LCMT: LOW CARBON MODEL TOWNS

Please fill out this form and return it to info@esci-ksp.org.

Basic Information

Name of town, city, or island:

Decarbonisation Journey – Low Carbon Future Utility

Managing Organization:

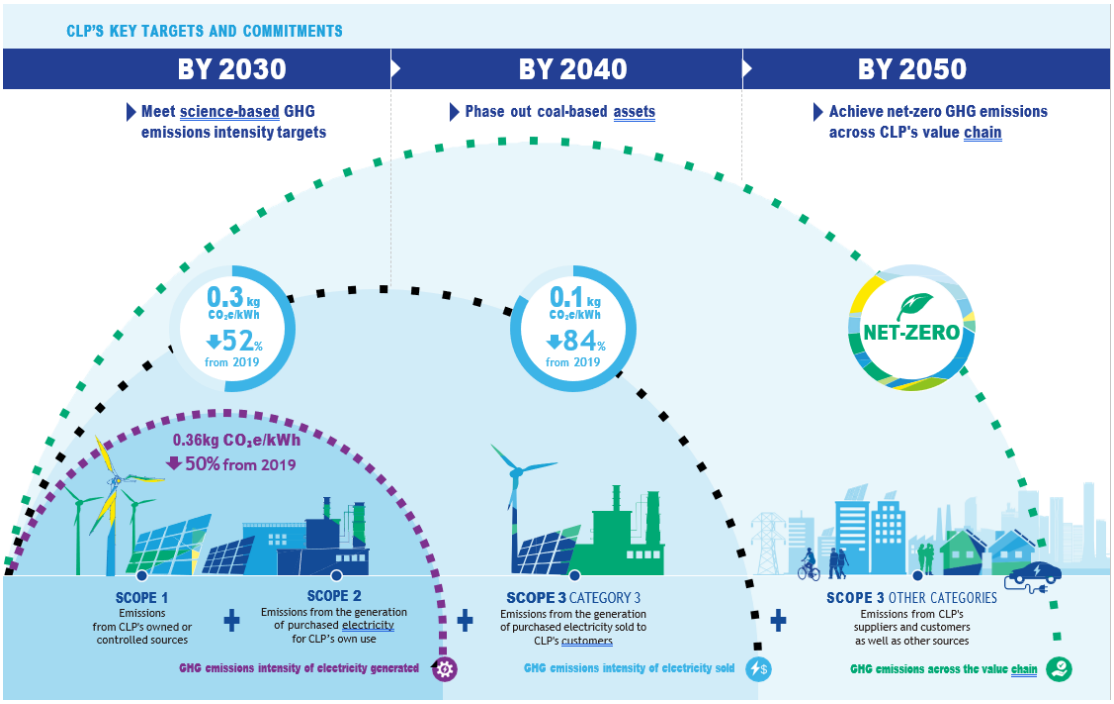
CLP Power Hong Kong Limited

Project Description:

CLP's Climate Vision 2050 - Targets and Commitments

Decarbonisation is one of CLP's main priorities for our transition. CLP's Climate Vision 2050 is the blueprint of the Group's transition to a net-zero greenhouse gas emissions business by mid-century. It has informed our business strategy since its launch in 2007 and supports our long-term development. As an integral part of CLP's broader climate strategy, the vision encompasses key considerations such as climate adaptation and scenario analysis.

In 2021, CLP Group announced the strengthened Climate Vision 2050, which aims to decarbonise more quickly. By aligning with science-based targets for 2030 and phasing out coal-based assets by 2040, the Climate Vision 2050 outlines CLP's roadmap for transitioning to net-zero greenhouse gas emissions by 2050.



Innovativeness:

STRATEGY

CLP's Climate Vision 2050 is an **innovative concept** that has emerged from the company's strategic thinking and commitment to addressing climate change. It represents a forward-looking approach that aligns with the **global trend towards net-zero emissions** and the development of sustainable energy solutions. We are committed to investing in best-in-class technologies and **innovative programmes** to reduce our GHG footprint within our operations. At the same time, we recognise the role we can play in supporting governments, communities and businesses to reduce their emissions. By developing various Energy Efficiency & Conservation (EE&C) funding programmes, demand side management and renewable energy offerings to customers, we are able to offer financial support to public & private sectors to create sustainable energy solutions.

The Climate Vision 2050 has been a source of **inspiration** for CLP and the wider energy industry, showcasing how a large-scale utility can proactively transition towards a low-carbon future. The vision has motivated other companies to follow suit and develop their own ambitious decarbonisation strategies. By lowering the carbon intensity of our energy supply, we are also supporting and **enlightening our customers** in their ambitions to reduce their own emissions and carbon footprint.

CLP has maintained **open and transparent communication channels** with the public, its stakeholders, and the media regarding its Climate Vision 2050. Through its website, reporting, and ongoing engagement, the company has provided clear and comprehensive information about its targets, commitments, and progress. We leverage engagement programme to communicate with public and stakeholders, including :-

- Seminars, lectures, workshops and online classes
- Promotion through mass media and social media (including educational videos)
- One-on-one meetings and visitations
- Engagements and site visits for understanding CLP's decarbonisation strategies
- Senior management's participation in speaking forums,
- briefings and engagement events to articulate CLP's thought leadership on its climate vision

Innovative programmes

CLP's Supply and Demand Side Action Plan - Accelerating Hong Kong's Energy Transition

To reinforce CLP's ambitious Climate Vision 2050 targets and fortify its emissions-cutting efforts, the company has adopted a comprehensive, forward-looking approach that strategically addresses both the **supply and demand sides** of energy.

On the **supply side**, CLP implements strategies like phasing out coal-fired generation, promoting local renewables, fostering regional zero-carbon cooperation, and exploring innovative technologies. This diversifies and decarbonizes the energy mix.

On the **demand side**, CLP supports decarbonization through energy-saving measures, green buildings, and transportation electrification. By prioritizing both supply and demand-side actions, CLP accelerates Hong Kong's energy transition towards a sustainable future.

CLP's End-to-End Support in Achieving Green Built Environment and Carbon Neutrality

CLP engages stakeholders, collaborates with business sectors, and promotes energy-saving measures and decarbonization. It actively drives change by orchestrating the industry's low-carbon

transformation journey. By promoting best practices and advanced technologies, CLP plays a key role in transforming Hong Kong into a low-carbon smart city.

Embracing Clean Energy Sources and Achieving Net-Zero Carbon Emissions

- Renewable Energy Feed-in Tariff

To promote the development of clean energy in Hong Kong, residential and business customers can install renewable energy systems on their premises and connect them to the electricity grid to earn Feed-in Tariff payments. The feed-in tariff for renewable energy systems is currently HK$2.5-4 per kilowatt-hour, depending on the generating capacity of the renewable energy system.

- Renewable Energy Certificates (RECs)

Residential and business customers can purchase Renewable Energy Certificates to support local renewable energy generation and achieve their sustainability goals. Each unit of REC represents the environmental attributes of electricity produced by local renewable energy sources, including solar power, wind power, and landfill gas projects, generated or purchased by CLP. Many businesses, including banks, data centers, and hotels, have purchased RECs. Some businesses have even signed long-term agreements for RECs spanning multiple years.

Electrification as a Pathway to a Carbon-Neutral Future

- Free CLP EV chargers at Hong Kong Car Park

Following the launch of “Trial Network of Charging Stations” in 2009, CLP has set up 51 semi-quick and quick charging stations in Kowloon, the New Territories and Lantau Island, providing a total of 159 chargers in CLP’s supply area. Drivers can charge their EVs for free. They can also locate nearby EV charging stations through the CLP App.

In response to the rapid development of the EV market in Hong Kong, CLP introduced the first multi-standard EV quick charger in Hong Kong in June 2015, which supports the majority of EV models available in Hong Kong. CLP’s quick charging stations are now available at driving intervals averaging 10km throughout Kowloon and the New Territories.

- Free EV charging consultant service for EV owners

In support of the Government’s EV-charging at Home Subsidy Scheme (EHSS), CLP has introduced an advanced service called Eco Charge 2.0 which provides a one-stop technical support to the applicants, who are interested and qualified in applying for funding for installation of EV charging-enabling infrastructure in the car parks of private residential blocks.

In addition, CLP launched its first EV Managed Charging Programme in 2023, providing smart EV chargers for EV owners to reduce power consumption at times of peak demand. CLP will remotely control the charging rate of the smart EV chargers during peak demand hours to optimise grid management and encourage customers to charge in a smarter and more energy efficient way.

- Promote Wider Use of Electric Commercial Vehicles (ECVs)

CLP and 14 businesses and organisations launched a cross-sector partnership called the eMobility Network in January 2024 to promote the wider use of ECVs in Hong Kong. The network, which includes ECV manufacturers and operators, charging service providers, and a bank offering green finance services, encourages technology exchange and accelerates the popularisation of ECVs. Network members will cooperate to promote green transport in a holistic manner and drive sustainable mobility in four key areas: 1) power supply infrastructure and equipment, 2) quick charging facilities, 3) EV manufacturing and operation, and 4) green finance. CLP is also working with the Government and stakeholders to support e-transport trials of buses, minibuses, taxis, and ferries. Strategy will be adjusted from time to time to keep abreast of the latest EV development.

- Fuel Switching to Electric Appliances

Fuel switching to electric appliances is a transformative step towards a more sustainable and energy-efficient future in various industries, including the catering sector. By adopting electric cooking, businesses can directly apply heat to cooking utensils, minimizing energy loss to the air and achieving efficient and low-carbon cooking practices. Additionally, the high energy efficiency of

electric equipment translates into significant cost savings for businesses in the long run, as over 80% of heat energy is effectively transmitted, reducing energy expenses and lowering overall operating costs.

- Battery Energy Storage Systems (BESS) in Construction site

Construction sites have traditionally used diesel generators to power their equipment. CLP promotes electrification on construction sites and encourages the industry to switch to Battery Energy Storage Systems (BESS) to protect the environment and reduce carbon emissions. When continuously charged, the BESS functions as a "Power Amplifier" at construction sites, converting a small portion of temporary power supply into high-output current for equipment with high instantaneous current requirements, such as tower cranes. By adopting BESS, developers can pursue various opportunities to achieve sustainable development goals, attain higher Green Building Standards, and potentially earn credits in BEAM PLUS. Moreover, the use of BESS contributes to creating a greener, cleaner, and safer construction site.

Path to Sustainable Operations: CLP's Service and Subsidy Schemes Enabling Operational and Energy Efficiency for Carbon Neutrality

- Energy Audit

The Free Energy Audit Service offers a comprehensive analysis of a business site's energy usage. By identifying Energy Management Opportunities (EMOs), it helps businesses save energy and reduce operating costs. The service provides a detailed report that includes an energy pattern breakdown, payback analysis, retro-commissioning review, and advice on smart technology applications. This empowers businesses to make smarter and greener decisions.

- Eco Building Fund

Buildings account for 90% of Hong Kong's electricity consumption. The Eco Building Fund offers subsidies for energy-saving improvement works in residential, commercial, and industrial buildings. With an annual budget of HK$100 million, the fund aims to support 400 buildings per year, saving up to 48 gigawatt-hours. Building owners can receive subsidies of up to HK$500,000 for energy-saving improvements, reducing operating costs and environmental impact. The fund covers 50% of the costs for energy-saving works and 100% for retro-commissioning.

- Electrical Equipment Upgrade Scheme

The Electrical Equipment Upgrade Scheme provides HK$30 million to subsidize commercial and industrial customers, particularly small and medium-sized enterprises, to install or replace more energy-efficient lighting and air conditioning systems to improve their energy efficiency and reduce operating costs.

- Retro-commissioning Charter Programme

In the journey towards a low-carbon future, businesses and industries can leverage the power of retro-commissioning (RCx) as a smart and cost-effective solution to optimize their building's operational performance without the need for costly equipment replacements. To encourage extensive implementation of RCx in buildings, CLP has launched this program since 2021, offering free and specialized training to elevate the skills of property management practitioners in energy efficiency. This program has engaged over 140 participating organizations to conduct re-commissioning projects for over 150 buildings. The participating institutions span various sectors, including property management, hotels, data centers, and food supply.

- Smart Energy Online (SEO)

Customers can use the CLP SEO platform to develop their own data analysis system to predict energy usage limits in the medium and long term, to achieve annual energy-saving targets. Different properties can adjust and plan the operation mode of building services according to the obtained forecast. SEO has successfully become the companion for our customers' decarbonization journey. With increasing adoption of SEO, the overall energy management of our customer base is becoming more effective, and energy-saving goals are being achieved.

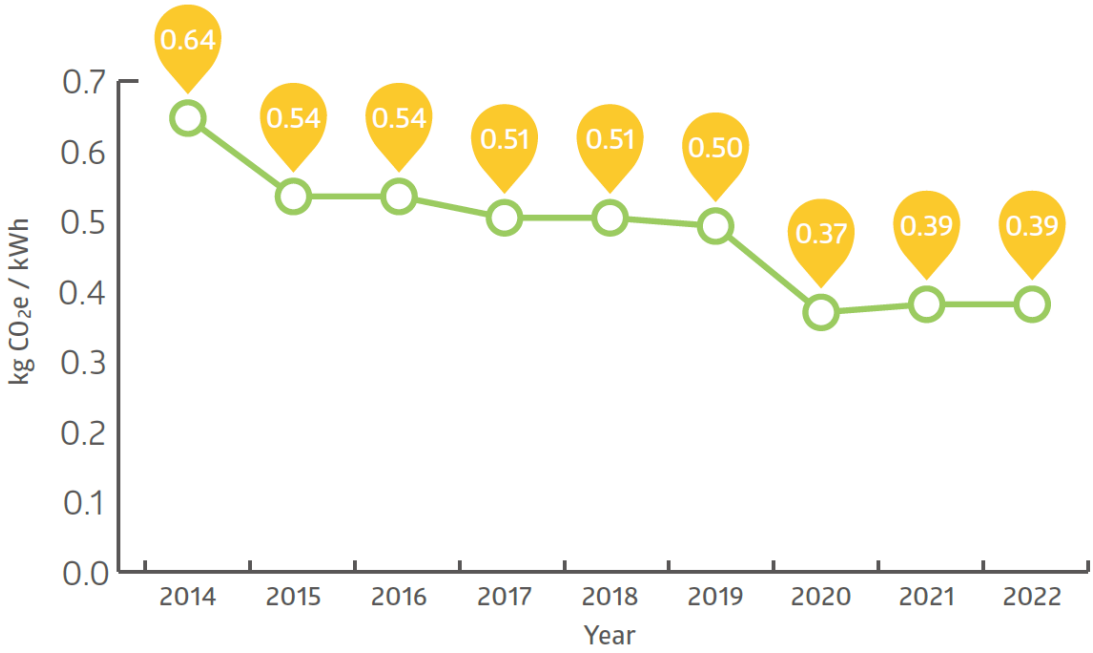
- Low-Carbon Lifestyle through Smart Meter Adaption

The adoption of smart meters plays a crucial role in promoting a low-carbon lifestyle. By providing real-time energy monitoring, promoting energy conservation, enabling time-of-use tariffs, facilitating renewable energy integration, and driving behavioral changes, smart meters empower individuals to make sustainable choices and contribute to global efforts in combating climate change. Embracing this technology can lead to a greener future with reduced carbon emissions and a more efficient use of resources.

MEASURE

CLP's decarbonisation strategies are practical and feasible, drawing on the company's technical expertise and operational experience. The implementation of the Climate Vision 2050 demonstrates the practicability of CLP's approach in the real-world energy landscape. The pioneering strategies and solutions leveraged by CLP to drive its Climate Vision 2050 can be **replicated** and scaled up by other energy companies and industry players. This enhances the broader impact and influence of CLP's decarbonisation efforts within the energy sector.

In supply side, CLP GHG intensity of the electricity sold in Hong Kong in 2022 was maintained at 0.39kg CO2e/kWh.



In demand side progammes, we have supported our customers to **reduced carbon emissions**. Our decarbonisation initiatives are designed to be **cost-effective**, ensuring that the transition to net-zero emissions can be achieved in a financially sustainable manner.

By strengthening partnerships, promoting innovative solutions, and enabling accessible pathways for customers, CLP has influenced operational efficiencies, cost savings, and the achievement of sustainability goals across diverse sectors. This comprehensive strategy positions CLP as one of leaders in the energy industry, inspiring wider replication and scaling up of its successful decarbonisation efforts to realize a more sustainable and carbon-neutral Hong Kong.

PERFORMANCE

Leading the Charge Towards a Net-Zero Future by CLP's Comprehensive Strategy and Innovative Initiatives

CLP's Climate Vision 2050 sets a clear path for the company to achieve net-zero greenhouse gas emissions by mid-century. This ambitious target is underpinned

by a comprehensive strategy that addresses both the supply and demand sides of energy, driving decarbonization across Hong Kong's electricity grid and built environment. Energy saving / carbon reduction result is summarised in below table.

Programmes	Achievement
Renewable Energy Feed-in Tariff	By the end of 2023, the approved or connected renewable energy capacity reached 376 megawatts, which is approximately equivalent to the annual energy consumption of 89,700 households at Hong Kong.
Renewable Energy Certificates (RECs)	A total of over 290 million kilowatt-hours of electricity has been sold, which can help reduce approximately 115,850 tons of carbon dioxide emissions.
Energy Audit	Over the past 5 years, more than 3,200 energy audits have been completed. After implementing the energy-saving recommendations from these audit reports, customers have saved over 270 million kilowatt-hours of electricity. This is equivalent to the annual energy consumption of approximately 64,000 CLP household customers and a reduction of over 111,000 tons of carbon emissions.
Eco Building Fund	Since its launch in 2014, it has funded over 3,700 residential and commercial buildings to complete energy-saving projects. These projects have saved over 265 million kilowatt-hours of electricity, which is equivalent to the annual energy consumption of approximately 63,000 CLP household customers. Additionally, it has resulted in a reduction of approximately 109,000 tons of carbon emissions.
Electrical Equipment Upgrade Scheme	Since its launch in 2019, it has funded over 23,000 projects, saving approximately 140 million kilowatt-hours of electricity. This is equivalent to the annual energy consumption of around 33,000 CLP household customers and a reduction of approximately 57,000 tons of carbon emissions.
Retro-commissioning Charter Programme	This program has engaged over 140 participating organizations to conduct re-commissioning projects for over 150 buildings. It is estimated that once all energy improvement projects are completed, they will save approximately 35 million kilowatt-hours of electricity per year. This is equivalent to the annual energy consumption of around 8,300 CLP household customers and a reduction of approximately 13,000 tons of carbon emissions.

Smart Energy Online (SEO)	Since its launch in 2020, it has assisted over 2,500 commercial and industrial customers in energy management.

CLP's comprehensive suite of initiatives, subsidy schemes, and customer support services demonstrates its unwavering commitment to driving Hong Kong's transition towards a sustainable, low-carbon future. The scale of achievements is measurable and impressive - over 710 million kWh of electricity saved, 290,000 tons of CO_2 emissions reduced, and thousands of businesses and individuals empowered to make greener choices. This coordinated and wide-ranging approach, spanning renewable energy integration, electrification, energy efficiency improvements, and behavioural changes, has made a significant and verifiable impact on the city's energy landscape.

Above information is published in our annual report, sustainability report and broadcasted in our website. For detail information, please refer to below link.

2023 Annual Report.pdf (clpgroup.com)

CLP Climate Vision (clpgroup.com)

2023 Sustainability Report (clpgroup.com)

As we move towards 2050, CLP pledges to its commitment to building a greener, more sustainable community. The company is poised to help Hong Kong and the wider region achieve their decarbonization goals and create a sustainable future for generations to come.

APEC Economy:

- ☐ Australia
- ☐ Brunei
- ☐ Canada
- ☐ Chile
- ☐ China
- ☒ Hong Kong, China
- ☐ Indonesia
- ☐ Japan
- ☐ Korea
- ☐ Malaysia
- ☐ Mexico
- ☐ New Zealand
- ☐ Non-APEC Economy
- ☐ Papua New Guinea

☐ Peru
☐ Philippines
☐ Russia
☐ Singapore
☐ Chinese Taipei
☐ Thailand
☐ United States
☐ Viet Nam
☐ Non-APEC Economy _____

Description of Town

Type of Town:

☐ Urban (Central Business District)
☐ Urban (Mainly consists of commercial area)
☐ Urban (Mainly consists of residential area)
☐ Village (village)
☐ Village (island)
☐ Others

Coverage rate of population with access to tap water: (%)
Coverage rate of population with access to gas: (%)
Power plant capacity: (GW)
Specific power plant type: (e.g. coal, geothermal, etc.)
Number of public transportation vehicles per 10,000 population: (#)
Popularization rate of telephone, including mobile telephone (sets/100 persons)
Per capita area of paved roads (m^2)
Per capita area of public green space (m^2)
Climate conditions (dry, humid, warm, sunny, wet, windy, cool, cold, etc.)

Expected Future Development

Expected demographic changes: (specify time period)
Expected industrial/economic changes: (specify time period)
Other expected development: (specify time period)

Town Policy, Vision or Objective

What is the policy, vision, or objective of the town?
(Please specify the actual goal and its metrics, if applicable)

Brief outline of the low carbon town development plan:
(e.g. description of geographical features, current and planned energy infrastructure, goals of the low carbon town and livability aspect of the town)

Current stage of development of the town: Please choose one.

- ☐ Planning stage
- ☐ Construction stage
- ☐ Already existing

Start date of the project: (Enter target date if not yet started)
Completion date of the project: (Enter target date if not yet completed)

Low Carbon Measures

Does your low carbon town or development plan have CO2 emission reduction target?:

- ☒ Yes
- ☐ No

Key low carbon measures employed or to be employed

Urban functions

- ☐ Compact city design
- ☐ Heat island phenomenon countermeasures
- ☐ Efficient road arrangement plan
- ☐ Well-developed public transportation
- ☐ Car Sharing
- ☐ Intelligent Transportation Systems (ITS)
- ☐ Plan for highly efficient infrastructure
- ☒ Other

Industry sector

- ☐ Factory energy management system
- ☐ Other

Transport sector

- ☐ Bus Rapid Transit (BRT)
- ☐ Light Rail Transit (LRT)
- ☐ Intra-city community bicycle
- ☐ Electric vehicle
- ☐ Electric busses
- ☐ LED street lighting
- ☐ Other

Residential sector

- ☐ Fuel cells
- ☐ Low or zero emission houses
- ☐ Eco-friendly home appliances
- ☐ PV panel
- ☐ Solar heated water supply facilities
- ☐ Heat-pump hot water supply with natural refrigerant
- ☐ Use of natural light
- ☐ Low emission glass
- ☐ Home Energy Management System (HEMS)
- ☐ Thermal storage air conditioning system
- ☐ Other

Commercial sector

- ☐ Low or zero emission building
- ☐ High insulation/highly airtight materials
- ☐ Sun shading system
- ☐ High performance facade
- ☐ Low emission glass
- ☐ Double skin facade
- ☐ Roof greening
- ☐ Highly efficient air conditioning facilities
- ☐ LED/Inverter lighting
- ☐ Use of natural light
- ☐ Building Energy Management System (BEMS)
- ☐ Thermal storage air conditioning system
- ☐ Other

Other demand side measures: (Enter other demand side measures here, if any)

Renewable energy

- ☒ PV power generation
- ☐ Solar thermal utilization
- ☐ Biomass power generation
- ☒ Wind power generation
- ☐ Geo-thermal power generation
- ☐ Micro-hydroelectric power generation
- ☐ Others

Untapped energy

- ☐ Use of sea/river water
- ☐ Use of waste heat such as waste incineration plants
- ☐ Use of waste heat such as sewage treatment plants
- ☐ Use of waste heat from factories
- ☐ Others

Other supply side measures: (Enter other supply side measures here, if any)

Demand and supply side measures

- ☒ Advanced metering systems
- ☒ Smart grid system
- ☐ Electric condenser system
- ☒ Area Energy Management System
- ☐ Others

Estimated cost savings in implementing low-carbon measures: Break down by Activity/Sector, potential source, estimated savings – e.g.: Residential sector, Fuel cells, 150 $US/household/year (per year/per unit of energy, etc.)

Estimated energy consumption before completion of the project: (GJ/year or TOE/year)

Estimated energy consumption after completion of the project: (GJ/year or TOE/year)

Project Management

What central/local government departments are/will be involved in development of the project? Work closely with government departments (i.e., the Electrical and Mechanical

Services Department (EMSD) and the Environment and Ecology Bureau (EEB)) and also the Green Group (i.e., the Hong Kong Green Building Council) to develop, monitor, and implement the programme.

What private company, non-governmental organizations are/will be involved in development of the project? All corporate companies, including both commercial and industrial sectors, as well as non-governmental organizations (NGOs) are eligible to join our schemes and participate in the Demand Side Management programmes.

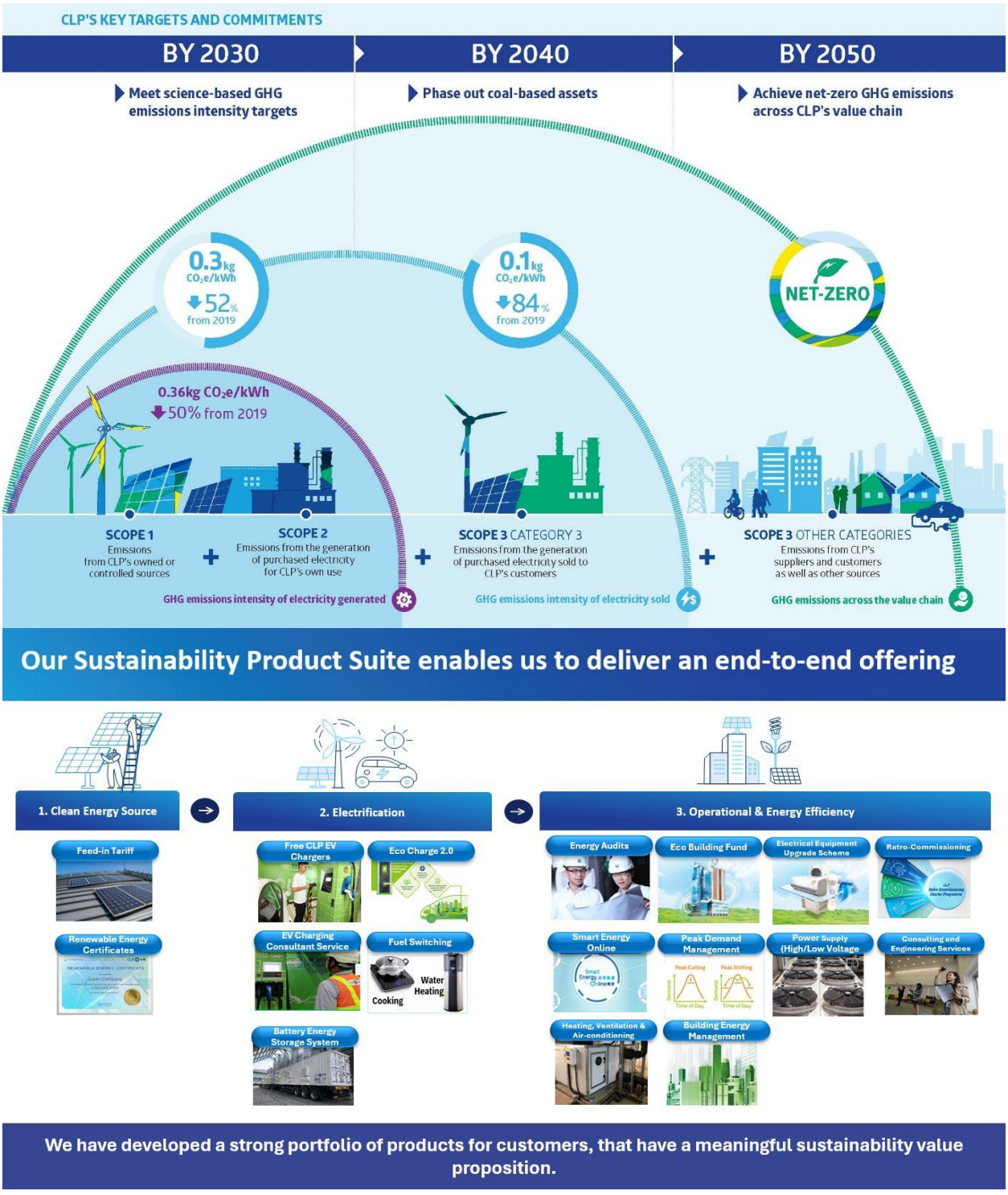
How is/will be the development of the town funded? A series of CLP funding and subsidy programmes are setup to support the corporate companies and non-governmental organizations (NGOs) in their low-carbon transformation.

Other relevant information, if any: (Please not additional relevant information here.)

Project Status: Choose an item.

Additional Project Details

Image:



Please attach an image that represents this project.

LCMT Overview File:

Please attach a file associated with your project.

Project Website:

Please provide the project website.

APEC Publication URL:

Enter the site URL that contains any related APEC publications.

Contact Information

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