

2021 Climate Action Finance Report

Introduction

CLP Holdings Limited's (CLP) 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. We are committed to strengthening these targets at least every five years. In 2019, CLP pledged not to invest in any additional coal-fired generation capacity and to progressively phase out all remaining coal assets by 2050. In 2021, we have further strengthened our targets in pursuit of a more ambitious commitment which include setting new interim targets for 2030 to align with the Paris Agreement goal of limiting global warming to well-below 2°C above pre-industrial levels, accelerating the phase-out of coal-based assets by 2040 – a decade earlier than pledged previously, and reaching net-zero GHG emissions across CLP's value chain by 2050.

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. In June 2020, CLP updated its CAFF to reflect the increased climate-related commitments made by CLP in the revised Climate Vision 2050 published in 2019 and the broader range of financial transactions that CLP is considering to raise funding for its climate actions.

Following the update in 2020, Castle Peak Power Company Limited (CAPCO), a key subsidiary of CLP engaging in the electricity generation business in Hong Kong, has entered into a series of energy transition finance transactions 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 and commenced construction of the second combined cycle gas turbine generation unit (CCGT D2) at Black Point Power Station in 2021. Another key transaction entered in 2021 includes the issuance of a New Energy Bond by CLP Power Hong Kong Limited (CLPP) to finance the rollout of smart meters for CLP's customers in Hong Kong.

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 450gCO₂/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"> • Develop gas-fired power plants and associated enabling infrastructure to support the transition from coal-fired generation in markets with limited renewable energy resources • 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 450gCO₂/kWh at baseload 	<ul style="list-style-type: none"> • Renewable energy • Energy efficiency • Low carbon transport infrastructure
Process for Project Evaluation and Selection	<ul style="list-style-type: none"> • Business units propose projects for eligible use of proceeds and Climate Action Finance Transaction • Climate Action Finance Committee reviews and approves the eligibility of proposed use of proceeds and Climate Action Finance Transaction 	
Management of Proceeds	<ul style="list-style-type: none"> • Proceeds of each Climate Action Finance Transaction are credited to dedicated bank accounts/deposits pending allocation to eligible projects • Use of proceeds tracked through business units' internal information system with individual register established for each Climate Action Finance Transaction 	
Reporting	<ul style="list-style-type: none"> • 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"> – Identity of issuing business unit – Type of Climate Finance Transactions entered into – Aggregate amounts of proceeds allocated – Remaining balance of unallocated proceeds – Estimation of beneficial impact of the use of proceeds – Information on projects with allocation of proceeds • The Climate Action Finance Report will be reviewed by the Climate Action Finance Committee and published within CLP's Sustainability Report 	

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) 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

In 2021, a US\$300 million 10-year Energy Transition Bond, HK\$3.7 billion medium-term Energy Transition Loan facilities and a HK\$1.6 billion 15-year Euler Hermes-covered Energy Transition loan were arranged to finance the construction of the second combined cycle gas turbine generation unit (CCGT D2) at Black Point Power Station in Hong Kong, following the commissioning of CAPCO's first CCGT unit (CCGT D1) in 2020. The commissioning of CCGT D1 has enabled a significant reduction in the carbon intensity of CLP's electricity supply.

The second CCGT unit further demonstrates CLP's commitment in reducing carbon intensity while ensuring a

reliable and affordable supply of electricity to the city. The two CCGT units will further support CLP's decarbonisation plan, which includes retiring coal-fired generating units at Castle Peak Power Station. In addition, a US\$100 million 10-year New Energy Bond was issued in July 2021 to finance the mass roll out of smart meters to support Hong Kong's transformation into a Smart City.

The below table summarises all Climate Action Finance Transactions under CAFF as at 31 December 2021:

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\$1,802 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	
Agreement Date	30 June 2020	14 September 2020	4 March 2021	30 June 2021
Tenor	3 years	15 years	3 years	15 years
Facility Amount	HK\$1,325 million	HK\$1,961 million	HK\$3,670 million	HK\$1,600 million
Reference Code	ETL01	ETL02	ETL03	ETL04
Amount Allocated	HK\$369 million	HK\$70 million	nil	nil

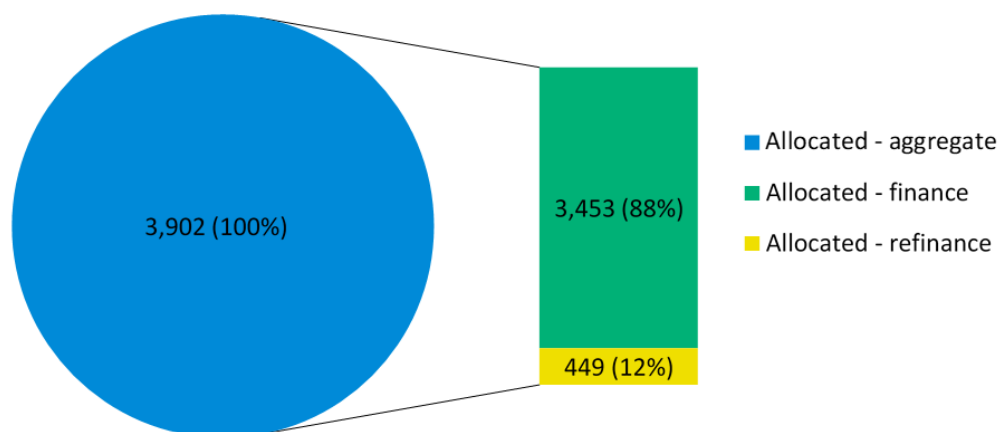
Use of Proceeds Reporting

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.

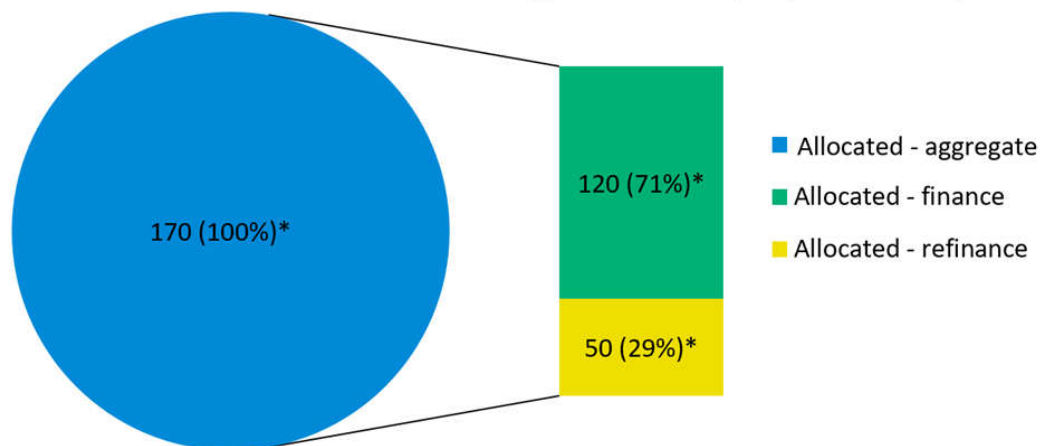
Bank facilities were drawn at the outset of the loan tenor to replace bank debt bridge facilities designated to specific projects and the undrawn portion would be utilised upon settlement of project related payment.

As at the reporting date of 31 December 2021, the use of the bond and loan proceeds are illustrated in the charts below:

Allocation of Net Proceeds of CAPCO's Energy Transition Bond for CCGT Project (in HK\$ million)

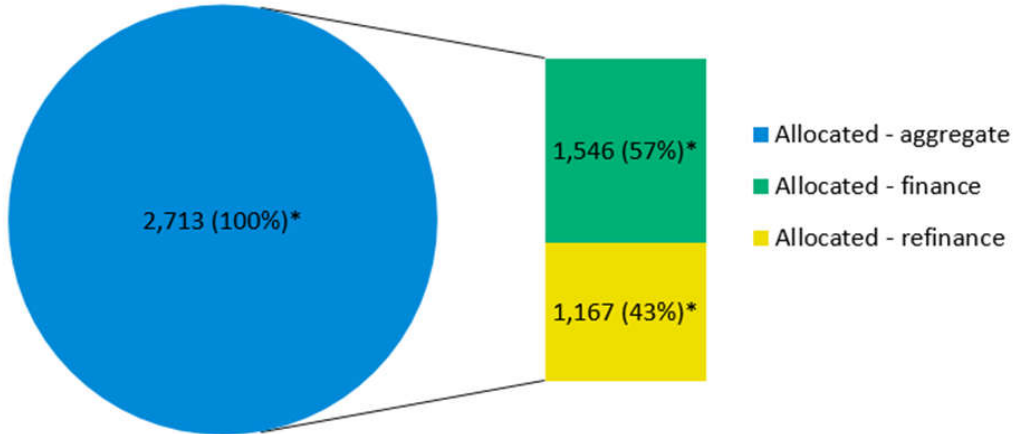


Allocation of Net Proceeds of CAPCO's New Energy Bond for Landfill Gas Renewable Energy Generation Project (in HK\$ million)

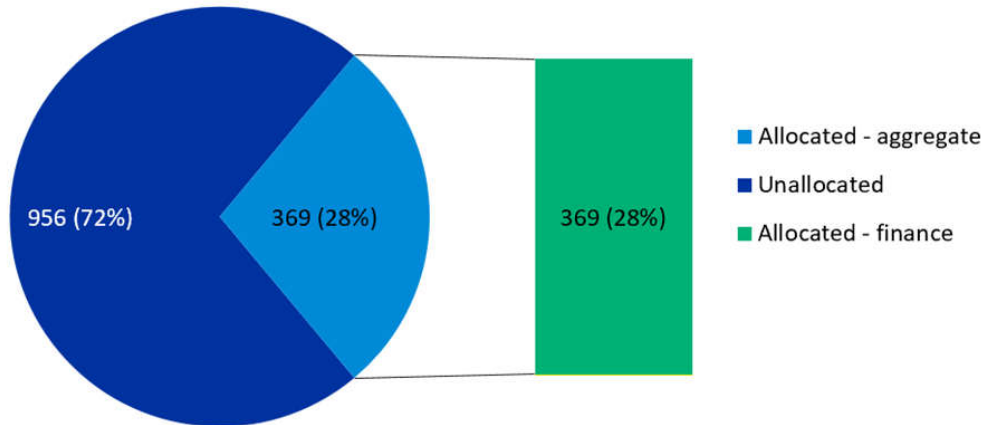


**Information has been subject to independent limited assurance by PwC*

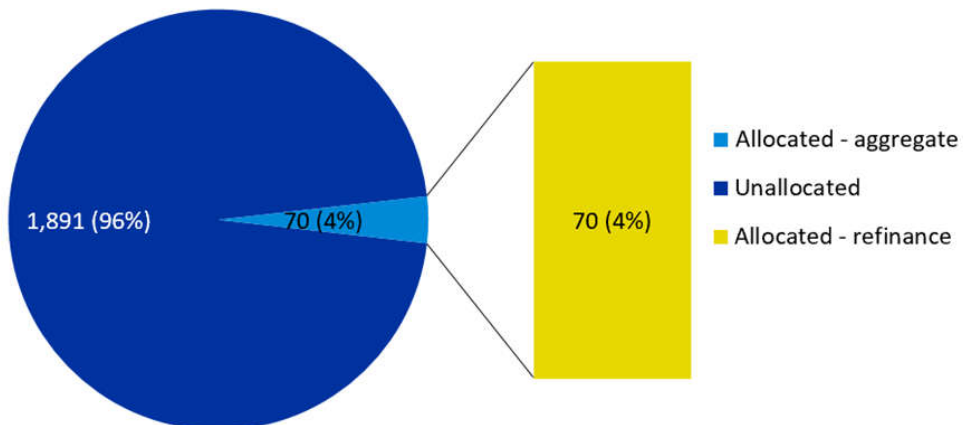
Allocation of Net Proceeds of CAPCO's Energy Transition Bond for Offshore LNG Receiving Terminal Project (in HK\$ million)



Allocation of Net Proceeds of CAPCO's Energy Transition Loan (ETL01) for Offshore LNG Receiving Terminal Project (in HK\$ million)

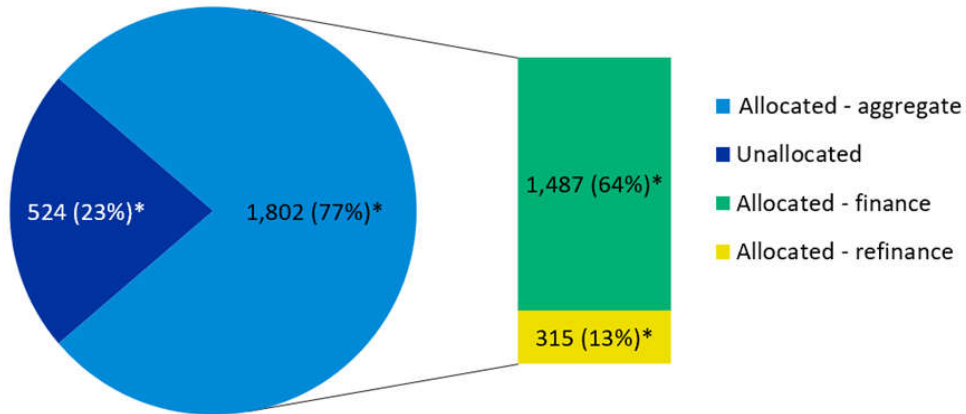


Allocation of Net Proceeds of CAPCO's Energy Transition Loan (ETL02) for Offshore LNG Receiving Terminal Project (in HK\$ million)

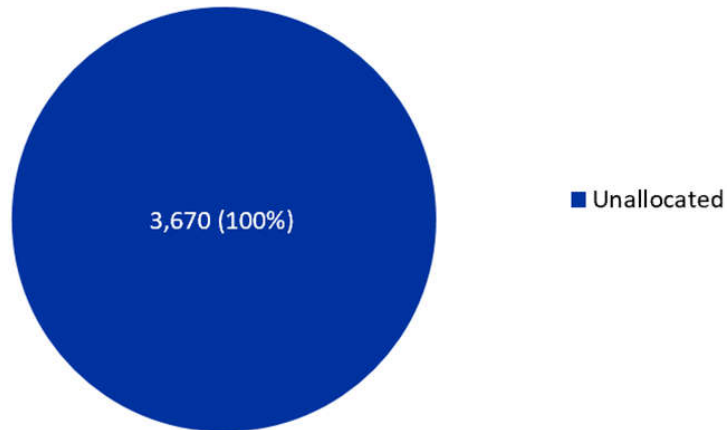


*Information has been subject to independent limited assurance by PwC

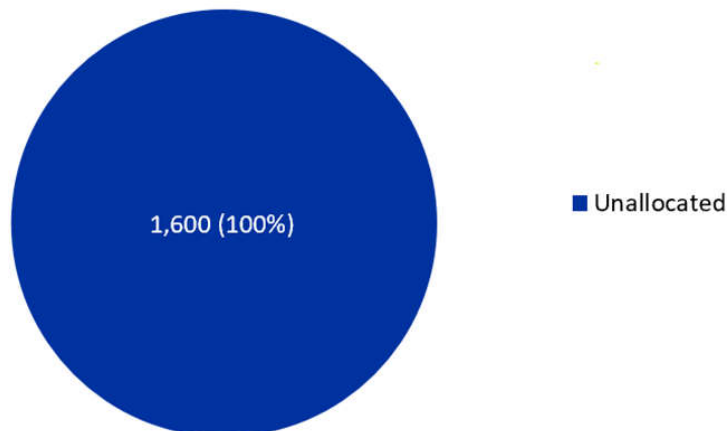
Allocation of Net Proceeds of CAPCO's Energy Transition Bond for CCGT (D2) Project (in HK\$ million)



Allocation of Net Proceeds of CAPCO's Energy Transition Loan (ETL03) for CCGT (D2) Project (in HK\$ million)

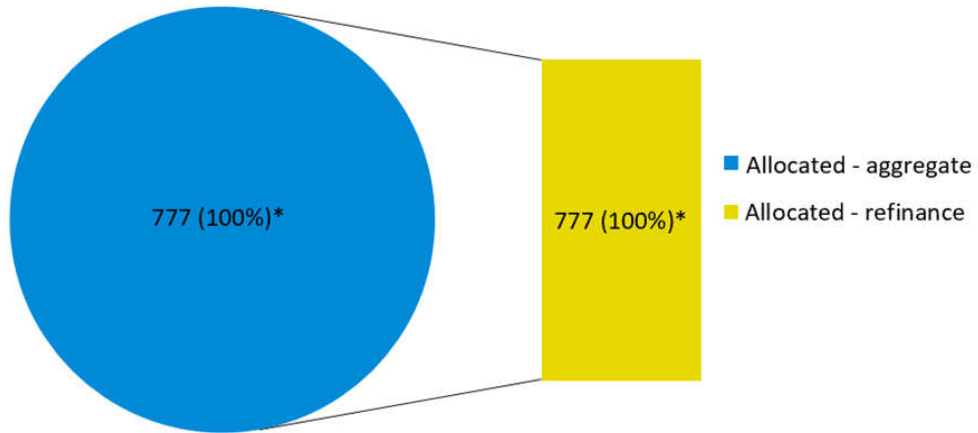


Allocation of Net Proceeds of CAPCO's Energy Transition Loan (ETL04) for CCGT (D2) Project (in HK\$ million)



*Information has been subject to independent limited assurance by PwC

Allocation of Net Proceeds of CLP Power Hong Kong Limited's
New Energy Bond for Smart Metering Project (in HK\$ million)



**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 new CCGT unit (D1) 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"> • CO₂ emission intensity of 356 gCO₂/kWh in 2021^{1,2,3} • Estimated CO₂ avoidance of 854 kT in 2021^{1,4}

1 The reporting of carbon emission intensity and estimation of carbon emission avoidance was for the period from 1st January 2021 to 31st December 2021.

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

3 CO₂ emission intensity is the actual CO₂ emission from D1 divided by the electricity sent-out from D1.

4 Methodology and assumptions used in estimating CO₂ emissions avoidance:

The CO₂ avoidance is the difference in CO₂ 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 CO₂ emissions by BPPS and CPPS were based on the actual figures recorded. For the scenario of "without D1", the CO₂ 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 (gCO₂/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

Project Updates – 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 ³ /hour for electricity generation in support of local renewable energy (RE) development.
Beneficial Environmental Impact	<ul style="list-style-type: none"> RE generation of 38 GWh in 2021^{2,3} Estimated CO₂ avoidance achieved in 2021: 21 kT^{1,2,4}

1 The reporting of RE generation and the estimation of carbon emission avoidance was for the period from 1st January 2021 to 31st December 2021.

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 CO₂ 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 CO₂ 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.

Project Updates – 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"> • A double berth jetty with LNG unloading equipment • A Floating Storage and Regasification Unit (FSRU) with LNG storage tanks and regasification equipment • A subsea pipeline connecting the jetty and a gas receiving station at Black Point Power Station
Estimation of Beneficial Environmental Impact	Expected around 0.7 to 1.9 million tons of CO ₂ emissions avoided per year during normal operation

Progress in 2021

- All jackets installation at the jetty completed.
- Subsea pipelaying works connecting the jetty and the gas receiving station at Black Point Power Station completed.
- FSRU customization works completed.
- Offsite fabrication works for the jetty topside structures continued.
- Scheduled to have the offshore LNG receiving terminal in operation in 2022.



All jackets installation completed



Subsea pipelaying works completed



FSRU customisation works completed

Project Updates – 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"> · Expected around 0.4 to 1 million tons of CO₂ emissions avoided per year · Expected carbon emission intensity to be significantly below the 450g CO₂/kWh baseload emissions threshold as set out in CAFF

Progress in 2021

- Engineering, Procurement & Construction (EPC) Contract for CCGT D2 awarded
- Foundation for Turbine Building and Heat Recovery Steam Generator (HRSG) completed
- Installation of cooling water pipe completed
- EPC Engineering Review in progress
- Operations of the new CCGT D2 scheduled by 2023



Completed turbine building foundation



Completed HRSG foundation



Cooling water trench

Project Updates – Smart Meters



CLP Power HK'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"> • Estimated annual energy savings of 3,514 MWh in 2021¹ • Estimated CO₂ avoidance achieved in 2021: 1.4 kT²

1 The reporting of estimated annual energy savings and the estimation of carbon emission avoidance was for the period from 1st January 2021 to 31st December 2021.

2 Methodology and assumptions used in estimating annual energy savings and CO₂ 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 2021, CLP targeted a focused group of close to 100,000 residential customers with smart meters who have participated in the Energy-Saving Missions in 2021 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 4,442 kWh) to derive the estimated annual energy savings. Avoidance of CO₂ emission is then calculated by multiplying the energy savings with the actual emission intensity of CLP Power Hong Kong in 2021 (0.39 kg/kWh).

Progress in 2021

- As at December 2021, over 1.2 million smart meters were connected in Hong Kong, covering different districts serviced by CLP.
- The roll out is scheduled based on factors including meter age, cost efficient replacement works and supply reliability. It is targeted to be completed by 2025.