides low carbon transportation services to densely populated areas and helps to reduce road traffic congestions experienced by the residents. The SIL were also designed with environmentally friendly features like regenerative braking and trackside energy storage systems, extended noise barriers and green roofs.
Passenger Trips for 2018	45,288,000 (40,494,000 in 2017)
Equivalent Carbon Offset (GHG Emission Avoided in tonnes CO_2e)	**22,800 tonnes CO_2 equivalent** [2] (21,000 tonnes CO_2 equivalent in 2017)
Carbon Offset per Million Investment (HK$)	**1.33 tonnes** (1.22 tonnes in 2017)
Other Benefits	• Estimated 600 kWh of electricity saved annually with the regenerative braking and trackside energy storage systems. • Reduction of road traffic and congestion especially at the Aberdeen Tunnel.

Note [1 and 2]: Please see Appendix I for the method of estimating the CO_2 avoided for projects #A and #B.

Name of Investment	(#C) Replacement of Air-Cooled Chillers
Total Investment Amount	HK$1.1 billion
Investment Amount Funded by Green Finance	HK$172 million
Category of Eligible Investment	Energy Efficiency
Description of Investments	A total of 154 chillers at 38 MTR stations and four railway depots will be replaced with more advanced and environmentally friendly systems by 2023. The new station chillers will provide a more comfortable station environment for passengers, with enhanced energy efficiency using variable-frequency drive inverter technology that could adjust the power output based on the actual temperature detected.
Beneficial Environmental Impact Estimate	The operating efficiency and performance of the new chillers will be an improvement over the existing chillers, the energy consumption is expected to be reduced by 30.4 GWh when completed: Estimation of benefit Old chiller total energy consumption: 92.1 GWh per annum New chiller total energy consumption: 61.7 GWh per annum Estimated energy conserved: 30.4 GWh per annum Energy conservation estimates based on planned schedule 5,000MWh per year by April 2019 12,300MWh per year by April 2020 16,300MWh per year by April 2021 19,300MWh per year by April 2022 25,400MWh per year by April 2023 30,400MWh per year by April 2024
Progress of Project and Measured Benefits	A total of 28 chillers have been replaced under the first section of the project. Computation of savings in energy based on measured numbers is at approximately **4,200 MWh**.

Name of Investment	(#D) Pilot Installation of Trackside Energy Storage Devices
Total Investment Amount	HK$20 million
Investment Amount Funded by Green Finance	HK$19 million
Category of Eligible Investment	Energy Efficiency
Description of Investment	The energy storage devices were installed at two locations – Tsuen Wan Depot ("TWD") and Kowloon Ventilation Building ("KVB") for energy saving. The regenerative energy obtained from the braking of Electric Multiple Units ("EMU") is stored in the storage devices and then back-fed to the power line to be used by EMUs during acceleration.
Beneficial Environmental Impact Estimate	The energy consumption is estimated to be reduced by approximately 600MWh per year.
Measured Benefit for 2018	**Energy conserved in 2018 (kWh)**

Month	TWD	KVB
Jan-18	32,169 kWh	23,243 kWh
Feb-18	29,884 kWh	20,299 kWh
Mar-18	29,710 kWh	20,872 kWh
Apr-18	25,925 kWh	28,634 kWh
May-18	23,161 kWh	34,507 kWh
Jun-18	18,098 kWh	33,127 kWh
Jul-18	16,858 kWh	33,964 kWh
Aug-18	17,727 kWh	31,883 kWh
Sep-18	19,626 kWh	31,238 kWh
Oct-18	28,732 kWh	33,210 kWh
Nov-18	23,028 kWh	32,635 kWh
Dec-18	34,216 kWh	33,997 kWh
Total	**298,861 kWh**	**293,195 kWh**

Name of Investment	(#E) Lok Ma Chau (LMC) Wetland Management
Total Investment Amount	HK$4 million per year
Investment Amount Funded by Green Finance	Total of HK$8 million for 2017~2018
Category of Eligible Investment	Biodiversity Protection
Background/ Description of Investment	In 2007, Kowloon Canton Railway/MTR started operating the 32-hectare Ecological Enhancement Area (EEA) to mitigate the ecological impact from the construction and operation of the Lok Ma Chau extension. The Environmental Impact Assessment report by Environment Protection Department is available at the following link. http://www.epd.gov.hk/eia/register/report/eiareport/eia_0442000/C13/C13.htm
Achievements of Investment	The LMC wetland provides a variety of habitats for a wide range of birds, mammals and reptiles, playing a pivotal role in regional biodiversity and helping to maintain the sustainability of local migratory birds. • More than 260 bird species have been recorded in the LMC wetland, accounting for half of all species ever recorded in Hong Kong. • Seven globally threatened bird species, as classified by the International Union for Conservation of Nature's (ICUN) Red List of Threatened Species, were recorded during regular bird surveys in the LMC wetland in 2017: » Yellow-breasted Bunting – critically endangered » Oriental Stork – endangered » Black-faced Spoonbill – endangered » Lesser White-fronted Goose – vulnerable » Greater Spotted Eagle – vulnerable » Eastern Imperial Eagle – vulnerable » Collared Crow – vulnerable • Since 2010, around 120 nest boxes designed for the White-Shouldered Starling have been installed in the LMC wetland and more than 100 pairs of White-Shouldered Starling bred in the nest boxes in 2016. The team is also implementing measures to attract Pheasant-tailed Jacana to breed in the wetland. • The LMC wetland is also the habitat for dragonfly, reptiles, mammals and amphibian species. There have been regular sightings of the Chinese Soft-shelled turtle (threatened species), and the Eurasian Otter (near-threatened species).

Appendix I - Methodology for estimating environmental benefits of Railway Lines

Key approach and assumptions

- The estimation on the reduction of Green House Gas (GHG) emission for Kwun Tong Line Extension and South Island Line is based on a comparison of the GHG emissions between MTR's railway lines with that of local buses, i.e. assuming that without the railway lines, passengers would have taken buses for their full journeys. This is a conservative estimate as passengers would likely have also utilized a mix of minibus, taxis and private cars, all emitting more GHG than a local bus.

  GHG Emission avoided
  = Number of Passenger x (Emission Factor of Average Bus – Emission Factor of MTR) x Average Distance per Passenger

- The emission factor for MTR trains is computed using the total GHG emission divided by the total number of passenger-km.

  The total passenger-km travelled on MTR Heavy Rail system in 2018 was 19,725,532,782. (19,378,526,100 in 2017)

  Total GHG emission from railway operation (including fuel consumption, refrigerants, purchased electricity and water consumption) in 2018 was 1,059,503,000 kg CO_2e (1,055,125,740 kg CO_2e in 2017).

  The GHG emission MTR works out to be 0.054kg CO_2e/ passenger-km (0.054 kg CO_2e/passenger-km in 2017).

- The emission factor for buses was obtained from a report published by UK Department of Business Energy & Industrial Strategy (DEFRA).

  (https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2018)

Transport Mode	Emission Factor kg CO_2e per Passenger-km	Reference
Buses (average local bus)	0.10097	Defra conversion factor, link as above (2017: 0.10259)
MTR Railway	0.05400	As computed above (2017: 0.0540)

Emission Avoidance Estimation for MTR

The average travelling distance of each passenger was 10.8km. Based on the number of passengers for Kwun Tong Line Extension and South Island Line in 2018, the corresponding avoidance of CO_2 emissions are computed as follows:

New Line	Annual Passenger Number ('000)	Annual GHG Emission Avoided (tonnes CO_2e)
KTE	45,365	22,900 (20,700 in 2017)
SIL	45,288	22,800 (20,700 in 2017)

Verification Statement

HKQAA
HONG KONG QUALITY ASSURANCE AGENCY
香港品質保證局

VERIFICATION STATEMENT

Scope of Verification
Hong Kong Quality Assurance Agency (HKQAA) has been engaged by MTR Corporation Limited ("MTR", Hong Kong stock code: 66) to undertake an independent verification for providing limited assurance on the compliance of the projects included in the green project portfolio and financed through the proceeds of 9 MTR Green Bonds issued by MTR Corporation (C.I.) Limited (a subsidiary of MTR) and MTR Corporation Limited, and 1 green revolving credit facility (refer to annex 1 for details) under MTR Green Finance Framework ("Framework"). The scope of HKQAA's verification covers the data and information for the period 1st April 2018 to 31st March 2019.

Level of Assurance and Methodology
The process applied in this verification was based on the International Standard on Assurance Engagements 3000 (Revised) – "Assurance Engagement Other Than Audits or Reviews of Historical Financial Information" issued by the International Auditing and Assurance Standards Board (ISAE 3000). Our evidence gathering process was designed to obtain a limited level of assurance as set out in ISAE 3000 for the purpose of devising the verification.

Our verification procedure performed covered reviewing of relevant documentation, interviewing responsible personnel with accountability for preparing the reporting contents and verifying the selected representative sample of project, data and information. Raw data and supporting evidence of the selected samples were also thoroughly examined during the verification process.

Independence
MTR is responsible for the collection and presentation of the information presented. HKQAA does not involve in calculating, compiling, or development of the Report. Our verification activities are independent from MTR.

Limitations
There are inherent limitations in performing assurance. Assurance engagements are based on selective testing of the information and data being examined. It is possible that fraud, error or non-compliance may occur and not be detected. The assurance did not provide assurance on information outside the defined reporting boundary and period. There are additional inherent risks associated with assurance over non-financial information including reporting against standards which require information to be assured against source data compiled using definitions and estimation methods that are developed by the reporting entity. Finally, adherence to ISAE 3000 is subjective and will be interpreted differently by different stakeholder groups.

Our assurance was limited to the MTR Green Finance Framework post-issuance, and did not include statutory financial statements, financial statements and economic performance. Our assurance is limited to policies and procedures in place as of 31st March 2019.

Conclusion
Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the selected information as at 31st March 2019 has not been prepared, in all material respects, in accordance with the reporting criteria.

Signed on behalf of Hong Kong Quality Assurance Agency

Jorine Tam
Director, Corporate Business
30 May 2019

HKQAA
HONG KONG QUALITY ASSURANCE AGENCY
香港品質保證局

Annex 1: List of Bonds and Credit Facilities

BONDS	
Issuer name	Name of Bond
MTR Corporation (C.I.) Limited	MTRCIGB_USD_261102 XS1509084775
MTR Corporation (C.I.) Limited	MTRCIGB_AUD_270628 XS1637858546
MTR Corporation (C.I.) Limited	MTRCIGB_HKD_320920 HK0000365228
MTR Corporation Limited	MTRCIGB_HKD_470717 HK0000352432
MTR Corporation (C.I.) Limited	MTRCIGB_HKD_470906 HK0000362761
MTR Corporation Limited	MTRGB_USD_470927 XS1690683211
MTR Corporation (C.I.) Limited	MTRCIGB_HKD_200629 HK0000427812
MTR Corporation (C.I.) Limited	MTRCIGB_HKD_210502 HK0000416609
MTR Corporation (C.I.) Limited	MTRCIGB_HKD_480328 HK0000409455
CREDIT FACILITIES	
Year Executed	Identifier
2018	MTRGL_HKD_230626