

# 2022 Climate Action Finance Report

## Introduction

The CLP Group's vision is to be the leading responsible energy provider in the Asia-Pacific region, from one generation to the next. As part of this endeavour, CLP is committed to taking action on climate change. In 2007, we were the first electric utility company headquartered in Asia to publish carbon intensity reduction targets out to 2050 in our Climate Vision 2050. Over the years, we have reviewed and strengthened our targets in response to changing policy drivers, technological advancements, and the increasing pace of energy transition in our key markets and globally. With an urgent need for accelerated climate actions, we have further strengthened our targets in 2021, which include a commitment to achieve net-zero greenhouse gas emissions across our value chain by 2050, set new science-based targets for 2030 to align with the Paris Agreement goal of limiting global warming to well-below 2°C above pre-industrial levels, strengthen 2040 interim targets for the same ambition, and commit to phase out coal-based assets before 2040 – a decade earlier than previously pledged. To further accelerate CLP's transition to low-carbon power supply, a review of the current Climate Vision 2050 targets is already underway with the aim to set 1.5°C aligned targets.

To reinforce CLP's sustainability leadership and commitment to transition to a low carbon economy as manifested in our Climate Vision 2050 and to respond to the increasing investor awareness of the climate change imperative, CLP established the Climate Action Finance Framework (CAFF) in July 2017 that sets out how CLP may raise Climate Action Bonds and use the proceeds of those bonds to invest in projects that are consistent with this strategy to respond to the climate change challenges. The establishment of CAFF allowed Castle Peak Power Company Limited (CAPCO) to issue the first US\$500 million Energy Transition Bond to finance a more efficient combined-cycle gas turbine (CCGT) unit at Black Point Power Station, to reduce the carbon intensity of electricity generation. In 2019, CAPCO issued an inaugural HK\$170 million New Energy Bond to fund the construction of the West New Territories Landfill energy-from-waste project which allows offsetting of emissions from some of its coal-fired power generation units.

To extend sustainable financing beyond bond issuance, CLP updated CAFF in June 2020 to support a broader range of financial transactions that CLP has and continues to undertake to raise funding for its climate actions. CAPCO subsequently entered into a series of energy transition financing including US\$350 million Energy Transition Bond and executed its inaugural HK\$3.3 billion Energy Transition Loan facilities (including HK\$2 billion export credit agency (ECA) covered banking facility) to finance the construction of

an offshore liquefied natural gas (LNG) receiving terminal in Hong Kong waters and its associated subsea pipeline and gas receiving station in 2020.

Riding on the successful financing arranged for the LNG project, CAPCO issued a US\$300 million Energy Transition Bond and a total HK\$5.3 billion Energy Transition loans (including HK\$1.6 billion ECA covered banking facility) to finance the construction of the second combined cycle gas turbine generation unit (CCGT D2) at Black Point Power Station in 2021. In the same year, CLP Power Hong Kong Limited (CLP Power) issued a US\$100 million New Energy Bond to support the continued rollout of smart meters in Hong Kong. During 2022, a HK\$520 million 2-year Energy Transition loan was arranged to refinance the expired commercial loan for CAPCO's first CCGT unit (CCGT D1). The commissioning of CCGT D1 in 2020 has enabled a significant reduction in the carbon intensity of CLP's electricity supply and together with the second CCGT unit, which is scheduled for full operation in 2024, are essential to CLP's plan to gradually phase out coal-fired generation units at Castle Peak A Power Station. The construction of the two new CCGT generation units support the government's decarbonisation strategy as these units accelerate the transition to a cleaner electricity supply in Hong Kong with increased use of natural gas in the fuel mix.

In addition to the sustainable financing the CLP group has achieved under CAFF, since 2021 CLP Power and CAPCO have started incorporating sustainability elements in banking facilities that support general business operation. Performance targets are linked to annual maximum output level for air emissions including sulphur dioxide, nitrogen oxides and respirable suspended particulates.

As of 31 December 2022, CLP Power and CAPCO had a total of HK\$10.2 billion emission reduction-linked facilities outstanding with ten banks. In Hong Kong, 68% of financing arranged in 2022 for CLP's SoC businesses were met by sustainable sources of funding (including use of proceeds funding under CAFF and emission reduction-linked facilities), up from 58% in 2021.

## CLP Climate Action Finance Framework

The objective of the CAFF is to support the transition to a low carbon economy by attracting socially responsible, sustainable financing, to support CLP's investments that reduce the carbon content of energy generated and increase the efficiency of energy usage.

The CAFF formalises and governs project evaluation, monitoring and reporting the use of proceeds for Climate Action Finance Transactions (including bonds, loans and other forms of finance). There are two types of Climate Action Finance Transactions under the CAFF:

- **New Energy Finance Transactions** whose use of proceeds is to develop renewable energy, energy efficiency and low emissions transportation infrastructure projects; and
- **Energy Transition Finance Transactions** whose use of proceeds is to (i) develop gas-fired power plants and associated enabling infrastructure to support the transition from coal fired power generation in markets with limited renewable energy resources, and (ii) the conversion of coal fired power plants and the facilities or modifications associated with such conversion, which, in both cases, will result in carbon emission no more than 450gCO<sub>2</sub>/kWh at baseload.

The Green Bond Principles (GBP), updated as of June 2021, and Green Loan Principles (GLP), updated as of February 2021, are voluntary process guidelines that recommend transparency and disclosure and promote integrity in the development of the Green Bond and Loan markets by clarifying the approach for issuance of a Green Bond or Loan.

There are four core components of a Green Bond or Loan - Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds and Reporting.

The table below summarises how CLP Climate Action Finance Transactions align with the GBP and GLP.

It is noted that the use of proceeds of the Energy Transition Finance Transactions is not included in the indicative list of Green Project categories under the use of proceeds section in the GBP and GLP, otherwise CLP Climate Action Finance Transactions issued under the CAFF align with both the GBP and GLP. Nevertheless, the use of proceeds of the Energy Transition Finance Transactions will be allocated towards climate actions that are supported by the host government and will deliver significant environmental benefits.

Components	Energy Transition Finance Transactions	New Energy Finance Transactions
Use of Proceeds	<ul style="list-style-type: none"> <li>• Develop gas-fired power plants and associated enabling infrastructure to support the transition from coal-fired generation in markets with limited renewable energy resources</li> <li>• The conversion of coal fired power plants and the facilities or modifications associated with such conversion, which, in both cases, will result in carbon emission no more than 450gCO<sub>2</sub>/kWh at baseload</li> </ul>	<ul style="list-style-type: none"> <li>• Renewable energy</li> <li>• Energy efficiency</li> <li>• Low carbon transport infrastructure</li> </ul>
Process for Project Evaluation and Selection	<ul style="list-style-type: none"> <li>• Business units propose projects for eligible use of proceeds and Climate Action Finance Transaction</li> <li>• Climate Action Finance Committee reviews and approves the eligibility of proposed use of proceeds and Climate Action Finance Transaction</li> </ul>	
Management of Proceeds	<ul style="list-style-type: none"> <li>• Proceeds of each Climate Action Finance Transaction are credited to dedicated bank accounts/deposits pending allocation to eligible projects</li> <li>• Use of proceeds tracked through business units' internal information system with individual register established for each Climate Action Finance Transaction</li> </ul>	
Reporting	<ul style="list-style-type: none"> <li>• Climate Action Finance Report issued on an annual basis disclosing the below information of Climate Action Finance Transactions not yet fully repaid: <ul style="list-style-type: none"> <li>– Identity of issuing business unit</li> <li>– Type of Climate Finance Transactions entered into</li> <li>– Aggregate amounts of proceeds allocated</li> <li>– Remaining balance of unallocated proceeds</li> <li>– Estimation of beneficial impact of the use of proceeds</li> <li>– Information on projects with allocation of proceeds</li> </ul> </li> <li>• The Climate Action Finance Report will be reviewed by the Climate Action Finance Committee and published within CLP's Sustainability Report</li> </ul>	

## Governance of the CAFF

All eligible projects of the CAFF undergo a rigorous review and approval process within a robust, transparent framework and clear guidelines. CLP has established a Climate Action Finance Committee (the Committee) at the ultimate parent holding company level with the responsibility for governing the CAFF, including approval of Climate Action Finance Transaction and determination of the eligibility of proposed use of proceeds. The Committee consists of senior management from different functions including sustainability, treasury and legal departments. CLP Group Treasury & Project Finance acts as the secretariat of the Committee to provide the necessary support.

## Second party opinion

DNV GL, an independent consultant and a leading provider of sustainable finance independent assessment, has provided a second party opinion on the CAFF. It is DNV GL's opinion that there are clear environmental benefits for the investments to be funded under the CAFF.



### Conclusion of DNV GL Second Party Opinion (2020)

DNV GL notes that the Use of Proceeds of the New Energy Finance Transactions are included in the indicative list of sectors included in the section 1 of Green Bond Principles and Green Loan Principles whilst the Use of Proceeds of Energy Transition Finance Transactions are not. DNV GL concludes that the project selection, funds-tracking and reporting procedures set out in the CAFF meet the criteria established in the Protocol and are aligned with sections 2, 3 and 4 of the Green Bond Principles 2018 and Green Loan Principles 2020.

Based on the information provided by CLP and the work undertaken, it is DNV GL's opinion that the CAFF meets the criteria established in the Protocol and there are clear environmental benefits for the investments to be funded under the CAFF.



See CLP Climate Action Finance Framework



See DNV GL Second Party Opinion Report

## Climate Action Finance Transaction Portfolio

CLP arranged in total HK\$18.8 billion Climate Action Finance Transactions to support its investments in qualified projects which help reduce carbon emissions and increasing energy efficiency. During 2022, a HK\$520 million 2-year Energy Transition loan was arranged by CAPCO to refinance the expired commercial loan for CCGT D1.

As depicted, the construction of the new CCGT generation unit support the government's decarbonisation strategy and is qualified under CAFF as the project helps in reducing emissions since its operation in mid-2020 and lifted the ratio of natural gas in CLP's fuel mix from below 30% in 2019 to around 50% since 2020.

The below table summarises all Climate Action Finance Transactions under CAFF as at 31 December 2022:

Summary of Climate Action Bonds					
Issuer	Castle Peak Power Finance Company Limited				CLP Power Hong Kong Financing Limited
Guarantor	Castle Peak Power Company Limited				CLP Power Hong Kong Limited
Type	Energy Transition	New Energy	Energy Transition	Energy Transition	New Energy
Project	CCGT D1	Landfill Gas Renewable Energy Generation	Offshore LNG Receiving Terminal	CCGT D2	Smart Metering
Issue Date	25 July 2017	9 July 2019	22 June 2020	3 March 2021	21 July 2021
Tenor	10 years	25 years	10 years	10 years	10 Years
Nominal Issued Amount	US\$500 million	HK\$170 million	US\$350 million	US\$300 million	US\$100 million
Coupon (per annum)	3.25%	2.80%	2.20%	2.125%	2.25%
Listing	The Stock Exchange of Hong Kong	Not Listed	The Stock Exchange of Hong Kong	The Stock Exchange of Hong Kong	The Stock Exchange of Hong Kong
ISIN / Common Code	XS1648263926	202355293	XS2190958301	XS2307742267	XS2366836133
Amount Allocated	HK\$3,902 million	HK\$170 million	HK\$2,713 million	HK\$2,326 million	HK\$777 million

Summary of Climate Action Loans					
Borrower	Castle Peak Power Company Limited				
Type	Energy Transition				
Project	Offshore LNG Receiving Terminal		CCGT D2		CCGT D1
Agreement Date	30 June 2020	14 September 2020	4 March 2021	30 June 2021	24 February 2022
Tenor	3 years	15 years	3 years	15 years	2 years
Facility Amount	HK\$1,325 million	HK\$1,795 million	HK\$3,670 million	HK\$1,600 million	HK\$520 million
Reference Code	ETL01	ETL02	ETL03	ETL04	ETL05
Amount Allocated	HK\$292 million	HK\$1,795 million	HK\$1,400 million	nil	HK\$520 million

## Use of Proceeds Reporting

Bond proceeds were applied at the outset of the bond tenor to replace bank debt bridge facilities designated to specific projects and the remaining balance was credited to dedicated bank account/deposits pending settlement of future project related payments.

Bank facilities were drawn at the outset of the loan tenor to replace bank debt bridge facilities designated to specific projects and the undrawn portion would be utilised upon settlement of project related payment.

As at the reporting date of 31 December 2022, the use of the bond and loan proceeds are illustrated in the table below:

Project	Type	ISIN/ Common/ Reference Code	In HK\$'million				Issued Amount/ Facility Amount
			Finance	Allocated <sup>1</sup> Refinance	Total	Unallocated <sup>1</sup>	
CCGT D1	Energy Transition	XS1648263926	3,453 (88%)	449 (12%)	3,902 (100%)	-	3,902 (100%)
		ETL05	-	520 (100%)	520 (100%)	-	520 (100%)
Landfill Gas Renewable Energy Generation	New Energy	202355293	120 (71%)	50 (29%)	170 (100%)	-	170 (100%)
Offshore LNG Receiving Terminal	Energy Transition	XS2190958301	1,546 (57%)	1,167 (43%)	2,713 (100%)	-	2,713 (100%)
		ETL01	292 (22%)	-	292 (22%)	1,033 (78%)	1,325 (100%)
		ETL02	-	1,795 (100%)	1,795 (100%)	-	1,795 (100%)
CCGT D2	Energy Transition	XS2307742267	2,011 (86%)	315 (14%)	2,326 (100%)	-	2,326 (100%)
		ETL03	1,400 (38%)	-	1,400 (38%)	2,270 (62%)	3,670 (100%)
		ETL04	-	-	-	1,600 (100%)	1,600 (100%)
Smart Metering	New Energy	XS2366836133	-	777 (100%)	777 (100%)	-	777 (100%)
<b>Total</b>			<b>8,822 (47%)</b>	<b>5,073 (27%)</b>	<b>13,895 (74%)</b>	<b>4,903 (26%)</b>	<b>18,798 (100%)</b>

<sup>1</sup> Information has been subject to independent limited assurance by PwC

## Reporting Criteria

Following section 6 of the CAFF – “Reporting on Use of Proceeds” for each CLP Climate Action Finance Transaction, the followings are disclosed:

- identity of the CLP Group Business Unit that has entered into a CLP Climate Action Finance Transaction;
- type of CLP Climate Action Finance Transaction entered into (i.e. Energy Transition Finance Transaction or New Energy Finance Transaction);
- aggregate amounts of proceeds allocated;
- estimation of beneficial impact of the use of proceeds;
- the remaining balance of unallocated proceeds at the reporting period end;
- a Climate Action Finance Transaction is added to this report when the transaction was entered into during the reporting period; and
- a Climate Action Finance Transaction is removed from this report when the bond or loan has been fully repaid.

## Assurance of Climate Action Finance Report

CLP has engaged PricewaterhouseCoopers (PwC) as an independent assurance provider to provide assurance that selected information in this report has been prepared in line with the CLP Climate Action Finance Framework.



See PwC Assurance Report

# Project Updates

## CCGT Generation Unit



### CAPCO's Combined Cycle Gas Turbine (CCGT) Generation Unit (D1)

Location	Black Point Power Station (BPPS), Hong Kong
Plant Performance Information	Adopting the latest advanced H-Class CCGT technology, the CCGT D1 unit has an installed capacity of 550MW and is more efficient than the existing eight older BPPS CCGT units adopting F-Class CCGT technology
Beneficial Environmental Impact	<ul style="list-style-type: none"> <li>• CO<sub>2</sub> emission intensity of 345 gCO<sub>2</sub>/kWh in 2022<sup>1,2</sup></li> <li>• Estimated CO<sub>2</sub> avoidance of 562 kT in 2022<sup>3,4</sup></li> </ul>

1 The reporting of carbon emission intensity and estimation of carbon emission avoidance was for the period from 1st January 2022 to 31st December 2022.

2 Information has been subject to independent limited assurance by PwC.

3 CO<sub>2</sub> emission intensity is the actual CO<sub>2</sub> emission from D1 divided by the electricity sent-out from D1.

4 Methodology and assumptions used in estimating CO<sub>2</sub> emissions avoidance:

The CO<sub>2</sub> avoidance is the difference in CO<sub>2</sub> emission by Black Point Power Station (BPPS) and Castle Peak Power Station (CPPS) with D1 and without D1. For the scenario of "with D1" in CLP's electricity generation system, the CO<sub>2</sub> emissions by BPPS and CPPS were based on the actual figures recorded, using gross generation values. For the scenario of "without D1", the CO<sub>2</sub> emissions by BPPS and CPPS were estimated on monthly basis based on their respective estimated hourly electricity generation multiplied by their respective actual carbon emission intensity (gCO<sub>2</sub>/kWh) in that month. The electricity generation by BPPS and CPPS was estimated hourly based on the actual electricity demand and plant dispatch requirements to meet the customers load demand environmentally, reliably and economically in the hour.

### Project Status

- The project was completed and commenced operation since October 2020.

## Landfill Gas Energy Generation



### CAPCO's Landfill Gas Renewable Energy Generation at West New Territories (WENT) Landfill (WE Station)

Location	WENT Landfill, Tuen Mun, Hong Kong
Installed Capacity	10MW
Plant Performance Information	Installation of 5x2MW landfill gas (LFG) generator sets at WE Station to utilize the excess LFG of around 4,500m <sup>3</sup> /hour for electricity generation in support of local renewable energy (RE) development.
Beneficial Environmental Impact	<ul style="list-style-type: none"> <li>RE generation of 43 GWh in 2022<sup>1,2,3</sup></li> <li>Estimated CO<sub>2</sub> avoidance achieved in 2022: 23 kT<sup>1,2,4</sup></li> </ul>

1 The reporting of RE generation and the estimation of carbon emission avoidance was for the period from 1<sup>st</sup> January 2022 to 31<sup>st</sup> December 2022.

2 Information has been subject to independent limited assurance by PwC.

3 The annual renewable energy generated was based on the actual electricity generation from LFG generation units as recorded by CLP.

4 Methodology and assumptions used in estimating CO<sub>2</sub> emissions avoidance:

Since the RE generation from WE Station had displaced the electricity generation that would have been required from the existing fossil fuel plants at CPPS and BPPS if the LFG generation units at WE Station were not commissioned, the avoidance of the associated CO<sub>2</sub> emission was estimated on monthly basis from the displaced electricity generation multiplied by the average actual carbon emission intensity of BPPS and CPPS in that month.

### Project Status

- The project was completed and commenced operation since March 2020.



## Offshore LNG Receiving Terminal



### CAPCO's Hong Kong Offshore LNG Receiving Terminal (HKOLNGT)

Location	Offshore waters to the east of the Soko Islands, Hong Kong
Plant Performance Information	<p>The terminal is built to provide reliable and secure supply of natural gas at competitive prices for CAPCO's gas-fired generation units, and to support Government's energy policies for reducing carbon intensity. Major facilities of the project include:</p> <ul style="list-style-type: none"> <li>· A double berth jetty with LNG unloading equipment</li> <li>· A Floating Storage and Regasification Unit (FSRU) with LNG storage tanks and regasification equipment</li> <li>· A subsea pipeline connecting the jetty and a gas receiving station at Black Point Power Station</li> </ul>
Estimation of Beneficial Environmental Impact	Expected around 0.7 to 1.9 million tons of CO <sub>2</sub> emissions avoided per year during normal operation

### Progress in 2022

- Construction and hook up works at the jetty completed.
- Construction of the subsea pipelaying works connecting the jetty and the gas receiving station at Black Point Power Station completed.
- Commissioning works at the gas receiving station (GRS) completed while ongoing commissioning works at the jetty and subsea pipeline continued.
- Scheduled to have the offshore LNG receiving terminal in operation in mid-2023.



Simulated photo

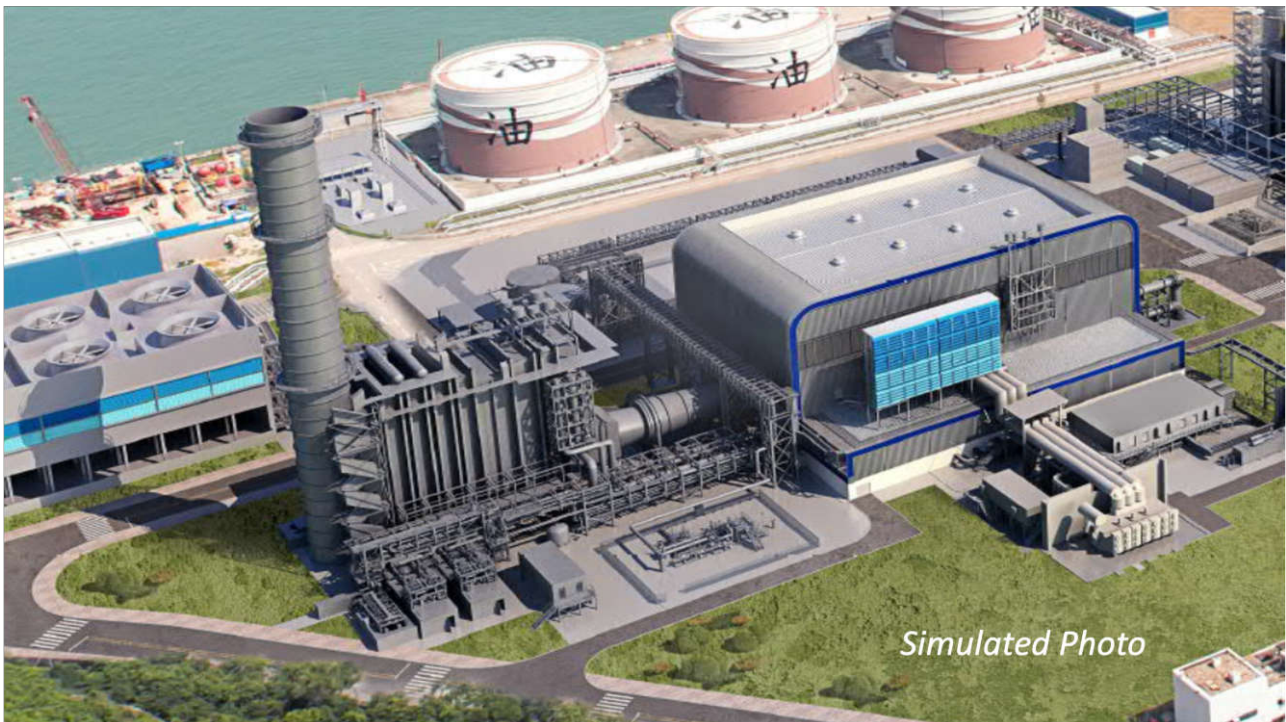


Commissioning works ongoing at jetty



GRS construction completed

## CCGT D2 Generation Unit



### CAPCO's Second New Combined Cycle Gas Turbine (CCGT) Generation Unit (D2)

Location	Black Point Power Station (BPPS), Hong Kong
Plant Performance Information	Adopting the latest advanced H-Class CCGT technology with a modified and enhanced version of D1 unit, the second new CCGT unit (D2) has an installed capacity of around 600MW and is more efficient than the existing eight older BPPS CCGT units adopting F-Class CCGT technology
Estimation of Beneficial Environmental Impact	<ul style="list-style-type: none"> <li>Expected around 0.4 to 1 million tons of CO<sub>2</sub> emissions avoided per year</li> <li>Expected carbon emission intensity to be significantly below the 450g CO<sub>2</sub>/kWh baseload emissions threshold as set out in CAFF</li> </ul>

### Progress in 2022

- Engineering and procurement work for CCGT D2 substantially completed.
- Turbine building, annex structures, stack erection and Heat Recovery Steam Generator (HRSG) non-pressured structures completed.
- Key machinery (Gas Turbine, Generator and Steam Turbine), major internal structures and auxiliary skids in place.
- Construction work on cooling tower structure in progress.
- CCGT D2 scheduled to be in full operation in 2024.



Turbine Building construction



HRSG and Stack construction



Cooling tower construction

## Smart Meters



### CLP Power's Smart Meter Project

Location	Hong Kong
Project Performance Information	The project aligns with the strategy of the HK Government and CLP to promote energy efficiency through demand-side management solutions, and to support Hong Kong's transformation into a smart city. The project scope mainly involves replacement of the electro-mechanical meters used by residential and Small & Medium Enterprise (SME) customers with smart meters. The provision of timely and meaningful consumption information facilitated by smart meters via web portals or mobile devices helps arouse customers' awareness and equip them with right tools to better manage energy consumption.
Beneficial Environmental Impact	<ul style="list-style-type: none"> <li>• Estimated annual energy savings of 20,494 MWh in 2022<sup>1,2</sup></li> <li>• Estimated CO<sub>2</sub> avoidance achieved in 2022: 8 kT</li> </ul>

1 The reporting of estimated annual energy savings and the estimation of carbon emission avoidance was for the period of 1<sup>st</sup> January 2022 to 31<sup>st</sup> December 2022.

2 Methodology and assumptions used in estimating annual energy savings and CO<sub>2</sub> emissions avoidance:

Along with the rollout of smart meters, CLP introduces its Energy-Saving Missions by inviting residential customers with smart meters to participate in reducing energy consumption for a reward to their energy saving effort, which is envisioned to eventually engage all residential customers connected with smart meters. This programme associated with smart meters is one of the key drivers in changing customers' energy consumption behaviour. For estimation of energy savings in 2022, CLP targeted a focused group of close to 600,000 residential customers with smart meters who have participated in the Energy-Saving Missions in 2022 and adopted a saving factor of 0.8% in energy consumption which is based on a study performed on smart meters customer behaviour. This saving factor is then applied towards the average annual energy consumption of the residential customers (based on sales per residential customers in Hong Kong of 4,201 kWh) to derive the estimated annual energy savings. Avoidance of CO<sub>2</sub> emission is then calculated by multiplying the energy savings with the actual emission intensity of CLP Power Hong Kong in 2022 (0.39 kg/kwh).

### Progress in 2022

- As at December 2022, over 1.78 million smart meters were connected in Hong Kong, covering different districts servicing by CLP and accounting for 63% of eligible homes and businesses.
- The roll out is scheduled based on factors including meter age, cost efficient replacement works and supply reliability and is targeted to be completed by 2025.