



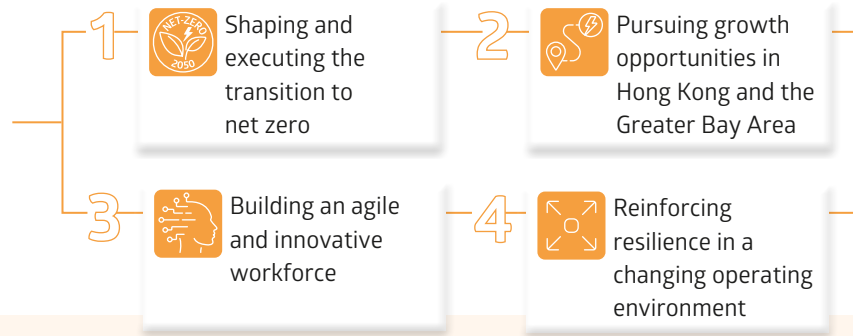
Capitals

We are committed to creating long-term, sustainable value for stakeholders through a range of Capitals, our most critical resources and relationships.



Overview

CLP is committed to creating long-term, sustainable value for its diverse stakeholders through a range of resources collectively known as Capitals. In the 2021 Annual Report, the Capitals chapter focuses on CLP's strategies to address four financially material topics that affect enterprise value:



The topics were identified and confirmed through a comprehensive materiality assessment involving research into megatrends affecting CLP's operating environment and in-depth interviews with senior management and important stakeholders. The table below will help readers navigate to the relevant topics:

Financially material topics

Where to go for more information

1. Shaping and executing the transition to net zero

| | |
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| Investing in clean energy infrastructure | ◆ Financial Capital (page 67) ◆ Manufactured Capital (page 74) ◆ Natural Capital (page 92) |
| Responding to evolving regulatory landscapes | ◆ Social and Relationship Capital (page 88) ◆ Natural Capital (page 92) |
| Acting as a trusted partner in the clean energy transition | ◆ Social and Relationship Capital (page 88) |
| Managing the social impact of decarbonisation | ◆ Social and Relationship Capital (page 88) |

2. Pursuing growth opportunities in Hong Kong and the Greater Bay Area


| | |
|---|----------------------------------|
| Developing Energy-as-a-Service business models | ◆ Intellectual Capital (page 77) |
| Creating new earnings streams as other sectors electrify | ◆ Intellectual Capital (page 77) |
| Deploying customer-facing energy solutions | ◆ Intellectual Capital (page 77) |
| Deepening CLP's value proposition with the right partners | ◆ Intellectual Capital (page 77) |

3. Building an agile and innovative workforce

| | |
|--|---------------------------|
| Attracting and retaining future talent | ◆ Human Capital (page 80) |
| Enhancing technical and digital capabilities | ◆ Human Capital (page 80) |
| Promoting workplace safety and wellbeing | ◆ Human Capital (page 80) |

4. Reinforcing resilience in a changing operating environment

| | |
|--|---|
| Building resilience in a changing climate | ◆ Manufactured Capital (page 74) ◆ Social and Relationship Capital (page 88) |
| Reinforcing cyber resilience and data protection | ◆ Manufactured Capital (page 74) |

Please see the Sustainability as Our Business Strategy chapter (page 22) for further information on the materiality process, while detailed coverage of material topics impacting people, the environment and the economy – known as impact material topics – are available in CLP's [Sustainability Report](#). 

Material Topic



Shaping and executing the transition to net zero

CLP moved forward with significant investments to reduce the carbon footprint of its businesses across Asia Pacific in 2021, supported by the Group's strong financial position. Sustainable, diversified and cost-effective financing is vital to support **investments in clean, reliable energy infrastructure**. CLP further broadened its sources of debt funding through innovative green financing instruments under its Climate Action Finance Framework (CAFF). The Group also remained committed to prudent financial management amid the ongoing global pandemic and high financial market volatility. The continued financial strength and flexibility provided strong foundations to CLP's ongoing transition towards a net-zero emissions future. Finance-related highlights of 2021 included:

- ◆ Capital investments of HK\$14,198 million – including decarbonisation projects in Hong Kong, Mainland China, Australia and India – compared with HK\$11,691 million in 2020.
- ◆ Sustainable financing arranged at very favourable commercial terms, before the rise in inflation and interest rates later in 2021.
- ◆ Successful issuance of CLP Power Hong Kong's US\$300 million 10-year public bond for general corporate purpose in July at commercially-attractive pricing.
- ◆ Strong liquidity maintained with undrawn bank facilities of more than HK\$28 billion and bank balances of more than HK\$8 billion for the Group as of 31 December 2021.
- ◆ Solid credit ratings well within investment grade for CLP's major entities by S&P and Moody's.

Green Financing Empowering Climate Actions

As one of the largest sources of global greenhouse gas emissions, the electricity sector has a critical role in efforts to combat climate change. Power companies such as CLP need to increase investment in low- or zero-carbon emitting electricity infrastructure and help customers reduce their carbon footprint.

The International Energy Agency forecasts that annual clean energy investment will need to accelerate to around US\$4 trillion by 2030 to support the transition to a net-zero global economy by 2050. As capital providers increasingly recognise the benefits of environmental, social and governance (ESG) investments, there is growing alignment between the financial industry and the power sector in concerted efforts to accelerate the pace of energy transition. Clean energy infrastructure must be built and integrated into the electricity market to enable the phase-out of coal-based power generation in an orderly manner. Meanwhile, the economics of clean energy are becoming more favourable because of the fall in the costs of renewable power.

CLP committed in 2021 to achieve net-zero greenhouse gas emissions across its value chain by 2050. Supported by a sound financial position, CLP worked closely with investors and financial institutions to ensure strong fund flow and adequate liquidity for its operations and growth, while maintaining sufficient reserves for contingencies. The establishment of CAFF in 2017 was testament to CLP's pioneering green financing with demanding standards of corporate governance. The Group remained focused on improving the sustainability, diversification and cost efficiency of debt financing to support investments in low-carbon energy and associated infrastructure in the energy transition.

In financial markets, 2021 was marked by unpredictability and challenges as the ongoing pandemic and the emergence of coronavirus variants led to an uneven recovery in the global economy. Massive monetary easing and subsequent inflationary pressures triggered debates over the need for quantitative tapering. With continuing uncertainties over the direction of central bank policies, yields of benchmark 10-year US Treasury Notes surged from 0.91% in January 2021 to 1.74% in March, before softening to 1.19% in July. The yields then rebounded to 1.52% in December and were above 1.96% at the beginning of February 2022, at a time of increased market concerns over inflation and the COVID-19 variants. Such volatilities highlighted the need for continuing vigilance, meticulous planning, effective risk management and timely implementation of financing initiatives, as an uncertain economic environment became the "new normal".

A Framework for Financial Sustainability

Sustainable financing requires the collective efforts of businesses, the financial industry and the broader community. CLP is committed to working with key stakeholders, including capital providers and financial services companies, on the development of clear frameworks and practices for ESG financing following the successful introduction of CAFF more than four years ago. The framework was updated in 2020 to incorporate a broader range of sustainable financial instruments, diversifying from bonds to loan facilities.

There are two types of climate action finance transactions under CAFF: New Energy Finance Transactions, which are green bonds or loans for renewable energy and energy-savings projects, and Energy Transition Finance Transactions, which are bonds or loans to fund projects that deliver significant emission reductions.

In February 2021, CAPCO successfully issued a US\$300 million (HK\$2.3 billion) 10-year, 2.125% Energy Transition Bond to partially fund the construction of D2, a new combined-cycle gas turbine (CCGT) generation unit at Black Point Power Station. The bond carried a 0.875% spread over 10-year US Treasury Notes, the narrowest of all 10-year bonds previously offered by CLP and reportedly the tightest among all non-public sector debt offerings by corporations in Hong Kong at the time of issuance. The bond, under CAPCO's Medium Term Note (MTN) programme, was more than 4.6 times oversubscribed, attracting more than US\$1.4 billion in orders from investors globally. In addition, CAPCO arranged a total of HK\$3.7 billion of three-year energy transition revolving loan facilities, in addition to a HK\$1.6 billion 15-year energy transition loan facility covered by export credit agency Euler Hermes, to complete the financing for D2's project cost at competitive rates.

In July, CLP Power Hong Kong issued a US\$100 million (HK\$777 million) New Energy Bond under CAFF to support the continued rollout of smart meters in Hong Kong. More than 1.2 million smart meters have been connected at the end of 2021, offering customers the ability to improve energy efficiency with greater accessibility to data. Issued under the MTN programme, the bond carried a 2.25% coupon rate and was competitively priced at a 0.9% spread over 10-year US Treasury Notes.

CAFF helps attract socially-responsible, sustainable financing to support CLP's decarbonisation investments, and the Group is committed to the highest standards of governance on its implementation. Governance of CAFF aligns with the Green Bond Principles, a set of voluntary guidelines that recommend transparency and disclosure and promote integrity in the development of the international green bond market. CAFF also covers Energy Transition Financing for funding of government-supported investments that can achieve significant environmental benefits. Such financing is not included in the list of project categories under the Green Bond Principles.

All eligible CAFF projects undergo a rigorous review and approval process within a transparent framework and clear guidelines. All transaction proceeds must clearly deliver environmental benefits through investments in qualified projects identified by an unequivocal screening process. A committee chaired by the Chief Financial Officer and comprising senior management from departments including Treasury, Sustainability and Legal, is responsible for CAFF's governance, including approval of Climate Action Finance Transaction and determination of the proposed use of proceeds. Independent consultant DNV, a leading provider of sustainable finance assessments, has been commissioned by CLP to provide second-party opinion.

Information and post-issuance reports on CLP's Energy Transition Bonds and New Energy Bonds are available on the Hong Kong Stock Exchange's (HKSE) Sustainable and Green Exchange (STAGE) platform for assessment by investors and analysts. CLP joined STAGE when the platform was launched in 2020 to provide a repository of information for sustainability, green and social bonds listed on the HKSE.



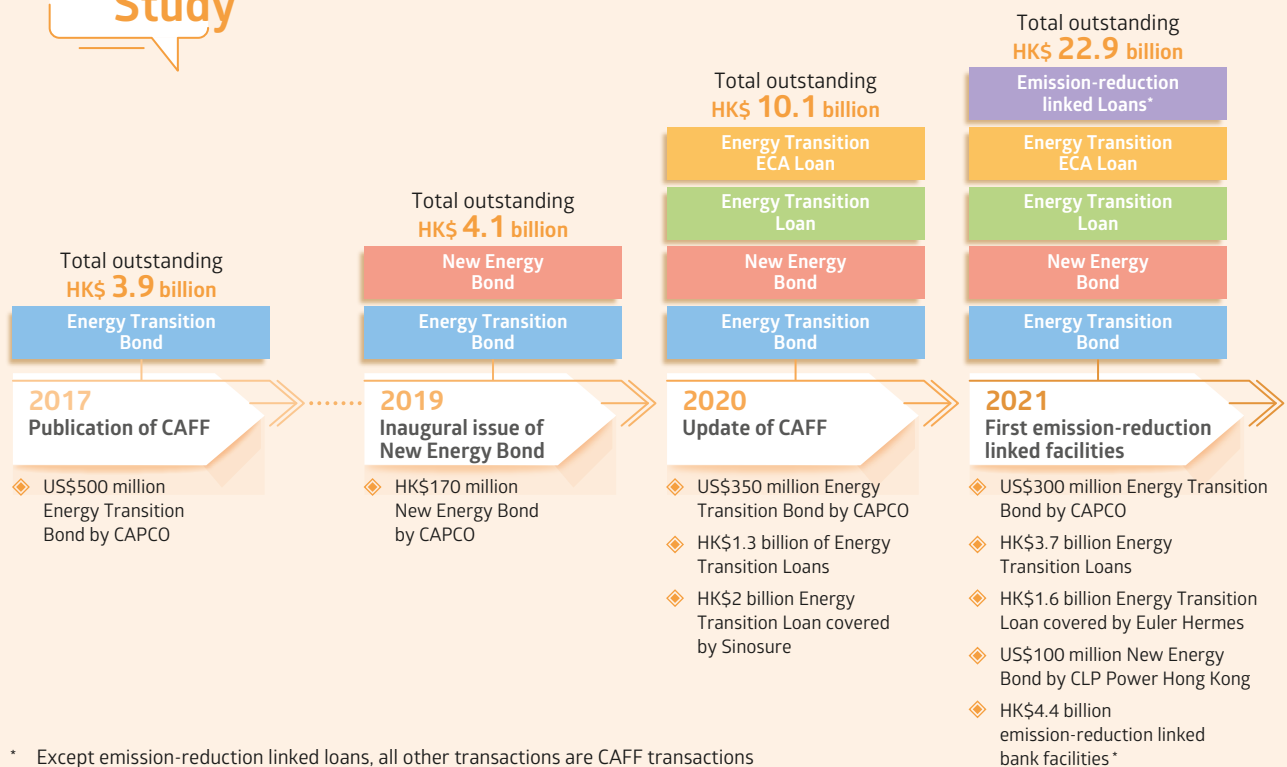
See CLP Climate Action Finance Report 2021.



More information about CLP Climate Action Finance Framework can be found on our website.



Sustainable Financing Enabling Hong Kong's Energy Transition



Growing interest in ESG financing from investors and banks is helping to support the energy transition in Hong Kong. As CLP continues to decarbonise under its Scheme of Control (SoC) Agreement with the Government, the increasing ESG capital flow is being channelled into clean energy projects through the Group's Climate Action Finance Framework (CAFF), as well as new sustainable finance instruments on the market.

In 2021, 58% of the financing needs of CLP's SoC businesses in Hong Kong were met by sustainable sources of funding, increasing from 22% in 2017 when the establishment of CAFF enabled Castle Peak Power Company Limited (CAPCO) to issue a US\$500 million Energy Transition Bond. The bond was the first transaction under CAFF, and helped finance D1, a more efficient combined-cycle gas turbine (CCGT) unit at Black Point Power Station, to reduce the carbon intensity of electricity generation. Since then, CLP has made rapid progress on its sustainable finance journey.

CAFF was updated in 2020 to support a broader range of sustainable finance transactions beyond bond issuances, allowing CAPCO to arrange a HK\$2 billion long-term Energy Transition Loan Facility covered by China Export & Credit Insurance Corporation (Sinosure). This was the first loan facility under CAFF covered by an export credit agency (ECA). In 2021, CAPCO arranged another ECA-covered loan – a HK\$1.6 billion 15-year facility with Euler Hermes.

Sustainability elements were included in almost all newly-arranged financing facilities by CLP's SoC businesses in 2021, with the exception of short-term money market line facilities. CLP Power Hong Kong and CAPCO together arranged HK\$4.4 billion of emission reduction-linked facilities with eight banks. The terms of the facilities included performance targets linked to levels of air emissions, including sulphur dioxide, nitrogen oxides and respirable suspended particulates, within a reducing annual maximum output level. Sustainable financing by CLP's SoC businesses in 2021 also included the US\$300 million Energy Transition Bond issued by CAPCO in February, with 50% of the issuance allocated to ESG-focused investors globally. In July, the US\$100 million New Energy Bond issued by CLP Power Hong Kong also received strong support from green bond investors, with 70% of the issuance allocated to ESG-focused capital providers. Financings in 2021 were arranged at very conducive transaction windows which offered very favourable commercial terms as CLP took timely action in the market and well ahead of the surging inflation and interest rates in the latter part of the year.

CLP works closely with banks in due diligence and financing initiatives in alignment with the Equator Principles, which provide a common baseline and risk management framework to identify, assess and manage environmental and social risks.

Maintaining a Strong Financial Position

CLP's stable operations continued to provide solid support to the Group's investments in the energy transition. Capital investments increased 21.4% to HK\$14,198 million, with CLP focused on progressing decarbonisation projects in Hong Kong, Mainland China, Australia and India. Investments in coal-based assets were limited to their maintenance, safety and emissions management. Despite a drop in operating cashflow to HK\$18,078 million due primarily to reduced contributions from EnergyAustralia, strong financing capabilities allowed CLP to continue to maintain adequate financial resources to support its investments.

The largest proportion of CLP's operating earnings was generated by the transmission, distribution and retail of electricity in 2021. Coal assets contributed 10% of operating earnings before unallocated expenses, reduced from 23% in 2020. Under Climate Vision 2050, CLP is committed to expanding operations in lower-carbon segments, with a pledge to phase out coal-fired assets by 2040. This transition will help CLP manage the risks of climate change, and allow the Group to capitalise on opportunities in the net-zero transition.

Ensuring a high degree of financial integrity is vital for CLP to meet its business and climate objectives. CLP strives to maintain a strong balance sheet with robust financial structure, supported by adequate cash flow with good investment grade credit ratings, providing the Group and its subsidiaries with access to global capital markets and bank funding.

CLP Power Hong Kong and CAPCO have well-established MTN programmes in place under which bonds in aggregate amounts of up to US\$4.5 billion and US\$2.0 billion

respectively may be issued. As of 31 December, notes with an aggregate nominal value of around HK\$29 billion and HK\$9.1 billion respectively were issued by the two companies.

In July, CLP Power Hong Kong successfully issued a US\$300 million (HK\$2.3 billion) 10-year public bond for general corporate purposes at a 2.25% coupon rate. It was competitively priced at a 0.9% credit spread over 10-year US Treasury Notes. The proceeds of all foreign currency bonds were swapped into Hong Kong dollars at favourable fixed rates to fully mitigate foreign exchange and interest rate risks. In May, CLP Power Hong Kong also issued A\$24 million (HK\$144 million) 15-year private bond at a 2.99% coupon rate for general corporate purposes. Both bonds were issued under the MTN programme.

EnergyAustralia extended the maturity date of a A\$300 million (HK\$1.7 billion) working capital facility by three years to June 2024, and a A\$500 million (HK\$2.8 billion) bank guarantee and reimbursement facility by three years to March 2024, both at competitive terms. EnergyAustralia aims to diversify its debt portfolio through green and energy transition financing to meet the needs of clean energy projects, including battery storage and green hydrogen.

In Mainland China, CLP executed a RMB300 million (HK\$360 million) two-year offshore revolving bank loan facility and a RMB587 million (HK\$705 million) 15-year onshore project loan facility at competitive terms, as its renewable assets portfolio in the country grows.

In India, Apraava Energy arranged a total of Rs31.9 billion (HK\$3.3 billion) of bank facilities as the business continued to expand its investments in clean energy, including wind and solar energy, as well as power transmission.

| Debt Profile as of 31 December 2021 | CLP Holdings HK\$M | CLP Power Hong Kong HK\$M | CAPCO HK\$M | Other Subsidiaries HK\$M | CLP Group HK\$M |
|-------------------------------------|-----------------------|------------------------------|----------------|-----------------------------|--------------------|
| Availability Facility ¹ | 8,200 | 34,273 | 26,740 | 17,078 | 86,291 |
| Bank Loans and Other Borrowings | – | 29,219 | 17,132 | 11,864 | 58,215 |
| Undrawn Facility | 8,200 | 5,054 | 9,608 | 5,214 | 28,076 |

Note:

- ¹ For the Medium Term Note (MTN) programmes, only the amounts of the bonds issued as at 31 December 2021 were included in the total amount of Available Facility. The Availability Facility in EnergyAustralia excluded a facility set aside for guarantees.

Effective Risk Management for Decarbonisation

CLP continues to exercise prudence in its regular review of liquidity position, identify risk exposures, maintain accessibility to cost-effective, diversified funding and adopt effective measures to enhance risk mitigation. CLP will continue to take pre-emptive, timely actions to arrange major financing activities with sustainability or ESG elements, to the extent appropriate, in line with the Group's decarbonisation strategy.

The Group maintained a high level of interest rate and foreign currency hedging at commercially-acceptable terms to cover committed and highly probable financial obligations, enabling it to withstand financial market volatility and pursue its business objectives. This included the use of natural hedge and approved financial derivative instruments with straightforward, easy-to-understand features that can qualify for effective accounting hedge with no adverse profit-and-loss impact to manage obligations and risks. For counterparty exposure, CLP transacts only with

credible financial institutions and financially sound business counterparts with strong credit ratings. These measures help ensure CLP's businesses do not face undue residual financial or credit risks and provide confidence to stakeholders, including governments, customers, shareholders, financial institutions, bond investors and business partners. This risk management approach is well established and has been continually enhanced, benefitting the Group in the volatile market environment in 2021. CLP's robust financial position provides with reasonable degree of predictability for future planning and equips the Group with the necessary resources to finance capital investments, creating value in the low-carbon transition and increasing business resilience.

CLP is committed to strengthening its reporting in line with the recommendations of the Taskforce for Climate-related Financial Disclosures (TCFD). To provide transparent, reliable and consistent information to stakeholders, the Group continued to focus on enhancing its climate-related risk assessment and developing bespoke climate scenarios for its markets. Further information is in CLP's 2021 Climate-related Disclosures Report.

Maintaining Solid Credit Ratings

Solid investment grade credit ratings are crucial for CLP to source financing with optimal terms (amount, pricing, tenor and diversity) and maintain high credibility when negotiating commercial contracts. In May and June 2021, Standard & Poor's (S&P) and Moody's affirmed the credit ratings of CLP Holdings (A and A2), CLP Power Hong Kong (A+ and A1) and CAPCO (AA- and A1) with stable outlooks. In October 2021, S&P revised the rating outlook of EnergyAustralia to negative from stable and affirmed the BBB+ credit rating. The rating agency expressed the view that EnergyAustralia would be affected by a challenging market and weak operating conditions, including ageing coal-based generation assets and depressed wholesale electricity prices.

Moody's and S&P published ESG credit scores for the utility and power generation sectors in 2021 to provide more transparency on how key sustainability drivers will be factored into their credit analysis. CLP Holdings was assigned E-3, S-2 and G-1 by S&P, and E-3, S-3 and G-2 by Moody's, on a scale of 1 (highest score) to 5 (lowest score). Both agencies recognised CLP's credible commitment to taking action on climate change and the capital spending for energy transition to meet its net-zero emission targets. The S-2 and G-1 scores are among the highest assigned by S&P to power companies in the region, reflecting the Group's transparent disclosure, robust governance and risk management.

| | S&P | Moody's |
|---|--|---|
| CLP Holdings CLP Power Hong Kong CAPCO EnergyAustralia | A / Stable A+ / Stable AA- / Stable BBB+ / Negative | A2 / Stable A1 / Stable A1 / Stable Not applicable |
| Positives | <ul style="list-style-type: none"> ◆ The Group has accelerated energy transition to achieve its decarbonisation goal. ◆ Highly visible and stable operating cash flows of SoC business. ◆ EnergyAustralia is a vertically-integrated utility and the third-largest integrated energy retailer in Australia. | <ul style="list-style-type: none"> ◆ The Group has strong and adequate financial metrics despite moderation. ◆ Well-managed debt maturities and sound liquidity profile. ◆ Scheme of Control business has a transparent tariff system and provides for pass-through of fuel costs. |
| Negatives | <ul style="list-style-type: none"> ◆ CLP Holdings' continuing high capital expenditures over the next two years will constrain its cash leverage ratios. ◆ EnergyAustralia faces challenging market condition from depressed wholesale electricity prices and operating risks with ageing assets. | <ul style="list-style-type: none"> ◆ Business exposures outside Hong Kong are generally riskier and therefore increase the business risk. ◆ Increasing capital spending in the Scheme of Control business with a lower regulatory rate of return than before. |



More information of our credit ratings can be found on our website.



More information about major financing activities in 2021 and our debt profile can be found on pages 34 and 35 of the CLP Holdings 2021 Annual Results Presentation.



Analyses of loan balance by types and bond funding by currencies can be found on "Financial Capital" page in the Investor Presentation Introductory Pack of CLP Holdings.

In 2021, CLP continued to accelerate investments to reduce the carbon footprint of its business across Asia Pacific, supported by the Group's strong financial position and financing capabilities. CLP's robust governance, risk management and financing strategies helped to strengthen its financial capital resources to support the Group's ongoing decarbonisation journey amid high financial market volatility. Despite continuing uncertainties resulting from the COVID-19 pandemic and geopolitical tensions, CLP remained financially strong, without undue financial risk exposures.

| Objectives & Strategies | Measures | Key Results in 2021 |
|--|---|---|
| <p>Well-balanced, strong financial position</p> <p>+</p> <p>Healthy capital structure</p> <p>+</p> <p>Sustainable, diversified and cost-effective financing</p> | <ul style="list-style-type: none"> Liquidity of HK\$36.4 billion including undrawn bank loan facilities plus bank balances Free cash flow of HK\$17,065 million, and dividend received of HK\$2,556 million from joint ventures and associates Maintaining long-term business relationships with 38 financial institutions in different locations (Australia 11%, Mainland China 18%, UK and Europe 21%, India 18%, Japan 11%, US 8%, others 13%) Spreading out loan maturities (beyond 5 years 54%, 2-5 years 17%, 1-2 years 11%, within 1 year 18%) Diversity of debt instruments and markets (bonds 66%, term loans 25%, money market lines 7%, export credit loan 2%) Multiple bond denomination currencies (USD 69%, HKD 20%, JPY 6%, INR 3%, AUD 2%) Solid investment grade credit ratings CAPCO issued US\$300 million (HK\$2.3 billion) 10-year, 2.125% Energy Transition Bond, a HK\$1.6 billion Energy Transition Loan covered by Euler Hermes, and HK\$3.7 billion Energy Transition revolving loans to finance the D2 Unit at Black Point Power Station CLP Power Hong Kong issued two tranches of 10-year bond, in an amount of US\$300 million (HK\$2.3 billion) public bond for general corporate purposes and US\$100 million (HK\$777 million) private Green Bond under CAFF to fund smart meters An aggregate of HK\$4.4 billion of emission-reduction linked medium-term bank facilities arranged by CLP Power Hong Kong and CAPCO | <p>Growing decarbonation investments backed by robust financial position and financing capabilities</p> <p>Key Results in 2021</p> <ul style="list-style-type: none"> Capital investments increased 21.4% to HK\$14,198 million Timely action to secure sustainable financing before rise in inflation and interest rates |
| <p>Foreign exchange risk mitigation</p> <p>+</p> <p>Counterparty exposure risk mitigation</p> <p>+</p> <p>Interest rate risk mitigation</p> | <ul style="list-style-type: none"> Transaction risk – CLP hedges a high portion of committed and highly probable exposure. Residual risk is low and within tolerable levels Translation risk – This carries no profit or loss nor cash flow effect. CLP does not hedge for regional equity investment but match funding with local currency debt Transact with trustworthy and capable parties As of the end of 2021, the Group's fixed rate debt as a proportion of total debt was 61% (64% if including perpetual capital securities) | <p>A resilient, diligent risk management to support sustainability</p> <p>Key Results in 2021</p> <ul style="list-style-type: none"> No undue financial impact despite extreme turbulence in financial markets Pro-active assessment and regular evaluation of liquidity position |
| <p>Dependable dividend</p> <p>+</p> <p>Timely reporting</p> <p>+</p> <p>Effective policies and principles</p> | <ul style="list-style-type: none"> Dividend – 2021: HK\$7,832 million; 2020: HK\$7,832 million Timely and accurate financial reports and compliance checks Comprehensive set of policies, principles and guidelines with regular reviews | <p>Strong governance with focus on value creation for shareholders</p> <p>Key Results in 2021</p> <ul style="list-style-type: none"> Dividend remained the same despite the adverse market environment Full treasury compliance |

Material Topics



Shaping and executing the transition to net zero



Reinforcing resilience in a changing operating environment

CLP continued to **invest in clean energy infrastructure** in 2021 to decarbonise its portfolio of assets, which spans every segment of the electricity value chain. Amid the accelerating energy transition, the Group remained focused on maintaining its world-class level of supply reliability and **building resilience in a changing climate**. CLP also continued to **reinforce cyber resilience and data protection** at a time when cybersecurity is an increasing global concern. Highlights in 2021 included:

- ◆ Full implementation of a data analytics platform to monitor performance of wind and solar energy assets across Mainland China and India.
- ◆ Resilience studies conducted across the Group's operations.
- ◆ Planning for a new cyber monitoring centre in Shenzhen to support CLP's expansion in the Greater Bay Area.

Managing the Energy Transition

Energy disruption affected millions of households and businesses as electricity providers across Asia Pacific, Europe and the Americas struggled to maintain stable supplies in a year of global fuel shortages and extreme weather events.

Decarbonising the electricity sector is central to international efforts to tackle climate change. As investment in renewable energy continues to grow, solutions such as battery energy storage systems (BESS) are essential to manage the intermittent nature of wind and solar energy and strengthen the reliability of electricity supplies.

Energy companies also need to invest in reinforcing the resilience of their supply infrastructure against the escalating risk of extreme weather events linked to climate change, and improve their protection against online attacks.

Investing in Clean, Reliable Energy

CLP is determined to make the energy transition reliable and affordable to customers as it decarbonises its electricity supply. In Hong Kong, CLP is currently building a second new combined-cycle gas turbine (CCGT) unit at Black Point Power Station. This follows the commissioning of the first 550 megawatt (MW) CCGT unit in 2020. The new units, D1 and

D2, will play a significant role in reducing the carbon intensity of Hong Kong's power supply, while maintaining reliability as CLP prepares to phase out its remaining coal-fired capacity at Castle Peak A Power Station.

The advanced CCGT technology of unit D1 gives it an efficiency rate of around 60%, far higher than the other eight gas-fired units currently in operation at Black Point Power Station. It has cut carbon emissions by about one million tonnes a year, equivalent to the planting of more than 42 million trees, as compared to coal-fired generation. As zero-carbon hydrogen becomes available in the future, CLP expects to be able to use this to fuel D1 and D2 units and further reduce carbon emissions.

EnergyAustralia's planned Tallawarra B generator in New South Wales, scheduled to go into operation in time for the 2023/24 Australia summer, will also use technology supporting the use of a blend of green hydrogen and natural gas for cleaner power generation.

Raising Performance Levels

CLP continued to upgrade its generation assets in Asia Pacific to optimise their performance and raise reliability levels, despite the challenges of the pandemic. Electricity sent out for the Group increased 6.1% to 91,183 gigawatt hours (GWh) in 2021 on an equity plus long-term capacity and energy purchase basis.

The performance of all CLP wind and solar energy assets in Mainland China and India are now monitored continuously by an advanced analytics platform. The system incorporates digital technologies, including big data and artificial intelligence, and gives CLP real-time data to help it monitor and manage almost 2 gigawatts (GW) of renewable energy assets.

In India, Apraava Energy launched programmes to upgrade wind farms in Tejuva in Rajasthan state, Harapanahalli in Karnataka state, and Chandgarh in northern India. The upgrades involve the installation of generators with larger capacity, improvements to the aerodynamic performance of turbine blades, and new software to help maintain generation in high wind periods. The wind farms recorded significantly improved energy output and plant availability.

Major maintenance programmes were carried out at EnergyAustralia's Yallourn Power Station to enhance its reliability and performance. Works are also planned at Mount Piper Power Station to reduce the minimum stable load at which it can operate. This will make the plant more responsive to demand and more cost-effective in a market in which increasing renewable energy penetration is driving down wholesale electricity prices.



Battery Storage Systems Lead Charge to a Greener Future

A 5 megawatt (MW) battery energy storage system (BESS) at CLP's new 100MW Qian'an III wind farm in the northeastern Chinese province of Jilin enables it to capture excess energy, and release stored energy to the network when the need arises, such as when wind speeds are low.

The installation of the BESS, with one hour of storage capacity, strengthens the supply reliability of the wind farm and contributes to grid stability with its load and frequency support capabilities. This increases the commercial viability of CLP's first grid-parity project – a renewable energy project not reliant on Government subsidies.

Connected to the grid in December 2021, Qian'an III is adjacent to the existing Qian'an I and II projects. Together, the three wind farms constitute the largest single-site operational wind energy asset in CLP's portfolio with a combined capacity of 199MW.

In its planning for Qian'an III, CLP drew on the experience of EnergyAustralia, which has agreements to operate and dispatch two BESS projects in the state of Victoria – the 30MW Ballarat project and the 25MW Gannawarra project.

EnergyAustralia has now committed to developing the much larger 350MW Wooreen battery project, co-located with its Jeeralang Gas-fired Power Station. It is scheduled to go into service by 2026 and will bolster supply reliability in Victoria in the run-up to the planned retirement of Yallourn Power Station in 2028.

In Hong Kong, meanwhile, CLP and the city's Airport Authority jointly designed and developed a 4MW BESS system which went into service in June 2021 at the Hong Kong International Airport.

Globally, energy storage installations will increase to a cumulative 358 gigawatts (GW) by 2030, more than 20 times the 17GW of projects online at the end of 2020, according to forecasts by strategic research provider BloombergNEF.



Qian'an III Wind Farm in Mainland China is the first CLP project of its kind equipped with a battery energy storage system.

Sheltering from Storms

CLP continues to build resilience into its operations to minimise risks to its assets from extreme weather events and other potential disruption.

Resilience studies drawing on the latest climate data have been conducted across the Group's operations. These included comprehensive assessments of extreme weather events, including floods and landslides, for CLP's renewable energy assets in Mainland China. Similar climate resilience studies were carried out for assets in Hong Kong, with a specific focus on the integrity of power transmission and distribution assets in severe weather events such as Typhoon Mangkhut in 2018. In India, Apraava Energy assessed the risk of heat stress and drought at Jhajjar Power Station. These studies will help inform investment decisions to protect assets against future climate events.

CLP also developed a climate risk due diligence tool to assist in risk assessment of new energy infrastructure projects. The tool enables the screening of climate-related incidents that might disrupt project progress or operations, helping project teams develop measures to minimise the assessed impact. Further details on how CLP manages climate risks are available in CLP's 2021 Climate-related Disclosures Report.

With more than 5,600 suppliers under its management in 2021, CLP has continued to develop the Group's procurement capabilities to strengthen the resilience of its operations. This has included a raised focus on upstream supply chains to manage risks and issues associated with external factors such as the COVID-19 pandemic, rising commodity prices, deglobalisation, physical climate risk, trade sanctions and sovereign risk.

Strengthening Cybersecurity

CLP further strengthened protection of its operations against potential cybersecurity risks. As part of a holistic and coordinated strategy, CLP deployed new technologies including improved software to detect cyber threats and automated technology to isolate devices when threats are detected. The Group also broadened its range of firewalls and threat-scanning technologies.

A cyber monitoring centre is planned in Shenzhen to support CLP's push to capture growing business opportunities in the Greater Bay Area. The centre will improve liaison with CLP's businesses in Mainland China and establish protocols for localised cybersecurity products and practices, particularly as the need for compliance with new cyber regulations increases.

CLP also continued to raise the awareness of employees, providing training to develop their ability to recognise and respond to online threats. Detailed reviews were conducted in partnership with external consultants to explore ways to further improve awareness of cybersecurity and incident response capability.

CLP is committed to protecting the data of its customers at all times. In 2021, a notifiable data breach associated with an email containing private information sent incorrectly to an EnergyAustralia customer's old email account was reported to the Office of the Australian Information Commissioner. The breach did not result in any penalty or sanction and EnergyAustralia has been working with the customer on a solution to the matter. In Hong Kong, no customer data loss case was reported in CLP's operations in 2021.

Material Topic



Pursuing growth opportunities in Hong Kong and the Greater Bay Area

CLP continued to harness the latest technologies in 2021 to drive innovation in energy services and improve its operations across Asia Pacific. Through its increasing technological capabilities, the Group stepped up efforts to **develop Energy-as-a-Service (EaaS) business models** and **deploy customer-facing energy solutions**, while strengthening its focus on the core markets of Hong Kong and the Greater Bay Area (GBA) to **create new earnings streams**. CLP is committed to **deepening its value proposition with partners** to capture new opportunities in the energy market. Highlights in 2021 included:

- ◆ A 92% year-on-year increase in sales of digital energy solutions offered by CLP's Smart Energy Connect (SEC) platform.
- ◆ New centralised cooling project in Guangzhou opens up new business model in the GBA.
- ◆ Largest solar energy system in Hong Kong's retail sector under CLP's Feed-in Tariff (FiT) scheme, part of a comprehensive solution delivered by CLPe Solutions for a supermarket operator.

Innovating for Sustainability

Businesses and organisations around the world are stepping up efforts to make their operations more sustainable, with energy consumption a key focus of their environmental, social, and governance (ESG) efforts. To meet increasing demand from customers for low-carbon, sustainable energy services, electricity utility companies must continue to accelerate innovation and develop new business models.

Buildings account for around 90% of electricity used in Hong Kong, according to Government data. Smart energy solutions powered by digital technologies, including artificial intelligence (AI) and data analytics, improve the energy efficiency of offices and buildings and have a pivotal role to play in the city's goal of achieving carbon neutrality by 2050.

Sustainable energy solutions will also support the low-carbon development of the GBA, comprising Hong Kong, Macau and nine southern Chinese cities including Guangzhou and Shenzhen. The Chinese Government's 14th Five-Year Plan announced in March 2021 highlighted the GBA's position as an international innovation and technology centre with a strategic role to spearhead the green transformation of the

national economy. The gross domestic product of the GBA was RMB11.4 trillion in 2020, representing more than 10% of the Chinese economy, according to data from management consultancy Deloitte.

CLP continued to accelerate the development of a diverse range of innovative, technology-enabled services and business models to help customers decarbonise under its EaaS strategy. In support of Climate Vision 2050, the EaaS strategy helps CLP to meet growing demand in Hong Kong and the GBA for more flexible, environmentally-sustainable solutions, including cooling systems, electric vehicle (EV) charging, microgrids and power systems for data centres.

Delivering Smart, Sustainable Energy Solutions

CLP expanded its range of smart technologies and helped more businesses achieve energy efficiency improvements through the SEC digital platform, where sales of smart energy technologies increased by 92% year-on-year, enabling more businesses and organisations to achieve impressive energy efficiency improvements.

CLPe Solutions, the Group's subsidiary focused on energy and infrastructure solutions, provided heating, ventilation and air conditioning (HVAC) control technology from SEC's platform to Island Resort, a retail complex of property developer Sino Group in Hong Kong. This followed a similar project by CLPe Solutions at Sino Group's Olympian City 3 shopping mall in 2020. CLPe Solutions also deployed SEC's technologies at a statutory body in Hong Kong, where AI was used to analyse power consumption data and identify potential equipment malfunctions. A smart office system combining energy management and ambience controls was deployed for a regional beverage company in Hong Kong.

With CLP's firm belief of digitalisation being one of the key enablers of decarbonisation, CLPe Solutions supported businesses to adopt smart technology solutions to meet their sustainability goals. Examples included the deployment of SEC's energy monitoring system for property developer Nan Fung Group to provide visibility into energy use in more than 70 buildings, with support for further energy management capabilities in the future.

There was strong demand for energy and ambience control solutions in the education sector. Air quality improvement systems were installed in more than 10 Hong Kong schools, which also benefited from support on science, technology, engineering and mathematics (STEM) teaching. The solutions use real-time environmental and ambience data collected by advanced Internet of Things (IoT) sensors, giving teachers digital tools to deliver engaging courses to students about environmental conservation and technology.



Unlocking Growth Opportunities in the Greater Bay Area

Demand for sustainable energy solutions is likely to grow rapidly in the Greater Bay Area (GBA) as the decarbonisation policies of the Chinese Government drive green investment in the region. To take advantage of the exciting opportunities this demand offers, energy companies must accelerate innovation in technologies and new business models.

CLP began a comprehensive upgrade of the centralised cooling system at Po Park Shopping Plaza in central Guangzhou in 2021, and will operate cooling services at the busy retail complex until 2036. The project represents a new and highly promising business model for CLP in the GBA, with a steady income stream.

The upgrade uses advanced artificial intelligence technology from CLP's Smart Energy Connect digital platform to improve the performance and energy efficiency of the cooling system. The proprietary technology analyses real-time operational data of the chiller equipment and automatically adjusts settings to enable the system to perform at optimal efficiency.

The chiller control technology has already been installed by other CLPe Solutions customers in Hong Kong. It also allowed TUS-CLP Smart Technology Co. Ltd. – the joint venture between CLP and TUS-Clean Energy – to secure a cooling system upgrade contract at the Chengzhong Hui retail complex in Chengdu, Sichuan province.



CLP began a comprehensive upgrade of the centralised cooling system at Po Park Shopping Plaza in Guangzhou in 2021 and will operate the retail complex's cooling services until 2036.

The SEC digital platform won the Outstanding AI in Chiller Plant Automation System Award in the property technology category of the Smart Living Partnership Awards 2021, which are co-organised by ET Net and Cyberport to recognise achievements in the application of digital technology in Hong Kong.

Growing Demand for Clean Energy Solutions

The Chinese Government has set new targets to increase energy efficiency and reduce levels of carbon intensity under its 14th Five-Year Plan covering the period from 2021 to 2025. In the longer term, the Chinese Government has committed to goals of reaching peak carbon emissions by 2030 and achieving carbon neutrality by 2060. As the Chinese economy decarbonises, CLP aims to meet growing demand for sustainable energy solutions with an emphasis on the GBA. CLP will also seek out opportunities in fields such as centralised cooling systems and energy solutions for data centres.

To help meet demand for smarter, cleaner energy, CLP continued its partnership with CYZone – a leading provider of event and information services supporting the growth of technology innovators in Mainland China. The partnership enables CLP to identify the most promising innovators for potential partnerships, with a focus on technologies such as electric transport and clean energy.

CLP also has access to the latest Chinese energy technologies through its investment in the CSG Energy Innovation Equity Investment Fund, set up by China Southern Power Grid. CLP meanwhile strengthened partnerships with innovators around the world by participating in the Free Electrons global energy accelerator programme, and continued to benefit from its strategic investments in leading global innovation hubs, including Mainland China, the US, and Israel.

Helping Customers Decarbonise

CLP is committed to offering a comprehensive range of solutions to help customers decarbonise under its EaaS strategy. In addition to products and services for customers to improve their energy efficiency, CLP is working towards providing a low-carbon energy supply, supporting electrification and giving customers the chance to offset difficult-to-avoid emissions.

By the end of 2021, 265 megawatts (MW) of capacity had been approved or connected to the grid under CLP's Renewable Energy FiT scheme. CLPe Solutions announced a partnership with DFI Retail Group to develop, install, operate and finance a solar energy system at the Wellcome Fresh Food Centre in Hong Kong, capable of generating over 1

million kWh annually – the biggest solar energy system in Hong Kong's retail sector under the scheme so far. CLPe Solutions has also installed a total of over 1,400 solar panels with a generation capacity of approximately 455kW across eight English Schools Foundation campuses in Hong Kong.

With its strong capabilities in renewable energy development, the CLP Group continued to explore opportunities in the market for corporate power purchase agreements to meet demand for clean energy from large, multinational businesses in Asia Pacific.

CLP continued to provide free EV charging services at more than 50 locations to encourage the expansion of green motoring in Hong Kong. CLP's Eco Charge 2.0 EV support service offers one-stop technical support for owners of private buildings and estate managers interested in applying for Government funding to install EV charging infrastructure.

Smart Charge (HK) Limited, a joint venture between CLP and telecommunications company HKT Limited, has designed, installed and currently manages EV charging infrastructure in residential car parks in Hong Kong that cover a combined total of almost 10,000 car spaces.

A growing number of businesses are benefiting from emissions offsets through SEC's CLP Carbon Credits Programme. Shipping company Pacific Basin teamed up with CLP in a programme to offset the emissions of cargo shipping, using carbon credits generated by CLP's wind farms and solar farms.

Harnessing the Power of Data

CLP reached an agreement with The Weather Company (TWC), a subsidiary of US technology company IBM, for access to comprehensive global weather forecast data, including solar irradiation and wind and sea conditions. The data will support CLP in operations, including energy consumption forecasting and the management of renewable energy assets.

CLP's smart meter programme continued to expand, providing more customers with the ability to access consumption data and to improve their energy efficiency. By the end of 2021, more than 1.2 million smart meters had been installed in Hong Kong, while over 900,000 EnergyAustralia customers now have smart meters installed. EnergyAustralia meanwhile continued to invest in cloud-based data systems, providing more real-time insights to support its operations and customers.

Material Topic



Building an agile and innovative workforce

A Utility of the Future requires a workforce capable of rising to the challenges of tomorrow. This section discusses CLP's strategies to develop its organisational capability to prepare the way for business growth and transformation. With keeping everyone safe and **promoting workplace safety and health** as the foundation, CLP continued to strengthen efforts to resource for the energy transition and growth, **attracting and retaining future talent** to support the Group's business needs, in addition to **enhancing the technical and digital capabilities** of the workforce, amid accelerating changes in the industry. CLP focused on evolving ways of working to respond more quickly to the changing needs of customers and employees and new business models, as rapid changes in the operating environment demanded building organisational agility. As the energy transition unfolds, CLP is committed to supporting its people to thrive in change, including providing comprehensive support for employees whose jobs are affected by the energy transition, and promoting wellbeing and resilience. Key initiatives for the workforce and performance highlights in 2021 included:

- ◆ Improvement in safety performance, with lower total recordable injury rate (TRIR) and lost time injury rate (LTIR), despite increased project activity.
- ◆ Capability development in line with business priorities including accelerated youth development and recruitment efforts in Hong Kong and Mainland China.
- ◆ Further transitioning to hybrid working and strengthening employees' skills to innovate.
- ◆ Announcing an extensive support package for employees affected by the advanced retirement of Yallourn Power Station in Australia in mid-2028.
- ◆ Launching a comprehensive suite of initiatives and tools to strengthen employee wellbeing and resilience.

Building a Workforce for the Future

CLP is building a workforce for a future shaped by structural shifts including energy transition, demographic changes and evolving regional market priorities. The pandemic, meanwhile, continues to require special work arrangements

to ensure the wellbeing of employees and maintain business resilience. Meeting these challenges requires systematic organisation development and execution of a comprehensive plan to develop necessary capabilities.

In the coming years, significant value will be underpinned by having the talent to execute a pipeline of clean energy projects. In addition, the resourcing needs of new energy solutions businesses and digitalised operating models will increase. At the same time, an ageing workforce, increased competition for people qualified in science, technology, engineering and mathematics (STEM), and disruptions in the talent landscape in CLP's markets, are creating both opportunities and challenges. Within the next five years, millennials will account for two-thirds of CLP's workforce. This digital-native generation has different expectations of work and the way in which employers engage and support them. Strengthening organisational capability to capture growth opportunities in Hong Kong and the Greater Bay Area (GBA), nurturing young talent and supporting youth development, and enhancing policies and benefits to attract and support a diverse, multi-generational workforce are key priorities in 2022.

Energy transition, digital evolution, and increasing social and political uncertainties as well as expectations in CLP's markets are driving the need for greater organisational agility - the ability to adapt and succeed in a rapidly changing environment. This need has accelerated during the COVID-19 pandemic, with a shift to hybrid working across all of CLP's operations. Upskilling and empowering employees to respond rapidly to changing customer needs and drive breakthrough improvements, providing physical and virtual work environments that facilitate collaboration, and equipping employees to leverage new technologies remain priorities in 2022, together with efforts to embed flexible working and speed up decision-making. CLP is also striving to instil a workplace culture that encourages creativity, experimentation and taking personal responsibility.

As the energy transition unfolds, CLP is committed to supporting its people to thrive in change. This means providing comprehensive support and reskilling for employees whose jobs are affected by the transition to net zero or other business restructuring, helping employees to embrace change, strengthening their wellbeing and resilience, and developing more inclusive workplaces. Continuing investments in resilience and in equipping senior leaders to lead the Company's business transformation under increasingly complex social and political influences are priorities in 2022.

Key Performance Summary

At the end of 2021, CLP had 8,116 full-time and part-time employees, compared with 8,060 a year earlier. A total of 3,938 employees was engaged in the Hong Kong regulated electricity operations, 415 in Hong Kong non-regulated electricity-related businesses, 627 in Mainland China, 2,718 by the businesses in Australia, India, Southeast Asia and Taiwan, with 418 employed by CLP Holdings. Total remuneration for the year ended 31 December 2021 was HK\$6,684 million compared with HK\$6,368 million in 2020, including retirement benefit costs of HK\$652 million compared with HK\$606 million in 2020.

| | 2021 | 2020 |
|---|------------------|-----------|
| Total workforce ¹ | 17,949 | 17,621 |
| Total employees ² | 8,116 | 8,060 |
| Workforce fatalities | 0 | 0 |
| Lost time injury rate ³ (workforce) | 0.07 | 0.11 |
| Gender diversity | | |
| – Group Executive Committee ^{4,5} | 69% / 31% | 64% / 36% |
| – Employees ^{2,4} | 74% / 26% | 74% / 26% |
| – Women in leadership positions ⁶ | 30.5% | 27.3% |
| – Women in engineering ⁷ | 12.3% | 11.5% |
| Voluntary turnover ⁸ | 8.1% | 4.4% |
| New hires | 1,029 | 711 |
| Percentage of employees on permanent contract | 87% | 88% |
| Percentage of labour supply ⁹ and service contractors ¹⁰ in workforce | 55% | 55% |
| Percentage of employees who received training | 98.5% | 97% |
| Average training hours per employee | 51.6 | 42.5 |

Notes:

- 1 Includes full-time and part-time employees, labour supply and estimated service contractors on a full-time equivalent (FTE) basis. FTE calculations are based on the number of man-hours incurred and country-specific average working hours.
- 2 Full-time and part-time employees.
- 3 See note 1 under Total Recordable Injury Rate at Group and Regional Level.
- 4 Male/female ratio. The data of other gender identities is tracked but is statistically insignificant and is therefore not separately disclosed.
- 5 Includes Executive Director (Chief Executive Officer).
- 6 Leadership positions are defined as positions at Hay Reference Level 19 and above.
- 7 Employees with a bachelors' degree or higher qualification in engineering.
- 8 Includes permanent employees only, except for Mainland China which includes both permanent and fixed-term contract employees due to local employment legislation.
- 9 Labour supply refers to manpower supplied by contractor companies under labour supply agreements. Reporting is based on quarterly averages.
- 10 Estimated service contractors FTE are calculated based on the number of man-hours incurred and country-specific average weekly working hours.

Keeping People Safe and Well

During the ongoing COVID-19 pandemic, CLP maintained comprehensive measures to safeguard the wellbeing of employees and contractors and ensure business continuity, including special work arrangements, site access controls, health education and support for employees to get vaccinated. CLP joined the Hong Kong Government's vaccination programme, arranging for more than 1,200 employees and their family members to receive vaccinations on Company premises. Similar programmes helped employees in Mainland China and India to get vaccinated.

Against a backdrop of increased project activity, operational health and safety performance improved. There were reductions in both TRIR and LTIR as CLP continued to improve health and safety outcomes for employees and contractors. A primary focus was on addressing risks associated with high-consequence events. Through targeted employee engagement and worker insights, CLP developed more comprehensive and effective incident prevention

programmes, aimed at eliminating fatalities, life-changing injuries and significant Health, Safety and Environment (HSE) events.

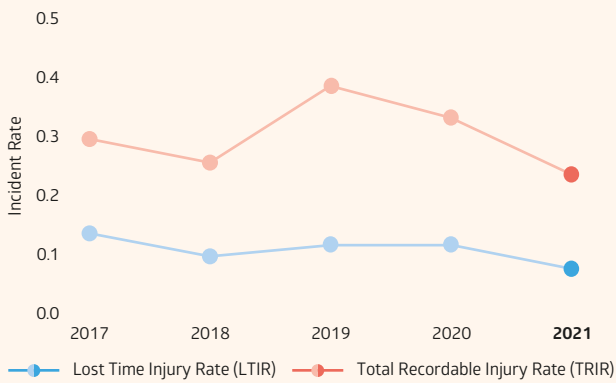
CLP is investing in the redesign and re-engineering of high risk activities in order to materially reduce risk. CLP continued to eliminate the need for diving through the use of robotic technologies. This strategic and systematic approach to improving the safety of high risk tasks will also be applied across CLP's operations in the Asia Pacific to tasks which carry a risk of serious injury, such as working at height.

The Group is upgrading its management system to provide clear standards to manage HSE risks across its business units, with a particular focus on high risk operational activities. During 2021, workshops were held with workforce personnel from all business units. These workshops contributed to a deeper understanding of the controls and internal best practices for priority high risk operational activities. The outputs are now aiding the development of revised Group-wide standards.

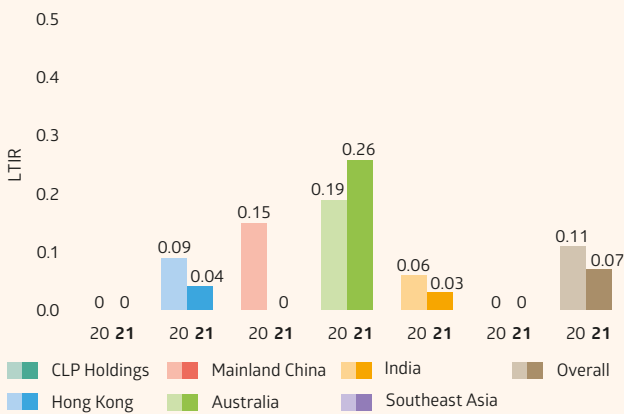


To help build a protective barrier against COVID-19 in Hong Kong, CLP has taken a host of measures to encourage its employees to receive vaccination.

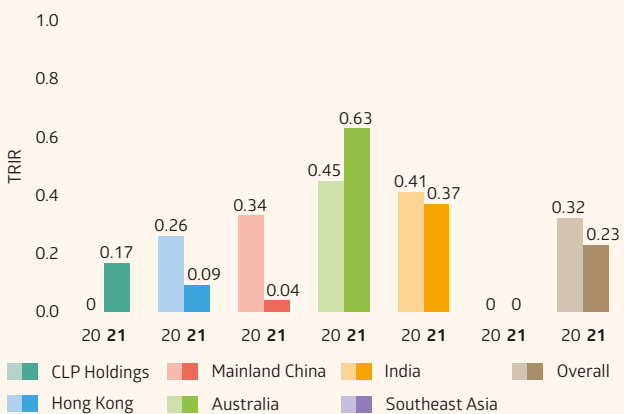
Group Lost Time Injury Rate and Total Recordable Injury Rate



Lost Time Injury Rate at Group and Regional Level



Total Recordable Injury Rate at Group and Regional Level



Notes:

- The LTIR and the TRIR are the number of lost time injuries and recordable injuries respectively measured over 200,000 working hours, which is equivalent to around 100 persons working for one year.
- According to new Global Reporting Initiative (GRI) reporting criteria, work-related ill health and commuting injury are not reported under work-related injury category. Hence, the above 2021 LTIR and TRIR are for work-related injury only. There are 2 work-related ill health injuries and 2 commuting injuries in 2021.

Resourcing for Energy Transition and Growth

Retaining the wealth of knowledge among CLP's employees, together with transferring skills to a new generation of managers and team members, is essential to CLP's long-term success, as is developing skills for a zero-carbon, digitally enabled future.

Investing in building pipelines of skilled engineers and technicians in preparation for the energy transition and to address future skills shortages continue to be a key priority. New and refreshed Graduate Trainee and Leaders of the Future development programmes aimed at meeting future managerial engineering needs continued in 2021, with increased female participation aligned to CLP's long-term aspiration to significantly increase the proportion of women in engineering and leadership roles. These programmes build technical, innovation, project, commercial and change leadership skills at different career stages, and provide exposure to the Group's operations in Mainland China and overseas. A new framework was developed for the Hong Kong business to assist in strengthening operational engineering competency. CLP continued to support engineers in the China business to attain nationwide professional engineering and international qualifications with over 330 employees qualified to date. Investment in study awards for students, internships and mentoring also increased to strengthen pipelines to the Graduate programme, and support Hong Kong's young people during the pandemic.

To prepare for the opportunities that spring from greater regional integration, CLP extended internships to the GBA under the Hong Kong Government's Youth Employment Scheme, and increased entry level and experienced-hire recruitment in Hong Kong and the Mainland. Around 70 employees participated in cross-cultural training on national affairs, business leadership and management offered by institutions including the Tsinghua School of Economics and Management and Ivey Business School. Job rotations for engineers between Mainland China and Hong Kong also increased. Webinars and virtual tours were launched in late 2021 to allow employees to gain insights into CLP's renewable energy development and power industry reforms in Mainland China.

Human Capital

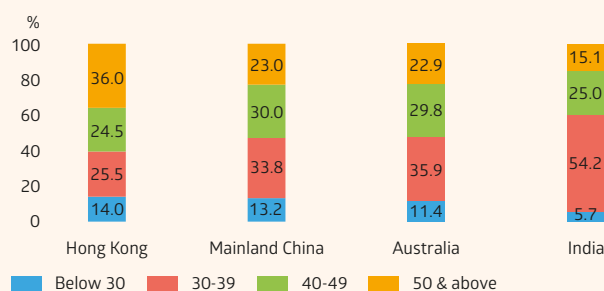
CLP's Executive Development Programme for senior managers was held during the year, focused on developing skills required to lead transformation at a time of complex socioeconomic and geopolitical changes. The programme combines leadership, energy transition and business simulation elements, and was conducted virtually in partnership with the International Institute for Management Development (IMD), the École Polytechnique Fédérale de Lausanne (EPFL) and Tilt Global.

To support these efforts, talent development and mobility policies were updated, and talent acquisition capability was enhanced. CLP continued to strengthen resourcing for innovation, major projects, business development and energy transition-related activities and projects, with 24 senior appointments into critical roles. EnergyAustralia launched a refreshed performance and development framework to continuously improve and sustain high levels of team and individual performance, providing employees access to LinkedIn Learning to support current and future roles.

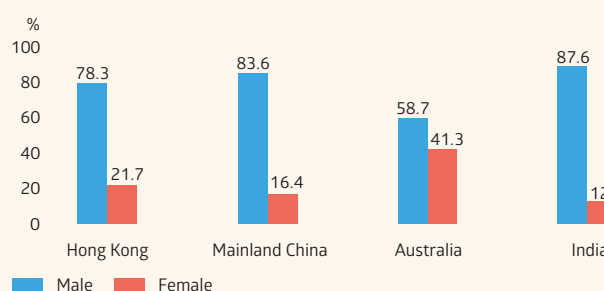
Employees received an average of 51.6 hours of internal and external training and development compared with 42.5 hours in 2020. The increase reflects a pivot to delivering training virtually on topics of critical health and safety, operational and compliance, as well as new training initiatives such as wellbeing and resilience.

| Employee Training | Average Training Hours per Employee | % of Employees Trained |
|---------------------------------|-------------------------------------|------------------------|
| By Gender | | |
| Male | 58.2 | 98.7% |
| Female | 33.3 | 97.7% |
| By Professional Category | | |
| Managerial | 29.5 | 94.2% |
| Professional | 41.2 | 98.5% |
| General and Technical | 65.8 | 99.0% |
| By Region | | |
| Hong Kong | 60.8 | 97.8% |
| Mainland China | 77.8 | 100.0% |
| Australia | 26.8 | 100.0% |
| India | 48.8 | 95.9% |
| Group Total | 51.6 | 98.5% |

Age Distribution by Region



Gender Distribution by Region



Note: Data of other gender identities is tracked. It is statistically insignificant and is not separately disclosed.

Voluntary Turnover Rate (%)

By Gender

| | |
|--------|-------|
| Male | 7.3% |
| Female | 10.5% |

By Age Group

| | |
|------------|-------|
| Below 30 | 12.7% |
| 30 – 39 | 10.7% |
| 40 – 49 | 6.9% |
| 50 & above | 5.1% |

By Region

| | |
|----------------|-------|
| Hong Kong | 4.6% |
| Mainland China | 2.3% |
| Australia | 16.1% |
| India | 6.9% |
| Group Total | 8.1% |



Case Study

Building Bridges to the Greater Bay Area

Talent acquisition channels were broadened to strengthen CLP's readiness for the opportunities that spring from greater integration of Hong Kong into the Greater Bay Area (GBA). CLP's Graduate Trainee programme was extended to graduates from Mainland China universities, and job fairs were organised at institutions including Shandong University, Hunan University and the South China University of Technology. Over 500 applications from Mainland students were received for the programme.

CLP also supported the Hong Kong Government's Greater Bay Area Youth Employment Scheme, providing opportunities for five Hong Kong graduates to work on projects in the Chinese energy market. CLP actively promoted the scheme by sharing its benefits with other companies to encourage them to participate.

CLP stepped up efforts to source targeted talent to help capture new business opportunities in the GBA. Resources from China and Hong Kong businesses were mobilised to support and win GBA projects including a centralised cooling project at the Po Park Shopping Plaza in Guangzhou.

CLP also developed programmes to deepen employees' understanding of the Chinese energy market. A series of webinars and virtual tours was launched in late 2021 to allow employees to explore CLP's renewable energy development in Mainland China, and reforms in the Chinese power industry, as well as challenges and opportunities in the market. More than 200 Hong Kong-based employees took part in the first webinar.



Over 200 colleagues joined the first "CLP – Our Journey Towards Zero Carbon" webinar in December 2021 to learn about solar energy in Mainland China.

Building Organisational Agility

Organisational agility is key to responding to a changing energy market and to the social and geopolitical uncertainties that continue to reshape CLP's business landscape.

Employees need to develop capabilities to adapt to shifts in the market and collaborate effectively to find innovative solutions. CLP's organisational style and associated methodologies need to adapt to help it respond quickly to the changing needs of customers and employees, and to the needs of new business models.

A key initiative to foster agility is CLP's Design Thinking programme, which is intended to nurture a people-centric innovation culture at CLP, providing practical problem-solving frameworks for product and service development, with users' needs in mind. More than 4,200 Hong Kong employees have participated in Design Thinking training since its launch in early 2019. Employees have applied Design Thinking in projects ranging from digital transformation and productivity to safety and customer service.

CLP is also investing in programmes to develop innovation and digital capabilities, including the International Institute for Management Development's (IMD) online Digital Disruption and Innovation Programme, and bespoke courses on data analytics and Robotics Process Automation. At the end of 2021, almost 400 employees had taken part.

CLP's workforce is distributed, with employees working in office, plants, work sites, in mobile field roles and from home. Changes to ways of working to introduce more flexibility have accelerated in response to the COVID-19 pandemic including new ways for employees to connect virtually and collaborate. In the evolving pandemic situation, the focus has shifted to embedding flexible working options. Following a review of current policy and practices, enhanced flexible working and wellbeing policies were developed for employees in Hong Kong, including new part-time work options and work-from-home arrangements.

More agile team structures and working environments were established in Hong Kong and in EnergyAustralia to encourage closer collaboration on growth opportunities and to speed up decision-making.

Supporting CLP's People to Thrive in Change

As the energy industry and the operating environment evolves at unprecedented pace, CLP is committed to supporting all its people to thrive in change. This calls for increased engagement and support for employees to embrace change, strengthening their wellbeing and resilience, and developing a more inclusive workplace, as well as

providing support and reskilling to employees whose jobs are affected by the transition to net zero or other business restructuring.

An engaged workforce is critical to CLP's long-term success. CLP conducted its most recent employee engagement survey for Hong Kong and China assets in late 2020. Pleasingly, there was a very strong 85% response rate, and CLP moved into the second quartile of engagement versus Hong Kong benchmarks and remained at the threshold of the top quartile for China assets, with improvements in most areas since the prior survey in 2017. Following the survey, focus groups were set up to help CLP better understand and address employee concerns; these will form the basis of further work to evolve culture in 2022. EnergyAustralia continued to progress actions identified following its engagement survey, with engagement increasing over the past two years.

CLP is committed to helping employees embrace change, strengthening their wellbeing and resilience as the business evolves, and creating a more inclusive workplace culture. Execution of the Company's health and wellbeing strategy was supported through the launch of the Virgin Pulse digital health and wellbeing platform to help employees improve their physical and mental wellbeing. To increase managers' awareness of, and ability to manage, mental health and emotional issues in the workplace, more than 250 mid-level managers attended resilience programmes. Family-friendly and flexible working policies were enhanced.

CLP continued to help employees in Hong Kong address housing affordability issues through its Home Loan scheme, which provides additional financial support for employees seeking to buy a first home. Since the scheme was launched in early 2019, a total of 146 employees have received assistance.

In the first quarter of 2021, EnergyAustralia announced plans for the closure of Yallourn Power Station in mid-2028, together with building and commissioning a utility-scale battery. EnergyAustralia will provide significant financial support to Yallourn's workforce to help them plan, reskill or retrain for their future. This support is in addition to worker entitlements. EnergyAustralia will continue to engage with the Victorian state government and the local community to ensure an orderly closure and detailed plans will be developed and made available to its people with inputs from the workforce. Separately, EnergyAustralia successfully concluded collective bargaining negotiations for its Tallawarra plant and for operations in the Geelong region. All agreements were reached without the occurrence of protected industrial action.



Case Study

Caring for Employees in the “New Normal”

The wellbeing and resilience of employees has always been a priority for CLP, and has become especially important during the pandemic.

As well as existing measures to safeguard the health and safety of employees, new technologies helped CLP offer additional wellbeing initiatives. A Virgin Pulse digital health and wellbeing platform connected to a wearable fitness device was offered to employees in Hong Kong to promote healthy lifestyles by allowing them to track and monitor their daily activities.

Mental health was another key focus in 2021. The Mental Health First Aid training programme was updated under a new framework combining online and physical interactions. More than 250 employees in Hong Kong have participated in the programme, equipping themselves with the knowledge to identify and address early signs of mental health issues.

Leaders can build psychological safety by creating the right climate, mindsets and behaviours within the organisation. To empower and enable senior leaders, a new series of wellbeing, mindset, resilience and high-performance programmes was launched in 2021 and will continue in 2022. The programmes help participants to understand the importance of wellness for self and in leading teams, to see wellness and resilience in action and role-model leadership accountabilities and behaviours.

Additionally, a review was conducted in Hong Kong on psychologically healthy and safe workplace practices, with the aim to cultivate a sustainable approach to enhance employees' mental health and wellbeing. A roadmap has been developed to embed psychological health in CLP's policies and systems, and to plan for the objective of attaining ISO45003 certification for psychological health and safety at work from the International Organisation of Standardisation.

Material Topics



Shaping and executing the transition to net zero



Reinforcing resilience in a changing operating environment

CLP remained focused on maintaining close partnerships with stakeholders, including policymakers, customers and communities in markets across the Asia-Pacific region, as the Group pushed forward with its mission to build a sustainable business ready for a net-zero world. This section discusses how these stakeholder relationships consolidated CLP's reputation as a **trusted partner** in an **evolving policy and regulatory landscape**. The **social impact of decarbonisation** was a major consideration for CLP in managing its business through the energy transition. As the pandemic persists, the wellbeing of the communities served by CLP is crucial to the Group's efforts to **build resilience in a changing climate**. Key initiatives covered in this section include:

- ◆ Strengthening engagement with policymakers and stakeholders on the path toward net-zero including coal phaseout.
- ◆ Educating the public and enabling customers in efforts towards greater energy efficiency and decarbonisation.
- ◆ Providing continued community support to mitigate the impact of COVID-19.

Rising to the Climate Challenge

Governments around the world, including China, the US, Australia and India, continued to strengthen their climate and environmental policies in 2021, anchored by the agreement reached by more than 190 countries at the United Nations Climate Change Conference (COP26) in November. Managing climate change is central to the sustainability and resilience of economies and communities. To convert policies into action, broad societal support is needed, and businesses have a leading role to play.

Increasing disruption and volatility in energy markets across Asia and Europe towards the end of the year underscored the importance of maintaining supply reliability in the accelerating energy transition. To maintain public trust and support for building the net-zero economy of the future, careful planning and coordination is crucial. This approach will also help manage the pace of the energy transition and balance the interests of all stakeholders.

Working towards a lower-carbon future requires a collective effort, and in 2021, CLP continued to contribute to discussions on energy-sector decarbonisation at major international forums and to promoting closer industry cooperation. Highlighting the Group's thought leadership in this field, CLP Holdings Chief Executive Officer Richard Lancaster became a member of the CNBC ESG Council, a new global forum for discussion and cooperation between international business executives and industry leaders.

Mr Lancaster and other CLP executives spoke at a number of events including the Energy Transitions LIVE conference organised by the UK's Chatham House in March, the International Emissions Trading Association's North America Climate Summit in New York in September, the Accelerating Asia's Energy Transition conference at The Economist's Future of Energy Week conference in October, and the World Business Council for Sustainable Development's Roadmap to Net Zero with Hydrogen event at COP26 in November. Mr Lancaster also delivered a public lecture on climate action at the Hong Kong Metropolitan University in November, and was a keynote speaker at events including the Transforming Business for Sustainability conference, organised by the Business Environment Council in December. Flexible digital formats allowed CLP representatives to participate in overseas events remotely, despite international travel restrictions.

Working with Governments to Ensure a Smooth, Just Transition

Clear and stable policy frameworks are vital to facilitate the long-term infrastructure investments needed for a coordinated energy transition. CLP was engaged in discussions with the Hong Kong Government to contribute to the development of a decarbonisation roadmap and welcomed the Climate Action Plan 2050 released in October. As the largest source of greenhouse gas emissions in Hong Kong, the electricity industry has a key role to play in realising the Government's climate policies and helping customers to decarbonise. CLP firmly supports Hong Kong's goal of achieving carbon neutrality before 2050.

In Mainland China, CLP continued to work closely with stakeholders in support of the Chinese Government's target of achieving peak emissions by 2030 and carbon neutrality by 2060. Together with China National Offshore Oil Corporation, Shenzhen Energy Group and Siemens Energy, CLP set up the Joint Initiative on Accelerating Energy Transformation in the Greater Bay Area (GBA) in April. Under the initiative, the four companies are strengthening collaboration to address key energy industry trends in the GBA including decarbonisation and digitalisation.

EnergyAustralia contributed to ongoing discussions with policymakers on national and state levels to help shape the energy transition in Australia, including proposed reforms to the National Electricity Market drawn up by the Energy Security Board. As more renewable energy is brought into the electricity grid, EnergyAustralia remains committed to supporting a market design that delivers reliable energy at least cost to consumers.

Plans to retire Yallourn Power Station in Victoria were brought forward to mid-2028, four years before the end of the plant's technical life. By providing seven years' retirement notice, EnergyAustralia signalled its determination to work closely with the Victorian Government, suppliers and stakeholders to identify potential impacts and ensure a smooth transition. Yallourn Power Station and its mine have played a major role in the Latrobe Valley community for the past 100 years, and EnergyAustralia will maintain its operations until the plant's retirement, delivering continuing economic opportunities for local suppliers and workers.

As part of an agreement with the State Government, EnergyAustralia committed to building the new 350MW Wooreen utility-scale battery, co-located with Jeeralang Power Station, further advancing the transition to cleaner energy in Victoria. Plans for the construction of the new Wooreen battery energy storage system will provide a boost to the local economy, as EnergyAustralia is committed to maximising the role of suppliers in the Latrobe Valley and the broader Gippsland region.

EnergyAustralia reached an agreement with the State Government of New South Wales in May over the Tallawarra B Power Station. Due to enter service in time for the

2023/24 Australian summer, it will be the country's first net-zero emissions power plant to use a blend of green hydrogen and natural gas, with greenhouse gas emissions fully offset over its operational life. The project will help the State Government towards its net-zero goal, as well as strengthening supply security and reliability.

Balancing Decarbonisation Demands

Building a low-carbon economy requires support from all sectors of society, along with a balanced decarbonisation approach that aligns the interests of different stakeholders. An orderly energy transition depends upon careful planning to ensure electricity supplies remain reliable and affordable to consumers, while taking into account the interests of workers and communities affected by the closure of carbon-intensive power stations.

CLP announced a range of special rebates in Hong Kong to minimise the impact of surging fuel costs on 2022 power tariffs, as electricity utility companies worldwide faced rising fuel prices. Underprivileged groups in Hong Kong were given additional support through electricity subsidies.

A new offshore LNG terminal is expected to increase the diversity of natural gas supply for electricity generation in Hong Kong when construction is completed this year. CLP continued dialogue over environmental issues with stakeholders, including fishermen and community groups. Meanwhile, grants totalling HK\$27 million have been provided to 19 projects to enhance the marine environment in southern and western Hong Kong waters, drawn from the Marine Conservation Enhancement Fund and Fisheries Enhancement Fund which were established in 2020.



The We Love Dance programme in Hong Kong encourages everyone to dance, save energy and help the underprivileged.

As CLP continued to explore the feasibility of an offshore wind farm in the south-eastern waters of Hong Kong, a stakeholder liaison group held meetings with representatives from the fishery sector, as well as environmental, community and business groups. The liaison group provides a platform for the exchange of views on environmental issues raised by the project during its design, construction and operation.

Greater public awareness of the importance of zero carbon energy is central to the success of the energy transition. The CLP E-Playground, opened in April, is Hong Kong's first environment-themed outdoor playground, providing an interactive educational resource for the public to learn about energy conservation and the electricity industry. The new CLP Power Engineering Laboratory, run by the Vocational Training Council with support from CLP, opened in the same month, offering an advanced facility for power engineering students to find out about the latest smart grid technologies supporting the transition to cleaner energy.

In India, Apraava Energy launched a new programme to support the use of solar energy in nine villages near its power transmission infrastructure in the state of Madhya Pradesh. The initiative also provides training on the maintenance of solar power projects and supports educational projects on renewable energy in schools and kindergartens.

Lightening the Carbon Load

CLP expanded its range of services for customers to improve their energy efficiency as more businesses and organisations looked at ways to reduce their energy expenses and carbon footprint. The Company strengthened its support for commercial and industrial customers in Hong Kong, helping them take advantage of increased electrification to decarbonise and participate in the transition to a net-zero economy. By providing more diversified services, including consultancy and energy-saving solutions, CLP aims to deepen customer relationships in key sectors including catering, data centres, hospitals and transport, evolving from a traditional transaction-based electricity utility business model.

CLP launched a Retro-Commissioning Charter programme to support businesses in Hong Kong seeking to optimise the performance of electrical equipment, such as air conditioning systems. Typically, retro-commissioning projects do not involve the replacement of equipment and can be deployed more quickly to improve energy efficiency. The new programme adds to an existing range of energy-saving offerings, including the CLP Eco Building Fund and the Electrical Equipment Upgrade Scheme.



Case Study

Solutions for a Greener Hong Kong

Hong Kong's Hang Heung Cake Shop, a traditional Chinese bakery founded in 1920, installed state-of-the-art ovens and air conditioning systems in a makeover of its workshop after receiving energy saving tips from CLP to make its business more sustainable.

CLP conducted an energy audit for Hang Heung and worked closely with the bakery on a thorough redesign of the workshop that has cut its annual electricity consumption by 20%. To ensure the quality of its cakes and pastries, the workshop's smart sensors allow chefs to keep temperatures and humidity at optimum levels through a mobile app. The project was funded by CLP's Electrical Equipment Upgrade Scheme.

"Our team took a lot of care to get the design right and, as a result, our new facilities are more energy-efficient and use 50% less space, while our production capacity has increased," said Hang Heung Chief Executive Desmond Wong.

CLP has conducted energy audits for more than 2,000 business customers since the current Scheme of Control Agreement began in October 2018.

Forward Living, an elderly home operator in Hong Kong, worked with CLP to install new technology to help track and reduce energy consumption at a new residential care home. Through a simple-to-use, integrated mobile app, the technology enables staff at Forward Living to monitor the energy use of kitchen appliances, and the temperature inside refrigerators. The system also supports indoor air quality measurements and allows residents to check vital signs using cloud-based technology. Information from the system enables Forward Living to save energy and improve operational efficiencies.

Funding from the Electrical Equipment Upgrade Scheme supported Forward Living in purchases of more energy-efficient lighting and air-conditioning systems to help save 200,000kWh of energy.

Hang Heung and Forward Living were among the 49 winners in the 2021 CLP Smart Energy Awards programme, which recognises excellence in energy efficiency.

Since the start of the current Scheme of Control (SoC) agreement in October 2018, CLP has helped commercial and industrial customers in Hong Kong achieve over 400GWh of electricity savings through various energy efficiency programmes.

EnergyAustralia meanwhile extended its Go Neutral carbon offset programme to large business customers, providing a tool for them to reduce their carbon footprint. This followed a strong response from residential customers to the Go Neutral programme which, since its 2016 launch, has grown to become the largest carbon offset programme in Australia's retail energy market.

Foundations for a Resilient Future

The resilience of CLP's business depends on the continued health and wellbeing of the communities in which it operates. CLP distributed retail and catering coupons to almost 800,000 residential customers in Hong Kong, including low-income families, elderly people and tenants of subdivided units, in an initiative aimed at supporting people through the pandemic while promoting consumer spending to boost the city's economic recovery. Each beneficiary of the CLP Retail and Catering Coupons programme received vouchers worth HK\$100 to spend in more than 2,800 participating

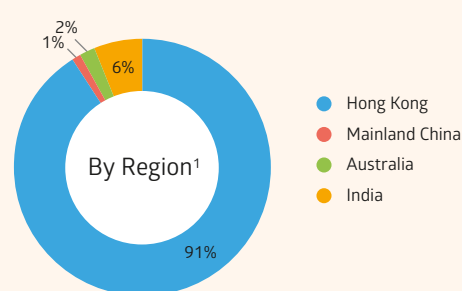
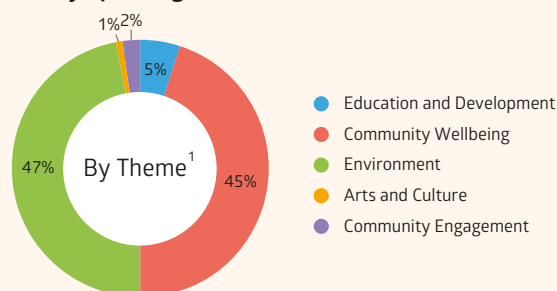
shops and restaurants as part of a HK\$160 million package of initiatives funded by the CLP Community Energy Saving Fund. CLP announced a further HK\$220 million package for 2022 from the same fund for initiatives including a new coupon programme and electricity subsidies for selected customers. CLP volunteers meanwhile organised virtual visits to elderly homes and day care centres, using video conferencing technologies to provide support to people affected by social distancing restrictions during the pandemic.

In Australia, as lockdowns and economic restrictions continued to affect large swathes of the population, EnergyAustralia continued to provide support to people struggling financially, setting up flexible payment plans and providing bill extensions to thousands of residential customers.

India was hit by a severe wave of COVID-19 in the second quarter. CLP and its Indian subsidiary responded by committing Rs 68 million (HK\$7 million) to relief efforts and the delivery of critical health supplies. Apraava Energy worked with non-profit organisations based near its operations to improve hygiene and increase the availability of anti-virus supplies to strengthen the resilience of communities. It also encouraged people to participate in vaccination programmes.

Community Initiatives and Volunteering

Our Community Spending



Impact



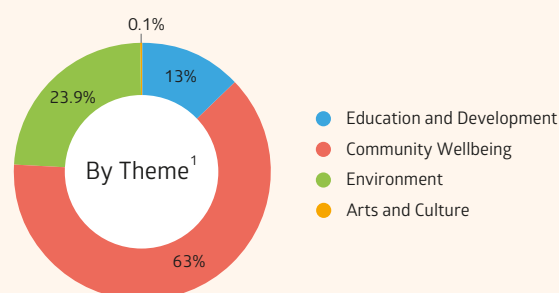
443 programmes were initiated or supported



232 organisations benefitted



1,580,587 direct beneficiaries



Contributing Our Time



16,541 volunteer hours by CLP staff and family members

For more details about the community initiatives of CLP in different regions, please refer to 2021 [Sustainability Report](#).

Note:

¹ Figures include rounding adjustments.

Material Topic



Shaping and executing the transition to net zero

A rising tide of natural disasters around the world is driving increasing concern about climate change, highlighting the urgent need for action to reduce global warming. In 2021, CLP accelerated its decarbonisation plans while pursuing new **investments in clean energy infrastructure** and supporting the energy transition in its markets as **the regulatory landscape continued to evolve**. With climate change creating a widening range of risks for businesses, CLP took steps to enhance disclosure of the impact on its operations. Key climate-related performance highlights in 2021 included:

- ◆ Updated Climate Vision 2050 with strengthened decarbonisation targets, including the commitment to net-zero greenhouse gas emissions across CLP's value chain by the middle of the century.
- ◆ Expansion of CLP's renewable energy portfolio by 6.7% to 3,624MW.
- ◆ Enhanced climate reporting based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and the International Sustainability Standards Board's Climate-related Disclosures Prototype.

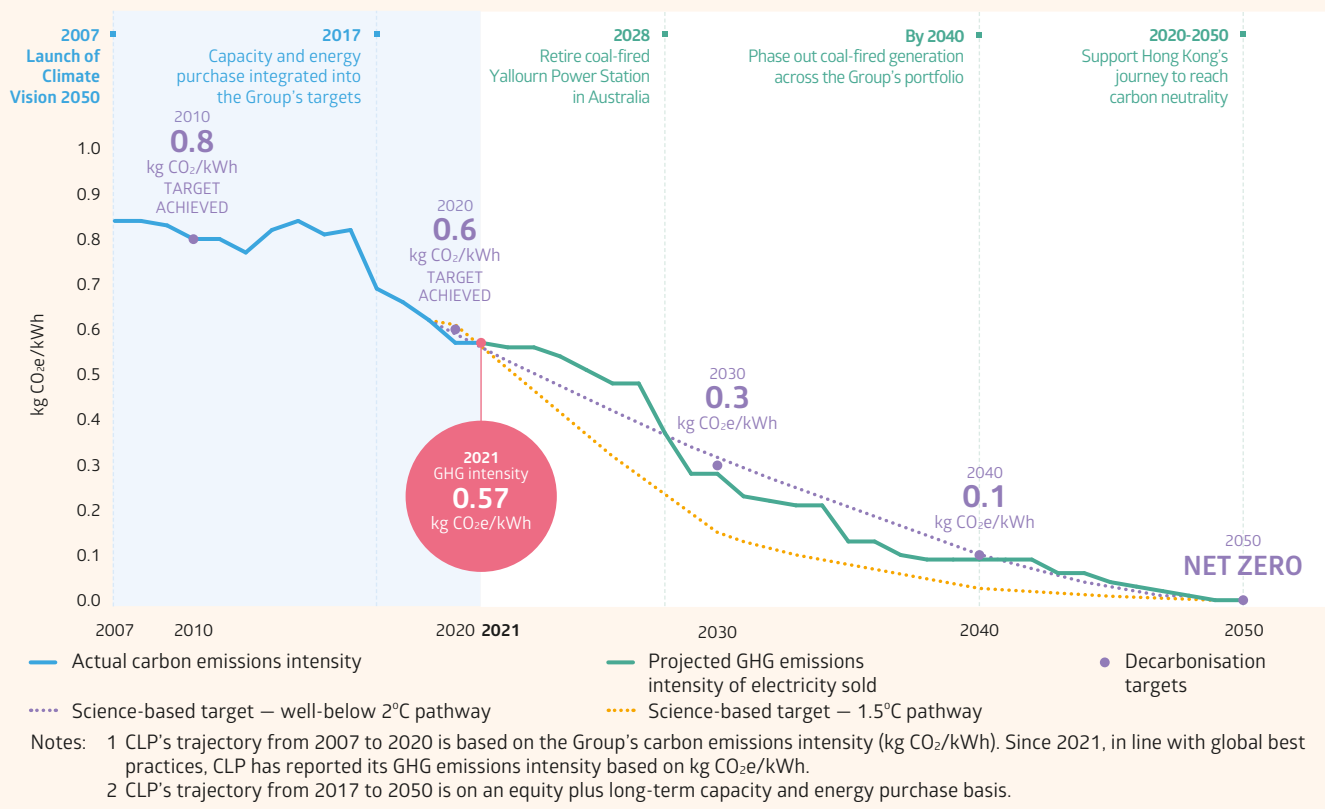
An Escalating Climate Crisis

According to *Climate Change 2021: the Physical Science Basis* report of the United Nations Intergovernmental Panel on Climate Change, huge cuts in carbon emissions need to take place in order to limit global warming to 1.5°C. An increasing occurrence of some extreme events are expected even at warming within that level.

At the COP26 summit in November, nearly 200 nations signed the Glasgow Climate Pact, committing to establish more ambitious emissions reduction goals and finalise global rules for carbon trading. It was the first international climate agreement with specific plans to reduce the use of coal for power generation, demonstrating increasing international resolve to accelerate the energy transition. Despite concerns that COP26 fell short of expectations and failed to impose more stringent limits on fossil fuel use, the pact nevertheless put governments worldwide on urgent notice to develop stronger and more effective climate policies in line with the 2015 Paris Agreement.

CLP became the first Asian power company to set voluntary carbon intensity reduction targets in 2007 with the launch of Climate Vision 2050 – a strategy which has since guided the Group's approach to business and investments. CLP has continued to strengthen its climate targets, progressively decarbonising its business and fulfilling its interim targets to reduce carbon intensity in both 2010 and 2020.

CLP's Past and Projected Greenhouse Gas Emissions Intensity



The Road to Net-zero Emissions

In the latest update of Climate Vision 2050 in 2021, CLP committed to achieving net-zero greenhouse gas emissions by 2050, encompassing Scope 1, 2 and 3 emissions. This comprehensive target covers CLP's value chain, including the emissions of customers and suppliers.

The update of Climate Vision 2050 followed a strategic review in which CLP weighed up a comprehensive range of factors, including the latest climate science, technology trends, industry best practices and government policies. The review also considered the evolving expectations of investors, customers, regulators and other stakeholders.

As well as the goal of achieving net-zero emissions by 2050, CLP set new decarbonisation targets for 2030 to align with the objective of limiting global warming to well-below 2°C above pre-industrial levels. CLP also stepped up plans to phase out coal-based assets, bringing the target date forward by a decade to 2040, while also significantly strengthening its emissions reduction targets for that year.

CLP recognises the need to continue to raise its targets and to help limit global warming to 1.5°C. The Climate Vision 2050 goals will be reviewed every five years at least going forward.

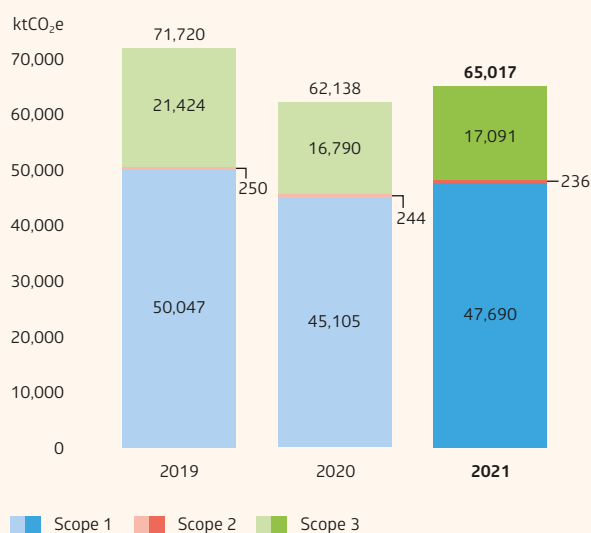
CLP's subsidiary EnergyAustralia released an update to its Climate Change Statement, reinforcing the commitment it made in 2020 to achieve net-zero greenhouse gas emissions by 2050 and to transition out of coal assets by 2040. Aprava Energy is also committed to decarbonising its operations in India, in line with the worldwide Science Based Targets initiative (SBTi).

The Group's greenhouse gas emissions intensity of electricity sold was maintained at 0.57kg CO₂e/kWh in 2021, the same as in 2020. Over the course of the year, CLP's total Scope 1, 2 and 3 greenhouse gas emissions increased to 65,017 kilotonnes of carbon dioxide equivalent (ktCO₂e) on an equity basis. While the generation mix remained stable, higher sent out amid the recovery from the COVID-19 pandemic in part led to an increase in CLP's absolute emissions from 2020, although markedly lower than the 2019 levels. In the coming years, CLP will continue to focus efforts on progressively phasing out coal for power generation, including honouring its commitment to the early closure of Yallourn Power Station in 2028, to bring the Group in line with its decarbonisation targets. It will also seek to widen deployment of renewable energy and keep assessing new energy technologies such as green hydrogen and energy storage solutions in its transition underway.

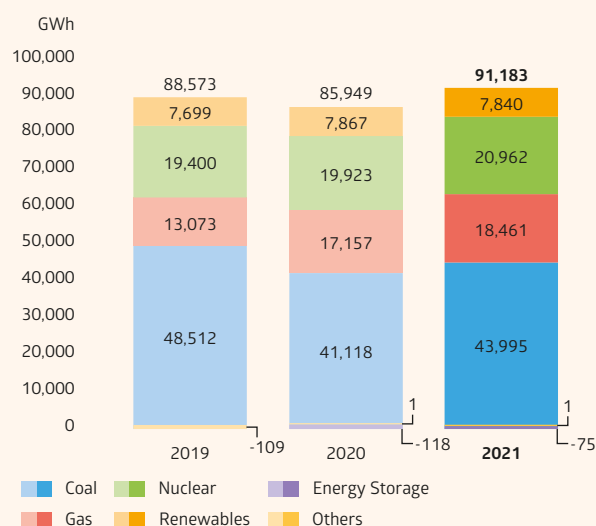
In Hong Kong, CLP's greenhouse gas emissions intensity of electricity sold was 0.39kg CO₂e/kWh in 2021, comparable

to the 2020 level of 0.37kg CO₂e/kWh. The emissions intensity level was affected by a host of factors including CLP customers' electricity consumption, the fuel mix for electricity generation and the operational requirements such as regular inspection and maintenance arrangements for the generation units.

Greenhouse Gas Emissions (on an Equity Basis)



Energy Sent Out by Asset Type (on an Equity Plus Long-term Capacity and Energy Purchase Basis)



Notes:

- Numbers have been subject to rounding. Any discrepancies between the total shown and the sum of the amounts listed are due to rounding.
- Starting from 2020, a new "Energy Storage" asset category has been added, under which pumped storage and battery storage are included. In previous years, assets under the "Others" category included oil-fired generation assets and pumped storage.

Exploring Green Energy

As CLP progressively phases out coal-fired power, it is directing investment towards low-carbon streams of business, including renewable energy, power transmission and distribution, and new energy technologies and solutions.

The Group's renewable energy portfolio, including equity capacity and long-term capacity and energy purchase arrangements, expanded to 3,624MW in 2021, a 6.7% year-on-year rise. CLP's 100MW Qian'an III Wind Farm in Jilin province was completed five months ahead of schedule and connected to the grid in December.

Meanwhile, CLP also committed to two new wind energy projects in Mainland China: the 150MW Bobai farm in Guangxi Zhuang Autonomous Region, and the 50MW Xundian II farm in Yunnan province. Similar to Qian'an III, both new wind farms are grid-parity projects designed to operate without government subsidies, and construction is expected to begin in 2022.

Apraava Energy made progress with the construction of its 251MW Sidhpur wind farm in India's Gujarat state, which is due to go into operation in 2022. In December, the company acquired a 49% stake in a 254-kilometre interstate power transmission project in northeast India, and plans to purchase the remaining equity of the project at a later date.

In Hong Kong, CLP moved forward with pre-development studies into the feasibility of an offshore wind farm in the territory's south-eastern waters. Improvements in turbine technology and costs are expected to make offshore wind farms an increasingly viable option in the medium term.

EnergyAustralia announced the construction of a 350MW battery energy storage system, adjacent to Jeeralang Power Station in Victoria. The Wooreen project is expected to be completed by the end of 2026 to strengthen supply reliability in the run-up to the closure of Yallourn Power Station in 2028. The closure of Yallourn Power Station will reduce EnergyAustralia's carbon emissions by about 60% compared to 2021 levels, helping support the Victorian Government's climate policies.

In New South Wales, EnergyAustralia began an assessment of a potential pumped hydro energy storage facility at Lake Lyell near Mount Piper Power Station.

Policies for Energy Transition

The Hong Kong Government unveiled its Climate Action Plan 2050 in October, setting out a host of decarbonisation strategies, including an interim target of reducing carbon emissions in the city by 50% before 2035 compared with 2005 levels. The action plan further strengthens the Government's climate policies, providing increased regulatory clarity for CLP's long-term planning and investment decisions to support the city's goal to achieve carbon neutrality before 2050.

The Government's Climate Action Plan 2050 stresses the importance of maintaining a proportion of local power generation to maintain a reliable electricity supply. New types of zero-carbon energy, such as green hydrogen, offer a potential option for power generation which – combined with more renewable energy and regional cooperation – can form the foundations for a net-zero power sector in Hong Kong by 2050.

Trading of carbon allowances under the Chinese Government's National Emissions Trading Scheme began in 2021. More than 2,000 power stations including CLP's Fangchenggang plant were among the programme's first participants. With its portfolio of renewable energy resources across the Mainland, CLP is expected to benefit from the future expansion of the scheme to allow for participation by non-thermal power producers. CLP is committed to deploying advanced technology at its power plants, in support of the Chinese Government's goals of reaching peak carbon emissions by 2030 and carbon neutrality by 2060.



Case Study

Bright Prospects for Green Hydrogen

Green hydrogen is emerging as a key potential factor in the transition to a net-zero electricity sector, and CLP is taking active steps to increase expertise in the technology in its businesses across the Asia-Pacific region.

CLP signed a Memorandum of Understanding with GE in September to collaborate on a decarbonisation roadmap for gas-fired generation facilities at Black Point Power Station and explore the potential use of low-carbon fuels such as hydrogen.

Green hydrogen is created through the process of electrolysis, with the use of renewable energy to split water into its chemical components, producing no greenhouse gas emissions. The technology is still in early stages of development in Asia Pacific, although the pace has been accelerating.

In the Climate Action Plan 2050 strategy announced by the Hong Kong Government in October, hydrogen produced by renewable energy was identified as a potential source of zero-carbon energy for local electricity generation.

EnergyAustralia's new Tallawarra B project is the country's first net-zero emissions hydrogen and gas-capable power plant. When it begins operations in time for the 2023/24 Australian summer, the power station will be capable of using a blend of green hydrogen and natural gas, with the plant's direct carbon emissions fully offset over its operational life. EnergyAustralia will offer to buy 200,000 kg of green hydrogen per year from 2025.

In November, CLP became one of the 28 founding members of H2Zero, a new global initiative launched by the World Business Council for Sustainable Development and the Sustainable Markets Initiative to accelerate the production and use of green hydrogen.

Transparency for the Net-zero Transition

The TCFD's framework for translating climate-related information into financial metrics has played a central role in enabling investor dialogue over the financial implications of climate change.

CLP is committed to continuously enhancing its disclosures, and has introduced the in-depth 2021 Climate-related Disclosures Report to provide climate-related financial information to stakeholders. The report follows the TCFD's recommendations and the International Sustainability Standards Board's Climate-related Disclosures Prototype. It covers governance of CLP's response to climate change and management of climate-related transition and physical risks,

while offering relevant metrics and targets. It also includes information on the climate scenario analysis conducted by CLP for its portfolio across different markets, and details of how CLP mobilises resources to implement Climate Vision 2050 and identify opportunities presented by the energy transition.



View more information in
CLP's 2021 Climate-related Disclosures Report