# **HK Electric Investments - Climate Change 2020**

## **C0. Introduction**

## **C0.1**

### **(C0.1) Give a general description and introduction to your organization.**

HK Electric Investments, constituted in January 2014, is a fixed single investment trust in Hong Kong focusing purely on the energy sector. Share Stapled Units issued by HK Electric Investments and HK Electric Investments Limited (collectively, HKEI) are listed on the Main Board of the Hong Kong Stock Exchange. HKEI, through its principal operating subsidiary The Hongkong Electric Company, Limited (HK Electric or the Company), engages in the businesses of generation, transmission, distribution and supply of electricity to Hong Kong Island and Lamma Island, serving around 581,000 customers with a total installed capacity of 3,237 MW at Lamma Power Station (LPS) by the end of 2019. HK Electric’s operation is regulated under the Scheme of Control Agreement (SCA) entered with the Hong Kong Special Administrative Region (HKSAR) Government.

Based on operational control approach, HK Electric is responsible for 100% of GHG emissions reported. HK Electric is a vertically integrated utility and does NOT purchase electricity or heat from others. All electricity is consumed locally and the losses in transmission and distribution of electricity are generated from HK Electric’s LPS. Hence, the Scope 2 emission is included in the Scope 1 emission which has been reported in accordance with the ISO 14064-1 requirements as verified by qualified independent assessor. To avoid double-counting, the scope 2 emission reported is therefore "zero".

## **C0.2**

### **(C0.2) State the start and end date of the year for which you are reporting data.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Start date** | **End date** | **Indicate if you are providing emissions data for past reporting years** | **Select the number of past reporting years you will be providing emissions data for** |
| Reporting year | January 1 2019 | December 31 2019 | Yes | 1 year |

## **C0.3**

### **(C0.3) Select the countries/areas for which you will be supplying data.**

China, Hong Kong Special Administrative Region

## **C0.4**

### **(C0.4) Select the currency used for all financial information disclosed throughout your response.**

HKD

## **C0.5**

### **(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Operational control

## **C-EU0.7**

### **(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.**

### **Row 1**

### **Electric utilities value chain**

Electricity generation

Transmission

Distribution

### **Other divisions**

Please select

## **C1. Governance**

## **C1.1**

### **(C1.1) Is there board-level oversight of climate-related issues within your organization?**

Yes

## **C1.1a**

### **(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

|  |  |
| --- | --- |
| **Position of individual(s)** | **Please explain** |
| Chief Executive Officer (CEO) | The CEO is also the Managing Director of HK Electric who has the primary responsibility for climate-related strategies and issues. In the performance of this function, he/she is supported by HK Electric’s management as well as various committees of HK Electric including, for instance, the Corporate Social Responsibility (CSR) Committee (chaired by the CEO) and the Environment Committee (chaired by General Manager (Corporate Development)). The CEO reports to the Board for the Board’s oversight of the key climate-related strategies formulated by management. |

## **C1.1b**

### **(C1.1b) Provide further details on the board’s oversight of climate-related issues.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency with which climate-related issues are a scheduled agenda item** | **Governance mechanisms into which climate-related issues are integrated** | **Scope of board-level oversight** | **Please explain** |
| Scheduled – some meetings | Reviewing and guiding strategy  Reviewing and guiding major plans of action  Reviewing and guiding risk management policies  Reviewing and guiding annual budgets  Reviewing and guiding business plans  Setting performance objectives  Monitoring implementation and performance of objectives  Overseeing major capital expenditures, acquisitions and divestitures  Monitoring and overseeing progress against goals and targets for addressing climate-related issues | <Not Applicable> | The Company Audit Committee assists the Board in meeting its responsibility for maintaining effective systems of risk management and internal control. In such capacity, the Audit Committee reviews ESG and risk management matters, including climate-related matters. Since the climate related risks are part of the top corporate risks, they are reported to the Board through the Audit Committee regularly twice a year. The climate-related risks include supply interruptions due to adverse weather was reported to the Board via Audit Committee meeting twice a year. In addition, key matters on climate-related strategies and issues are reviewed by the senior management including Board directors. In response to the Government’s public engagement on the city’s long term decarbonization plan, there were briefings and discussions on HK Electric’s long term decarbonization strategy at the board meetings in 2019. |

## **C1.2**

### **(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of the position(s) and/or committee(s)** | **Reporting line** | **Responsibility** | **Coverage of responsibility** | **Frequency of reporting to the board on climate-related issues** |
| Other committee, please specify (Environment Committee chaired by General Manager (Corporate Development)) | <Not Applicable> | Both assessing and managing climate-related risks and opportunities  Our Environment Committee consisting of a cross-functional team and chaired by the General Manager (Corporate Development) oversees and ensures that our operations adhere to the company's Environmental Policy and comply with all applicable laws and regulations. The Committee is tasked with identifying and reviewing potential risks and opportunities associated with environmental issues, leading corporate environmental initiatives, and monitoring and reporting issues to our Directors. | <Not Applicable> | Quarterly |
| Other committee, please specify (Corporate Social Responsibility Committee chaired by CEO) | <Not Applicable> | Other, please specify (Steering the Company’s decarbonization strategy)  We treasure planet Earth by minimising the environmental impact of our operations and combating climate change is our CSR Policy. The CSR Committee is responsible to formulate the Company’s CSR strategy with a view to integrating CSR considerations into all aspects of our operation; to drive and co-ordinate Company efforts to improve CSR performance; to monitor and review CSR performance and compliance with CSR principles by divisions and departments; to benchmark against industry best practice in key CSR areas; to promote understanding of CSR issues within the Company; and to enhance stakeholder relations in the community. | <Not Applicable> | Quarterly |

## **C1.2a**

### **(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**

HK Electric is committed to working towards decarbonisation targets consistent with the direction of the Paris Agreement. We are taking actions on combating climate change by reducing the carbon emissions from our power generation and promoting energy efficiency and conservation (EE&C) and renewable energy (RE), while bolstering our network’s resilience to extreme weather events through robust planning and precautionary measures. Our commitment to combating climate change is articulated in our Corporate Social Responsibility Policy's which is governed by the Group's CSR Committee chaired by the CEO. Members of the CSR Committee comprise Board of Executive Directors and senior management of the Company as listed below:

1. Operations Director – who is responsible for operational issues of the Company;

2. Chief Financial Officer – who is responsible for the finance matters;

3. General Manager (Corporate Development) – who is responsible for all environmental issues including climate change matters of the Company. In addition, he is also the chairman of the Environment Committee for coordinating all environmental matters to ensure our Environmental Policy including combating climate change is implemented; and

4. General Managers responsible for the human resources/administration, public affairs and community investment are also members of the CSR Committee.

Comprising senior management personnel in CSR Committee shows the leadership and commitment toward combating climate change of HK Electric and ensuring combating measures of climate change can be done in top-down approach. At management level, the CSR Committee oversees all CSR related issues of HK Electric including climate change. Climate change is one of the agenda items of the CSR Committee. The policies and strategies on climate change of the Company are initiated and discussed in the CSR Committee and are then implemented through all business units. In 2019, we engaged an independent consultant to help us develop a set of internal targets corresponding to three SDGs that are closely aligned with our corporate strategies and business priorities, namely, Affordable and Clean Energy (Goal 7), Industry, Innovation and Infrastructure (Goal 9) and Climate Action (Goal 13). These SDGs and development of relevant internal targets were reviewed and endorsed by the CSR Committee.

In addition, General Manager (Corporate Development) is responsible for coordinating all environmental issues including climate change matters of the Company. In the monthly management meeting, any updates of the climate change related matters including the Government’s climate policy move are reported to the Company’s senior management and the Board Executive Directors. General Manager (Corporate Development) is also responsible for compiling regular reports on our carbon emissions to keep our senior management and directors up-to-date on our emissions inventory. The management keeps abreast of the Company’s latest emission status and all these facilitate their decision over the strategic issues.

Furthermore, General Manager (Corporate Development) is responsible for communicating with our stakeholders about our efforts in combating climate change and reflecting our views on climate change to the Government. As a Board Director of the Business Environment Council (BEC) which is a non-government organization established by the Hong Kong business sector to promote environmental excellence among businesses, and collaborate on tackling climate change, General Manager (Corporate Development) contributed in a series of joint effort campaigns and host seminars to convey policy positions and best practices that are intended to help Hong Kong become a low carbon economy.

For more information, please visit our webpage at: https://www.hkelectric.com/en/about-us/corporate-policies/csr\_policy and our Sustainability Report 2019 at <https://www.hkelectric.com/en/CorporateSocialResponsibility/CorporateSocialResponsibility_CDD/Documents/SR2019E.pdf> (page 12-19).

## **C1.3**

### **(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

|  |  |  |
| --- | --- | --- |
|  | **Provide incentives for the management of climate-related issues** | **Comment** |
| Row 1 | Yes |  |

## **C1.3a**

### **(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).**

|  |  |  |  |
| --- | --- | --- | --- |
| **Entitled to incentive** | **Type of incentive** | **Activity inventivized** | **Comment** |
| Corporate executive team | Non-monetary reward | Other (please specify) (Environmental Performance) | HK Electric is proactively contributing to global efforts in combating climate change and all employees of the Company including top management are committed to achieving this. Under the ISO 14001 certified Environmental Management Systems governing our electricity generation and delivery, and power system development, Environmental Management Programs (EMPs) targeting on the reduction of energy consumption and emissions reduction have been established for our operation. Employees of different position in the hierarchy are committed to achieve the targets. The remuneration of Executive Directors and senior management is determined with reference to the Company’s performance, profitability, and prevailing market conditions. Remuneration is performance-based and, coupled with an incentive system, is competitive to attract and retain talented employees. All employees strive to accomplish the corporate goals by endeavouring to integrate environmental considerations into all aspects of our business operation. |
| All employees | Monetary reward | Emissions reduction project  Energy reduction project  Efficiency project  Company performance against a climate-related sustainability index | The Hongkong Outstanding Employee Award and Spot Award aim to recognise, reward and encourage employees’ outstanding performance; as well as recognise employees for their contributions to improvement of operations and services on various aspects including climate-related/environmental areas. Some examples were listed below: (1) Smart Meter Pilot Project –to verify the suitability of the technology that will form the foundation for helping customers better understand their consumption habits and patterns that will allow them to take corresponding measures to optimise energy use (2) Development and publishing of technical documents to facilitate grid connection of customers’ Renewable Energy Power Systems under the Feed-in Tariff Scheme (3) A volunteer team provide inspection services and energy saving advices to customers |

## **C2. Risks and opportunities**

## **C2.1**

### **(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

## **C2.1a**

### **(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **From (years)** | **To (years)** | **Comment** |
| Short-term | 1 | 5 | HK Electric’s 2019-2023 Development Plan covers a capital expenditure of $26.6B to support our coal-to-gas generation transition alongside other transmission & distribution systems enhancement and corporate development initiatives. Through these new developments, we aim to transform Hong Kong into a smart city and enhance our grid while maintaining a highly reliable power supply and excellent customer services. The share of gas-fired generation in our total power output will be increased in the coming years. Our new gas-fired unit, L10 has been commissioned in Feb. 2020 and our 2020 gas generation will be about 50%. We expected that our gas generation proportion will further rise to about 55% in 2022 and about 70% in 2023 with the commissioning of L11 and L12 respectively. Timely implementation of the new gas-fired units will help meeting the Government’s short-term carbon reduction target. We plan to continue switching from coal to gas in supporting the Government’s longer-term carbon reduction target in the next decade or so. To ensure the commercial and operational viability of this strategy, we are partnering with CLP Power, the other local power company, to develop an offshore liquefied natural gas (LNG) terminal using Floating Storage and Regasification Unit (FSRU) technology. The project would help diversify Hong Kong’s natural gas supply sources and increase access to competitively-priced gas in the global market. We anticipate that the new terminal can be put it into operation in 2022. We will construct, maintain and reinforce our electricity transmission and distribution facilities. New zone substations will be built while old zone substation will be upgraded. New distribution substations and network expansion for new developments are scheduled to be implemented. Refurbishment/replacement programme for aged transmission and distribution facilities and overlaying plans for weak/aged transmission and distribution cables are in place for implementation to upkeep the reliability of the grid. To help transform Hong Kong into a smart city, we have been deploying smart meters to build an intelligent information exchange platform for customer energy management and plan to complete this project by 2023. We will increase the aggregate electricity generated from our own RE sources and our customers from Feed-in Tariff Scheme to over 3 GWh/year by 2023. |
| Medium-term | 5 | 10 | HK Electric plans to further increase the share of gas-fired generation in our total power output subject to the Government’s approval. With the increasing ratio of gas generation capacity in our system to meet emission targets, a study on Automatic Generation Control operation modes for gas-fired units was conducted and the recommendation was implemented in 2020 to cope with the effect of decreasing coal-fired generation capacity in the process of coal-to-gas transition without impacting the supply reliability. We will promote the erection of charging facilities for public electric transportation for a greener Hong Kong and continue the provision of technical support for customers to install EV charging facilities at their premises. Funding and service schemes under our Smart Power Services will be enhanced to help decarbonise the community and support the needy in the society. |
| Long-term | 10 | 13 | Subject to the Government’s approval, a full gas-fired electricity generation can be achieved to complete the entire coal-to-gas transition. The proportion of gas-fired generation will reach 100% of our total power output and our absolute carbon emissions will be reduced by about 60% as compared with the 2005 level (just before the introduction of natural gas power generation at HK Electric). We will introduce smart LV network to promote energy efficiency and enhance supply reliability. Moreover, proven and well recognised SF6-free apparatuses will be installed in our network gradually to reduce the risk of the emission of greenhouse gas. We will continue to explore developments in all possible advanced technologies including hydrogen fuel, carbon capture and storage, energy storage and smart grid to determine if they can be commercially viable and introduced in Hong Kong for decarbonisation opportunities. In addition, we all continue the promotion of renewable energy in Hong Kong and proactively seek for practical RE project for cost-effective implementation in Hong Kong. Last but not least, we envisage that regional cooperation could be a pragmatic approach to achieve zero-carbon in a long run though certain conditions, such as community consensus and suitability of supply sources must be met before this plan could be proceeded further. |

## **C2.1b**

### **(C2.1b) How does your organization define substantive financial or strategic impact on your business?**

The following are the definition of HK Electric's substantive financial and strategic impact:

Financial impact - Financial loss from HK$240 million upto HK$720 million.

Strategic impact - Achievement of a large number of our strategic corporate objectives and directions are seriously hindered.

## **C2.2**

### **(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.**

### **Value chain stage(s) covered**

Direct operations

### **Risk management process**

Integrated into multi-disciplinary company-wide risk management process

### **Frequency of assessment**

More than once a year

### **Time horizon(s) covered**

Short-term

Medium-term

Long-term

### **Description of process**

The risk management process is integrated into our day-to-day activities and is an ongoing process involving all parts of the Group from the Company Board down to individual employees. The risk identification process takes into account internal and external factors including economic, political, social, technological, environmental and new or updated Group strategy and new regulations, as well as our stakeholders’ expectations in these aspects. Risks are grouped into different categories to facilitate analysis. Each risk identified is analysed on the basis of likelihood and impact in accordance with the risk appetite set by the Company Board. Action plans are in place to manage risks. The risk assessment process also includes a review of the control mechanisms for each risk and a rating of the effectiveness of each control. The Group compiles a risk register which is updated and monitored on an ongoing basis, taking into consideration emerging risks which may have a material impact on the Group.

### **Value chain stage(s) covered**

Direct operations

### **Risk management process**

Integrated into multi-disciplinary company-wide risk management process

### **Frequency of assessment**

Every three years or more

### **Time horizon(s) covered**

Short-term

### **Description of process**

As part of our effort in continuous improvement of our transmission and distribution systems, we conduct Network Reliability and Operations Review (NROR) once every 3 years since 1985. The last round of NROR was conducted in 2017 and the recent round of NROR has been kicked off in early 2020. The impacts of climate-related risks on transmission and distribution systems are studied under failure mode effect analysis and risk assessment methodology and the recommendations to improve supply reliability are identified in the review. The progress of recommendations will then be reviewed/monitored in relevant regular meetings. In addition to the regular framework for continual review and improvement, ad-hoc reviews will also be conducted as and when required to counter new/emerging climate-related risks. For instance, subsequent to the attack of Super Typhoon Mangkhut in September 2018, company-wide reviews have been carried out to reinforce the resiliency of the power system against extreme weather. Sea levels will be increased. Anti-flooding facilities such as bund wall, flooding alarm, sump pump and CCTV to monitor the environment conditions, etc., are installed with priorities according to those which are located along the coastal zone of the Island. Apart from these improvements in physical resilience, operational readiness has also been enhanced by incorporation of a 3-level precautionary measure against the strike of super typhoon. Based on the anticipated severity of the tropical cyclone, preventive and protective measures are completed well before its approach and contingency plans are established to combat the possible damages on the physical assets that are expected to be brought about by the extreme weather. Each department has EHS sub-committee and monthly meetings chaired by Department Head to review the EHS matters including climate-related risks and opportunities on regular basis.

## **C2.2a**

### **(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?**

|  |  |  |
| --- | --- | --- |
|  | **Relevance & inclusion** | **Please explain** |
| Current regulation | Relevant, always included | In 2008, the Government stipulated emission allowances for the power sector up to 2010 and beyond through the Technical Memorandum for Allocation of Emission Allowances in respect of Specified Licences under the Air Pollution Control Ordinance (“APCO”). Seven subsequent Technical Memoranda issued in 2010, 2012, 2014, 2015, 2016, 2017 and 2018 have further tightened the emission allowances starting from 2015, 2017, 2019, 2020, 2021, 2022 and 2024 respectively. Although compliance with emission allowance requirements is no longer linked to the rate of return under the new Scheme of Control Agreement (“SCA”) effective 1 January 2019, failure to comply with these requirements could still result in legal action against the Group under the APCO. The Group has in place an Environmental Management System with a monitoring and reporting mechanism run by a dedicated team to ensure compliance with relevant environmental regulations, address public concerns and closely monitor and control the emission of pollutants from the power plant. HK Electric maintains a high availability of gas-fired generating units with low emissions by planning of necessary overhaul work items and formulation of the overhaul schedule for electricity generating units, with consideration of targeted emission factors as stipulated in Technical Memoranda under the APCO. We ensure accuracy and sufficiency of monitoring and reporting system on environmental performance by continuous monitoring to ensure compliance with all relevant legal requirements. To closely monitor the GHG emissions from power utility, HK Electric is mandatorily required to report to the Authority annual GHG emissions from operations and the estimated GHG emission for the coming year. |
| Emerging regulation | Relevant, always included | In 2008, the Government stipulated emission allowances for the power sector up to 2010 and beyond through the Technical Memorandum for Allocation of Emission Allowances in respect of Specified Licences under the Air Pollution Control Ordinance (“APCO”). Seven subsequent Technical Memoranda issued in 2010, 2012, 2014, 2015, 2016, 2017 and 2018 have further tightened the emission allowances starting from 2015, 2017, 2019, 2020, 2021, 2022 and 2024 respectively. Although compliance with emission allowance requirements is no longer linked to the rate of return under the new Scheme of Control Agreement (“SCA”) effective 1 January 2019, failure to comply with these requirements could still result in legal action against the Group under the APCO. The Group has in place an Environmental Management System with a monitoring and reporting mechanism run by a dedicated team to ensure compliance with relevant environmental regulations, address public concerns and closely monitor and control the emission of pollutants from the power plant. HK Electric maintains a high availability of gas-fired generating units with low emissions by planning of necessary overhaul work items and formulation of the overhaul schedule for electricity generating units, with consideration of targeted emission factors as stipulated in Technical Memoranda under the APCO. We ensure accuracy and sufficiency of monitoring and reporting system on environmental performance by continuous monitoring to ensure compliance with all relevant legal requirements. |
| Technology | Relevant, always included | To support Hong Kong’s transformation into a Smart City, HK Electric is preparing for a large-scale roll-out of smart meters under the approved 2019-2023 Development Plan, which will improve our customer services and grid operations and facilitate customers’ demand-side energy management. Our pilot project on deploying advanced metering infrastructure technology, currently in progress, has help shape our longer-term strategy. With the application of “Floating Storage and Regasification Unit” (FSRU) technology, completely new to Hong Kong, timely completion of the FSRU project has been identified as a key mitigation plan to address the risk on the gas supply. As such, FSRU Project Committee chaired by the CEO has been set up and regular meetings have been arranged to monitor the overall project progress and to address the key issues. |
| Legal | Relevant, always included | HK Electric engages in the generation, transmission, distribution and supply of electricity in Hong Kong, and is subject to strict compliance with Hong Kong laws and regulations relating to, amongst other things, development, construction, licensing and operation of our power facilities. Furthermore, we shall comply with the conditions stipulated in its operational and construction licenses and permits. Failure to do so could expose the Group to prosecution and litigation and result in fines, sanctions, criminal penalties and/or the suspension, revocation or non-renewal of licenses or permits. Moreover, changes in laws and regulations may cause it to incur additional capital expenses or other obligations or liabilities in order to comply with such changes, or may possibly have material and adverse impact on its business, financial condition and operating results. The Compliance Committee, chaired by the CEO, is responsible for overseeing the Group’s compliance functions. A Compliance Framework is in place to manage its compliance obligations under a consistent and structured approach across the Group. As part of the Framework, a Regulatory Compliance and Monitoring Programme with designated responsible parties has been implemented to proactively monitor the Group’s compliance obligations and status as well as any changes in laws and regulations and their implications. |
| Market | Relevant, always included | The operations of the HK Electric’s electricity business in Hong Kong are subject to the Scheme of Control Agreement (SCA) with the Government, which provides for a permitted level of earnings based principally on average net fixed assets for electricity-related operations. The current SCA commenced on 1 January 2019, with a term of 15 years from 2019 to 2033. While the SCA is providing the necessary stability in the areas of financial and service regulation, the Government’s strategies and policies on air quality, electricity sector decarbonisation for climate change mitigation, and electricity market competition are among the factors affecting the Group’s results and growth in the medium to long term. The Group has established a mechanism to review these factors on a regular basis and continuously engages in discussions with the Environment Bureau as well as various stakeholders on electricity market and regulatory issues. |
| Reputation | Relevant, always included | For a company with more than one hundred years of history, reputation is a huge intangible asset. The attitude shift of climate-conscious consumers could increase demand for low carbon products and services, with a fossil fuel based business structure, power companies are always criticized for being the major GHG emitter, this might impair our corporate image even though electricity is vital to people’s daily activities and the social development of Hong Kong. In response to international agreement on decisive actions to combat climate change, HK Electric took a proactive approach to reduce greenhouse gas emissions. We also acknowledge the global consensus on avoiding the worst effects of climate change by keeping global warming within 2ºC of the pre-industrial level. In November 2017, HK Electric established a new target for reducing carbon emissions per unit of electricity generated by 30% in 2022 compared with the level in 2005. This target has been recognised by the Science Based Targets initiative, a global partnership encouraging organisations to set scientific targets compatible with the “2ºC” scenario. |
| Acute physical | Relevant, always included | HK Electric can be exposed to risks in relation to supply interruptions. Extensive damage in the generation or network facilities caused by severe earthquake, storm, flood, landslide, extreme weather phenomenon due to climate change, fire, sabotage, terrorist attack, failure of critical information and control systems that support the power system or any other unplanned event could lead to a prolonged and extensive power outage. The loss of cash flow resulting from supply interruption, and the cost of recovery from damage to network and generation assets could be considerable. Such an incident could damage customer goodwill and lead to claims and litigation. Substantial increases in the number or duration of supply interruptions could result in increases in the costs associated with the operation of the Group’s supply networks, which could have an adverse effect on the business, financial condition and efficiency of operations as well as the reputation of the Group. The Group conducts thorough risk assessments including the emerging risk of climate change, physical security and cybersecurity, adopts resilient designs, performs reliability centered maintenance and upgrades of its power supply equipment, undertakes reliability reviews, provides comprehensive training to operational staff and deploys sophisticated information technology control and asset management systems. It also conducts drills on contingency plans on a regular basis to ensure supply reliability is maintained to a high standard. |
| Chronic physical | Relevant, always included | Lamma Power Station (LPS) located on the reclaimed land that is vulnerable to strong tide and extreme weather. The ground level of LPS and its extension is at +6.0 m PD. Most of the equipment items in LPS are installed at a level above +5.854 m PD and hence they are not susceptible to flooding if the sea level rises to +5.0 m PD. Following precautionary measures have been implemented: 1. Critical equipment has either been relocated to higher level or installed with protective cubicles to improve their immunity against flooding. 2. Storm water drainage systems are installed in the station to collect and convey run-off for safe discharge to the sea. 3. A tidal meter has been installed in the east and west coasts of LPS respectively since September 2018 to study the effect on sea levels of tropical cyclones after consulting Hong Kong Observatory (HKO). The data collected is shared with HKO. 4. For enhancing the security of natural gas supply, CLP and HK Electric are in partnership to jointly develop an offshore liquefied natural gas (LNG) terminal in Hong Kong waters to enable oceanic import. The contract for the terminal’s engineering, procurement and construction was awarded in January 2020. The offshore LNG terminal is scheduled for commercial operation in 2022. 5. In future design of new power plant equipment from L12 onwards, all critical equipment will be located at levels above +7 m PD in future. During the attack of super-typhoon Mangkhut in 2018, there was no major damage to the equipment in LPS. Based on the experience of this typhoon and the article published by HKO on Mangkhut, a review was conducted on the potential impact of super-typhoon and its storm surges. Based on the review, we have planned for installing flood wall at the east side of Lamma Power Station Extension in future to enhance resilience against storm surge. A pre-typhoon checklist for the construction site is in place to enhance contingency measures to cater for the severe or super-typhoons attack. The equipment/system design will conform to the local climate conditions including the maximum ambient temperature as stipulated in the technical specification. In addition, the manufacturer would provide fully tropicalized plant and equipment able to withstand the effects of prolonged high ambient temperature in accordance with the specification requirements. |

## **C2.3**

### **(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

## **C2.3a**

### **(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

### **Identifier**

Risk 1

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type & Primary climate-related risk driver**

|  |  |
| --- | --- |
| Current regulation | Mandates on and regulation of existing products and services |

### **Primary potential financial impact**

Increased capital expenditures

### **Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

### **Company-specific description**

The Hong Kong Government published Climate Action Plan 2030+ with fuel mix target of 50% natural gas, 25% coal and 25% non-fossil fuels by 2020. Coal-fired electricity generation will be phased down since coal is the most carbon-intensive fuel in Hong Kong's fuel mix. This means HK Electric will continue to phase down our remaining coal-fired units as they reach their normal retirement life in the next decade and replace them with natural gas-fired units. In this regard, we reviewed and adjusted our fuel mix to achieve the Hong Kong Government's fuel mix target.

### **Time horizon**

Short-term

### **Likelihood**

Virtually certain

### **Magnitude of impact**

Medium-high

### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

26600000000

### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

### **Explanation of financial impact figure**

To support the Government to achieve Hong Kong's fuel mix target and carbon intensity reduction target under the Climate Action Plan 2030+. HK Electric invested HK$26.6 billion under our 2019-2023 Development Plan to increase the proportion of natural gas in our fuel mix for power generation at LPS to about 70% by 2023 and continue to phase down our remaining coal plants in the next decade. HK Electric are facing risks of natural gas supply security and price volatility while increasing the use of liquefied natural gas (LNG) for power generation which will also put pressure on our fuel cost. We need to explore and secure additional reliable LNG supply source.

### **Cost of response to risk**

16200000000

### **Description of response and explanation of cost calculation**

As part of our 2019-2023 Development Plan, the total capital expenditure invested at the power generation system at our LPS) for coal-to-gas transition approved by the government is HK$16.2 billion. We are developing three more highly efficient combined-cycle gas-fired generating units known as L10, L11 and L12. Following successful synchronisation in October 2019, L10 was commissioned in February 2020, bringing our gas-fired generation to about half of our total output. We are also making good progress with L11 and L12, which we expect to be commissioned in 2022 and 2023, respectively. By 2023, gas-fired power will rise further to about 70% of our total output. Moving forward, we have capacity to develop additional gas-fired generating units at our existing site in LPS to achieve full transition to gas-fired generation by the early 2030s. To ensure the commercial and operational viability of coal-to-gas transition, we are working with another local power company to develop an offshore liquefied natural gas (LNG) terminal using technology. The project comprises an FSRU vessel, a jetty and a network of submarine pipelines that will be connected to the concerned power stations, including LPS. Scheduled for commissioning in 2022, the project will provide a new channel for LPS to receive cost-competitive LNG supplies from different markets across the globe, thereby enhancing the security of our fuel supply. In June 2019, a joint venture was established for the project and two third-party agreements pertaining to long-term LNG supply and leasing of an FSRU vessel were also signed.

### **Comment**

### **Identifier**

Risk 2

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type & Primary climate-related risk driver**

|  |  |
| --- | --- |
| Acute physical | Increased severity and frequency of extreme weather events such as cyclones and floods |

### **Primary potential financial impact**

Increased indirect (operating) costs

### **Climate risk type mapped to traditional financial services industry risk classification**

<Not Applicable>

### **Company-specific description**

Climate change poses both acute and chronic physical risks to our business. Building resilience into our infrastructure to mitigate climate-related threats is of paramount importance for assuring our supply reliability. We are also rolling out smart metering technologies to help identify and restore electricity supply outages during adverse weather conditions. The smart meter roll-out campaign will prioritise customers residing in remote areas.

### **Time horizon**

Short-term

### **Likelihood**

Likely

### **Magnitude of impact**

Medium

### **Are you able to provide a potential financial impact figure?**

Yes, a single figure estimate

### **Potential financial impact figure (currency)**

26600000000

### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

### **Explanation of financial impact figure**

To cope with the acute and chronic physical risks caused by to adverse weather conditions, HK$26.6 billion under our 2019-2023 Development Plan will be invested for coal-to-gas transition as well as reinforce our T&D facilities.

### **Cost of response to risk**

9100000000

### **Description of response and explanation of cost calculation**

Under our 2019-2023 Development Plan, we invest HK$9.1 billion of capital expenditure to construct and reinforce our T&D facilities and improve and enhance grid intelligence and automation features.

### **Comment**

## **C2.4**

### **(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

## **C2.4a**

### **(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

### **Identifier**

Opp1

### **Where in the value chain does the opportunity occur?**

Direct operations

### **Opportunity type**

Products and services

### **Primary climate-related opportunity driver**

Development of climate adaptation, resilience and insurance risk solutions

### **Primary potential financial impact**

Increased value of fixed assets

### **Company-specific description**

Under our 2019-2023 Development Plan, we are rolling out smart metering technologies to build an intelligent information exchange platform for customer energy management and also to help identify and restore electricity supply outages during adverse weather conditions. Deployment of smart meters help transform Hong Kong into a smart city.

### **Time horizon**

Medium-term

### **Likelihood**

Very likely

### **Magnitude of impact**

Medium-high

### **Are you able to provide a potential financial impact figure?**

No, we do not have this figure

### **Potential financial impact figure (currency)**

<Not Applicable>

### **Potential financial impact figure – minimum (currency)**

<Not Applicable>

### **Potential financial impact figure – maximum (currency)**

<Not Applicable>

### **Explanation of financial impact figure**

### **Cost to realize opportunity**

9100000000

### **Strategy to realize opportunity and explanation of cost calculation**

Under our 2019-2023 Development Plan, we invest HK$9.1 billion of capital expenditure to construct and reinforce our T&D facilities and improve and enhance grid intelligence and automation features.

### **Comment**

## **C3. Business Strategy**

## **C3.1**

### **(C3.1) Have climate-related risks and opportunities influenced your organization’s strategy and/or financial planning?**

Yes, and we have developed a low-carbon transition plan

## **C3.1a**

### **(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?**

Yes, qualitative

## **C3.1b**

### **(C3.1b) Provide details of your organization’s use of climate-related scenario analysis.**

|  |  |
| --- | --- |
| **Climate-related scenarios and models applied** | **Details** |
| 2DS | HK Electric acknowledges the global consensus on avoiding the worst effects of climate change by keeping global warming within 2ºC of the pre-industrial level. In November 2017, HK Electric established a new target for reducing carbon emissions per unit of electricity generated by 30% in 2022 as compared with the level in 2005. This target has been recognized by the Science Based Targets initiative, a global partnership encouraging organisations to set scientific targets compatible with the “2ºC” scenario. |

## **C3.1d**

### **(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.**

|  |  |  |
| --- | --- | --- |
|  | **Have climate-related risks and opportunities influenced your strategy in this area?** | **Description of influence** |
| Products and services | Yes | We believe that there is a widespread consensus in Hong Kong and around the world that the clock is ticking on climate change and action must be taken swiftly. Collectively, individual efforts to reduce carbon emissions can make a real and lasting difference, and the common goal should be to achieve net zero carbon emissions by 2050. At HK Electric, we are pursuing a carbon reduction strategy that will help limit global temperature rise to no more than 2°C or even 1.5°C in accordance with the Paris Agreement by decarbonising our electricity generation portfolio. Switching from coal to natural gas provides a clean, reliable and cost-effective way to reduce carbon emissions. As part of our 2019-2023 Development Plan, we are developing three more highly efficient combined-cycle gas-fired generating units known as L10, L11 and L12. Following successful synchronisation in October 2019, L10 was commissioned in February 2020, bringing our gas-fired generation to about half of our total output. We are also making good progress with L11 and L12, which we expect to be commissioned in 2022 and 2023, respectively. By 2023, gas-fired power will rise further to about 70% of our total output. As a result, the carbon emissions per unit of electricity sold will be reduced from 0.93 kg CO2e/kWh in 2005 to <= 0.60 kg CO2e/kwh in 2023. Moving forward, we have capacity to develop additional gas-fired generating units at our existing site in LPS to achieve full transition to gas-fired generation by the early 2030s. Shortage of the supply of the spare parts due to climate change for maintaining the normal operation of the components in the electricity supply network will pose a risk of deterioration of supply reliability. Earthquake/tsunami, severe rainstorm, flooding and hurricane could damage to T&D network facilities, leading to prolonged supply interruptions to our customers. This could deteriorate the supply reliability and grid supply restoration time as well as the reputation of the company. To support the wider use of EVs, 12 public charging stations are erected covering every district on Hong Kong Island. The period of free charging for EV at our public charging stations across the island has been extended to the end of 2020. |
| Supply chain and/or value chain | Yes | In order to support HK's international commitments to reduce carbon emissions and the Government's long-term decarbonisation strategy, we aim to provide a clean, reliable and cost-effective way to reduce carbon emissions by switching from coal to gas. We expect to achieve full transition to gas-fired generation by the early 2030s. To ensure the commercial and operational viability of coal-to-gas transition, we are working with CLP Power to develop an offshore liquefied natural gas (LNG) terminal using “Floating Storage and Regasification Unit” (FSRU) technology. The project comprises an FSRU vessel, a jetty and a network of submarine pipelines that will be connected to the concerned power stations including LPS. Scheduled for commissioning in 2022, the project will provide a new channel for LPS to receive cost-competitive LNG supplies from different markets across the globe, thereby enhancing the security of our fuel supply. In June 2019, a joint venture was established for the project and two third-party agreements pertaining to long-term LNG supply and leasing of an FSRU vessel were also signed. |
| Investment in R&D | Yes | At HK Electric, coal-to-gas transition is vital to us for reducing our carbon emissions and supporting the Government's long-term decarbonisation strategy. Hence, as part of our 2019-2023 Development Plan, we will invest HK$16.2 billion in our power generation system, including three new combined-cycle gas-fired generating units known as L10, L11 and L12. These highly efficient combined-cycle gas-fired units produce about 50% fewer carbon emissions than our existing coal-fired units. By 2023, our absolute carbon emissions will reduce by more than 40% compared with the level in 2005 (before the introduction of natural gas-fired generation at our LPS). The past performance of our T&D facilities was taken into account in establishing a new set of requirements for the future design of infrastructure. For example, the substation layout design at locations vulnerable to storm surge, bund-walls in distribution substations, and adopting +6.0m PD for transmission and distribution systems, etc., were reviewed. Various reinforcements were implemented or taken into account for the future development after the typhoon Mangkhut. |
| Operations | Yes | As part of the coal-to-gas transition plan, five coal-fired units and one aging gas-fired unit will be progressively replaced by new combined-cycle gas-fired units by 2023 under our 2019-2023 Development Plan. Two of our coal-fired units have already been retired in 2017 and 2018 respectively. With the increasing ratio of gas generation capacity in our system to meet emission targets, we adopted Automatic Generation Control operation mode for our gas-fired units to cope with the effect of decreasing coal-fired generation capacity in the process of coal-to-gas transition without impacting the supply reliability. Climate change poses both acute and chronic physical risks to our business. Building resilience into our infrastructure to mitigate climate-related threats is of paramount importance for assuring supply reliability. In addition to implementing precautionary measures at our power station and throughout our network, we continuously enhance our contingency plans and emergency procedures through frequent drills and regular reviews. Damage of electrical apparatus caused by flooding due to climate change may result in extensive areas suffering from power interruption, which will incur a substantial financial loss arising from the replacement of damaged apparatus and unnecessary potential claims from customers. Recovery of network facilities after damaged by earthquake/tsunami, severe rainstorm, flooding or hurricane could be substantial. Extensive supply interruption may lead to customer claims as well as negative adjustment in Scheme of Control Agreement. In January 2019, we introduced a suite of new and upgraded funding and service schemes – collectively known as Smart Power Services – to foster Energy Efficiency & Conservation and promote RE in the community. To support local development of RE, we will purchase all the electricity generated from customers’ RE power systems at Feed-in-Tariff (FiT) rates and provide RE Certificates for interested customers to purchase. As at end 2019, about 60 RE installations have been connected to our grid through the FiT Scheme, amounting to a total capacity of around 1 MW. We target to increase the aggregate electricity generated from our RE sources and our customers to over 3 GWh/year by 2023. |

## **C3.1e**

### **(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

|  |  |  |
| --- | --- | --- |
|  | **Financial planning elements that have been influenced** | **Description of influence** |
| Row 1 | Revenues  Direct costs  Indirect costs  Capital expenditures  Access to capital  Assets  Liabilities | The activities of HK Electric are subject to a Scheme of Control Agreement (“SoCA”) agreed with the Government. The prevailing SoCA, which lasts for a term of 15 years from 1 January 2019 and 31 December 2033, provides for HK Electric to earn a Permitted Return of 8% of its average net fixed assets. In return for complying with its obligations under the SoCA, HK Electric is entitled to charge tariff rates not only to cover its total operating costs but also to enable its shareholders to earn the Permitted Return in relation to the risks involved and the capital invested in and retained in the business. The SoCA also contains certain adjustments to the Permitted Return in the form of performance-based financial incentive and penalty schemes as well as different funds and service schemes to encourage customer service quality, energy efficiency, demand response reduction and renewable energy development, etc. Separately, fuel cost is passed through to customers without any profits incurred as stipulated by the SoCA. To support the Government’s Hong Kong Climate Action Plan 2030+, HK Electric has developed a low-carbon transition plan. In order to achieve this, we will invest HK$$16.2 billion under its 2019-2023 Development Plan in building three gas-fired generating units and the offshore liquefied natural gas terminal. Our proportion of gas-fired electricity generation will increase from about 30% before 2019 to about 70% by 2023. Revenues: As we increase gas-fired generation, we are incurring significantly higher fuel costs and capital expenditure. This will inevitably lead to increase in tariff rates. The extensive capital investments under the 2019-2023 Development Plan will increase our assets base and thus the permitted return under the SoCA. The SoCA contains certain adjustments to the Permitted Return in the form of performance-based financial incentive and penalty schemes as well as different funds and service schemes to encourage customer service quality, energy efficiency, demand response reduction and renewable energy development. Operating costs: Increase gas-fired generation will lead to higher fuel costs which are passed through to customers through tariffs. Various funds and schemes are set up to promote energy efficiency and conservation in the community. Under SoCA, HK Electric has to (a) provide HK$30 million each year for green education and subsidise building owners to enhance energy efficiency of communal building services. (HK$5 million for Smart Power Education Fund and HK$25 million for Smart Power Building Fund), and (b) provide free energy audit service to help its non-residential customers identify energy saving potential and enhance energy efficiency at their business premises and collaborate with participating banks to provide loans for implementation of energy efficiency enhancement projects, while HK Electric will subsidise the respective loan interests. Capital expenditures: Under 2019-2023 Development plan, an extensive capital investment programme of HK$26.6 billion will be carried out. Out of which (1) HK$16.2 billion for power generation system (transition from major coal-fired to major gas-fired electricity generation) (2) HK$9.1 billion for transmission and distribution system (including mass deployment of smart meters to enable customers to manage their energy consumption) and (3) HK$1.3 billion for corporate and customer services. Access to capital: The extensive capital investment will be financed by cash from operations as well as external borrowings. External borrowings comprise unsecured bank loans and debt securities in issue through private placement and public bond market. Assets: The extensive capital investments under the 2019-2023 Development Plan will increase HK Electric’s assets base. Liabilities: Increase external borrowings for financing capital investments. |

## **C3.1f**

### **(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).**

Nil

## **C4. Targets and performance**

## **C4.1**

### **(C4.1) Did you have an emissions target that was active in the reporting year?**

Both absolute and intensity targets

## **C4.1a**

### **(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.**

### **Target reference number**

Abs 1

### **Year target was set**

2019

### **Target coverage**

Company-wide

### **Scope(s) (or Scope 3 category)**

Scope 1

### **Base year**

2005

### **Covered emissions in base year (metric tons CO2e)**

9940000

### **Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

### **Target year**

2023

### **Targeted reduction from base year (%)**

40

### **Covered emissions in target year (metric tons CO2e) [auto-calculated]**

5964000

### **Covered emissions in reporting year (metric tons CO2e)**

8510000

### **% of target achieved [auto-calculated]**

35.9657947686117

### **Target status in reporting year**

New

### **Is this a science-based target?**

No, but we are reporting another target that is science-based

### **Please explain (including target coverage)**

### **Target reference number**

Abs 2

### **Year target was set**

2019

### **Target coverage**

Company-wide

### **Scope(s) (or Scope 3 category)**

Scope 1

### **Base year**

2005

### **Covered emissions in base year (metric tons CO2e)**

9940000

### **Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)**

100

### **Target year**

2033

### **Targeted reduction from base year (%)**

60

### **Covered emissions in target year (metric tons CO2e) [auto-calculated]**

3976000

### **Covered emissions in reporting year (metric tons CO2e)**

8510000

### **% of target achieved [auto-calculated]**

23.9771965124078

### **Target status in reporting year**

New

### **Is this a science-based target?**

No, but we are reporting another target that is science-based

### **Please explain (including target coverage)**

## **C4.1b**

### **(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

### **Target reference number**

Int 1

### **Year target was set**

2017

### **Target coverage**

Company-wide

### **Scope(s) (or Scope 3 category)**

Scope 1

### **Intensity metric**

Metric tons CO2e per megawatt hour (MWh)

### **Base year**

2005

### **Intensity figure in base year (metric tons CO2e per unit of activity)**

0.93

### **% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure**

100

### **Target year**

2022

### **Targeted reduction from base year (%)**

30

### **Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]**

0.651

### **% change anticipated in absolute Scope 1+2 emissions**

-30

### **% change anticipated in absolute Scope 3 emissions**

0

### **Intensity figure in reporting year (metric tons CO2e per unit of activity)**

0.81

### **% of target achieved [auto-calculated]**

43.010752688172

### **Target status in reporting year**

Underway

### **Is this a science-based target?**

Yes, this target has been approved as science-based by the Science Based Targets initiative

### **Please explain (including target coverage)**

In line with the fuel mix revamp proposed in the Government’s consultation document in 2014, the carbon intensity will be reduced by 50-60% by 2020 as compared with 2005. We are committed to low carbon development. Our strategies align closely with the Government’s policy to meet the challenging goal of reducing the carbon intensity. The Government proposed in its Consultation Document in 2015 that fuel mix with 50% gas, 25% nuclear and 25% coal and RE. We have started to construct a new gas fired unit, L10 at LPS in 2016. With higher efficiency, L10 will emit ≈ 25% less CO2 than an existing older gas-fired unit at LPS, for the same amount of electricity generated. In September 2016, the Government gave us the green light for the construction of another gas-fired generating unit, L11. This unit will replace an ageing, less efficient gas-fired unit scheduled to retire in 2022. Both L10 and L11 will feature advanced technology that will reduce carbon emissions by about 25% as compared with the gas-fired unit due to retire. After the commissioning of L10 and L11 in 2020 and 2022 respectively, the electricity we produce through gas-fired generation will increase to about 50% and 55%, contributing to achieving the Government' carbon intensity reduction target for the city.

## **C4.2**

### **(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Other climate-related target(s)

## **C4.2b**

### **(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

### **Target reference number**

Oth 1

### **Year target was set**

2019

### **Target coverage**

Company-wide

### **Target type: absolute or intensity**

Absolute

### **Target type: category & Metric (target numerator if reporting an intensity target)**

|  |  |
| --- | --- |
| Energy consumption or efficiency | kWh |

### **Target denominator (intensity targets only)**

<Not Applicable>

### **Base year**

2019

### **Figure or percentage in base year**

22975017

### **Target year**

2024

### **Figure or percentage in target year**

21826266

### **Figure or percentage in reporting year**

22975017

### **% of target achieved [auto-calculated]**

0

### **Target status in reporting year**

New

### **Is this target part of an emissions target?**

No

### **Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

### **Please explain (including target coverage)**

We target to reduce total electricity consumption of our key office premises including Hongkong Electric Centre, Electric Tower, Electric Centre and seven main buildings at LPS by 5% in 2024 as compared to the baseline figures in 2019.

### **Target reference number**

Oth 2

### **Year target was set**

2019

### **Target coverage**

Company-wide

### **Target type: absolute or intensity**

Absolute

### **Target type: category & Metric (target numerator if reporting an intensity target)**

|  |  |
| --- | --- |
| Resource consumption or efficiency | Other, please specify (Cubic metre of water consumed) |

### **Target denominator (intensity targets only)**

<Not Applicable>

### **Base year**

2019

### **Figure or percentage in base year**

55360

### **Target year**

2024

### **Figure or percentage in target year**

54807

### **Figure or percentage in reporting year**

55360

### **% of target achieved [auto-calculated]**

0

### **Target status in reporting year**

New

### **Is this target part of an emissions target?**

No

### **Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

### **Please explain (including target coverage)**

We target to reduce total water consumption of our key office premises including Hongkong Electric Centre, Electric Tower, Electric Centre and seven main buildings at LPS by 1% in 2024 as compared to the baseline figures in 2019.

### **Target reference number**

Oth 3

### **Year target was set**

2019

### **Target coverage**

Company-wide

### **Target type: absolute or intensity**

Absolute

### **Target type: category & Metric (target numerator if reporting an intensity target)**

|  |  |
| --- | --- |
| Waste management | metric tons of waste generated |

### **Target denominator (intensity targets only)**

<Not Applicable>

### **Base year**

2019

### **Figure or percentage in base year**

300

### **Target year**

2024

### **Figure or percentage in target year**

210

### **Figure or percentage in reporting year**

300

### **% of target achieved [auto-calculated]**

0

### **Target status in reporting year**

New

### **Is this target part of an emissions target?**

No

### **Is this target part of an overarching initiative?**

No, it's not part of an overarching initiative

### **Please explain (including target coverage)**

We target to reduce production of ash and gypsum at LPS by 30% in 2024 as compared to the baseline figures in 2019.

## **C4.3**

### **(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.**

Yes

## **C4.3a**

### **(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

|  |  |  |
| --- | --- | --- |
|  | **Number of initiatives** | **Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked \*)** |
| Under investigation | 0 |  |
| To be implemented\* | 1 | 28.35 |
| Implementation commenced\* | 1 | 251.82 |
| Implemented\* | 17 | 3078.41 |
| Not to be implemented | 0 |  |

## **C4.3b**

### **(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Transportation | Company fleet vehicle replacement |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

37.8

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

286240

### **Investment required (unit currency – as specified in C0.4)**

59600000

### **Payback period**

>25 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

As at the end of 2019, we owned and operated 149 EVs.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Low-carbon energy generation | Other, please specify (Wind and Solar PV (Our Lamma Winds and the Solar Power System at LPS)) |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

1417

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

523000

### **Investment required (unit currency – as specified in C0.4)**

5800000

### **Payback period**

11-15 years

### **Estimated lifetime of the initiative**

16-20 years

### **Comment**

Our Lamma Winds and the Solar Power System generated 1.7 GWh of electricity in 2019 which corresponds to a reduction of 1,417 MT CO2 emissions. Renewable Energy Certificates covering 1.7 GWh of zero carbon electricity generated by our Lamma Winds and Solar Power System were purchased by our customers to offset their scope 2 carbon emissions totalling 1,417 MT carbon dioxide emissions.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Transportation | Other, please specify (On-shore power supply for the operation of limestone and ash off-take barges when they berth at our LPS) |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

13

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

0

### **Investment required (unit currency – as specified in C0.4)**

706000

### **Payback period**

No payback

### **Estimated lifetime of the initiative**

16-20 years

### **Comment**

After the berthing of barges, cleaner electricity generated by LPS would be provided via our on-shore power supply facility instead of the barges’ diesel generators. This would eliminate the emission of pollutants caused by diesel engine combustion. In 2019, a total of 55,160 kWh on-shore power was supplied, which corresponds to a reduction of 13 MT CO2 emissions.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Lighting |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

12

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

17760

### **Investment required (unit currency – as specified in C0.4)**

133000

### **Payback period**

4-10 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Replacement of existing fluorescent lamps in buildings at LPS with LED lights for energy saving.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Heating, Ventilation and Air Conditioning (HVAC) |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

75.2

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

111410

### **Investment required (unit currency – as specified in C0.4)**

3158700

### **Payback period**

>25 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Upgrading of aged and deteriorated air conditioners with new ones of better COP at LPS

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Lighting |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

2.2

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

3172

### **Investment required (unit currency – as specified in C0.4)**

45063

### **Payback period**

11-15 years

### **Estimated lifetime of the initiative**

>30 years

### **Comment**

Lighting enhancement in Conference Room at our Electric Tower.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Lighting |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

11.8

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

17082

### **Investment required (unit currency – as specified in C0.4)**

96700

### **Payback period**

4-10 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Lighting enhancement at carpark at our Electric Centre

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Lighting |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

0.3

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

486

### **Investment required (unit currency – as specified in C0.4)**

2275

### **Payback period**

4-10 years

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Replacement of T8 fluorescent tubes to T5 type at one of our Station Buildings.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Lighting |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

11

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

16246

### **Investment required (unit currency – as specified in C0.4)**

168000

### **Payback period**

11-15 years

### **Estimated lifetime of the initiative**

11-15 years

### **Comment**

Replacement of T8 fluorescent tubes to T5 LED with motion sensor at one of our Station Buildings.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Lighting |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

53

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

75920

### **Investment required (unit currency – as specified in C0.4)**

49500

### **Payback period**

<1 year

### **Estimated lifetime of the initiative**

6-10 years

### **Comment**

Replacement of T5 fluorescent tubes to T5 LED with motion sensor at carpark of our Electric Tower

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in buildings | Other, please specify (Intelligent cooling control system on Supergrid Transformer ) |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

3.5

### **Scope(s)**

Scope 1

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

5116

### **Investment required (unit currency – as specified in C0.4)**

82691

### **Payback period**

16-20 years

### **Estimated lifetime of the initiative**

16-20 years

### **Comment**

Retrofitting of intelligent cooling control system on one of our Supergrid Transformers at one of our Station Buildings.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Company policy or behavioral change | Customer engagement |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

1.54

### **Scope(s)**

Scope 3

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

296520

### **Investment required (unit currency – as specified in C0.4)**

134000

### **Payback period**

<1 year

### **Estimated lifetime of the initiative**

11-15 years

### **Comment**

e-Bill and Autopay Promotion

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Other, please specify | Other, please specify (Digitisation of operation process to reduce paper consumption) |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

0.2

### **Scope(s)**

Scope 3

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

410

### **Investment required (unit currency – as specified in C0.4)**

0

### **Payback period**

No payback

### **Estimated lifetime of the initiative**

11-15 years

### **Comment**

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Company policy or behavioral change | Change in procurement practices |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

2.56

### **Scope(s)**

Scope 3

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

45044

### **Investment required (unit currency – as specified in C0.4)**

6311521

### **Payback period**

4-10 years

### **Estimated lifetime of the initiative**

>30 years

### **Comment**

E-procurement

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Other, please specify | Other, please specify (Provision of free energy audit and subsidies to our customers to implement energy efficiency projects (Demand Side Management)) |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

810

### **Scope(s)**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

1200000

### **Investment required (unit currency – as specified in C0.4)**

0

### **Payback period**

No payback

### **Estimated lifetime of the initiative**

11-15 years

### **Comment**

We conducted free energy audits for our non-residential customers to help them identify energy saving potential under Smart Power Energy Audit and subsidises building owners to enhance energy efficiency of communal building services under Smart Power Building Fund

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Other, please specify | Other, please specify (Feed-in Tariff Scheme. HK Electric will purchase all electricity generated by the grid-connected renewable energy power systems of customers at Feed-in Tariff rates.) |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

405

### **Scope(s)**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

600000

### **Investment required (unit currency – as specified in C0.4)**

0

### **Payback period**

No payback

### **Estimated lifetime of the initiative**

11-15 years

### **Comment**

HK Electric purchases all electricity generated by the grid-connected renewable energy power systems (REPS) of customers at Feed-in Tariff rates. In 2019, a total of 0.5 GWh zero carbon electricity were generated through Feed-in Tariff (FiT) Scheme which corresponds to a reduction of about 405 MT CO2 emissions. Renewable Energy Certificates covering about 2.3 GWh of zero carbon electricity generated by REPS of FiT customers and HK Electric were purchased by our customers to offset their scope 2 carbon emissions totalling over 1,800 MT carbon dioxide emissions.

### **Initiative category & Initiative type**

|  |  |
| --- | --- |
| Energy efficiency in production processes | Cooling technology |

### **Estimated annual CO2e savings (metric tonnes CO2e)**

222.31

### **Scope(s)**

Scope 2 (location-based)

### **Voluntary/Mandatory**

Voluntary

### **Annual monetary savings (unit currency – as specified in C0.4)**

360693

### **Investment required (unit currency – as specified in C0.4)**

3295000

### **Payback period**

4-10 years

### **Estimated lifetime of the initiative**

Ongoing

### **Comment**

AI-based cooling optimisation solution to reduce energy consumption for HK Electric's data centres. The major benefit is to reduce human effort in performing tracking and adjustment of the cooling facilities in data centres.

## **C4.3c**

### **(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

|  |  |
| --- | --- |
| **Method** | **Comment** |
| Other | Benchmarking with peer. Support Government’s energy policy and plan to meet the GHG emissions reduction target. |

## **C4.5**

### **(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

## **C4.5a**

### **(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

### **Level of aggregation**

Company-wide

### **Description of product/Group of products**

In response to environmental aspirations from the community, and in support of Government’s energy and environmental policy objectives, we launched a suite of “Smart Power Services” in 2019. Four funds and three schemes were devised to cater for different sectors of the community aiming at promoting energy efficiency in the community as well as supporting the local development of renewable energy. Our Smart Power Building Fund is to subsidise building owners for enhancing their energy efficiency of communal building service installations (HK$25 million allocated annually). In 2019, a total of about HK$23 million was subsidised to about 60 applications. We also provided free energy audit services to our non-residential customers to help them identify energy-saving opportunities at their premises. In 2019, we provided more than 200 free energy audits. In addition, we collaborated with banks to provide non-residential customers interest-subsidized loans to implement the energy initiatives identified in the energy audits under our Smart Power Loan Fund. On our corporate website, we offer two online tools – Electricity@Home and Electricity@Office – that allow customers to conduct virtual energy surveys, with details on power used for home appliances, energy efficiency, power quality and tariffs charged.

### **Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

### **Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Please select

### **% revenue from low carbon product(s) in the reporting year**

### **% of total portfolio value**

<Not Applicable>

### **Asset classes/ product types**

<Not Applicable>

### **Comment**

The low carbon services are part of the demand side management program implemented under the prevailing regulatory regime.

## **C-EU4.6**

### **(C-EU4.6) Describe your organization’s efforts to reduce methane emissions from your activities.**

Measures for methane emissions reduction at our LPS are as follows:

1. For routine maintenance of Natural Gas (NG) systems, the natural gas inside the NG equipment will be consumed by normal usage/ flare operation as far as practical before the systems are purged with inert gas and vent to atmosphere for safety at work. Thus, the amount of methane emitted to atmosphere is minimised.

2. Extensive gas leak detectors and CCTVs have been installed at the vicinities around the NG systems. These systems not only provide real time monitoring of the NG system but also give instantaneous warning in case of NG leakage. Our Operations Engineers can isolate the NG supply promptly to limit the NG leakage to minimal.

## **C5. Emissions methodology**

## **C5.1**

### **(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

### **Scope 1**

### **Base year start**

January 1 2005

### **Base year end**

December 31 2005

### **Base year emissions (metric tons CO2e)**

9940000

### **Comment**

### **Scope 2 (location-based)**

### **Base year start**

January 1 2005

### **Base year end**

December 31 2005

### **Base year emissions (metric tons CO2e)**

0

### **Comment**

HK Electric is a vertically integrated utility and does NOT purchase electricity or heat from others. All electricity is consumed locally and the losses in transmission and distribution of electricity are generated from HK Electric’s LPS. Hence, the Scope 2 emission is included in the Scope 1 emission which has been reported in accordance with the ISO 14064-1 requirements as verified by qualified independent assessor. To avoid double counting, the scope 2 emission reported is therefore "zero".

### **Scope 2 (market-based)**

### **Base year start**

January 1 2005

### **Base year end**

December 31 2005

### **Base year emissions (metric tons CO2e)**

0

### **Comment**

HK Electric is a vertically integrated utility and does NOT purchase electricity or heat from others. All electricity is consumed locally and the losses in transmission and distribution of electricity are generated from HK Electric’s LPS. Hence, the Scope 2 emission is included in the Scope 1 emission which has been reported in accordance with the ISO 14064-1 requirements as verified by qualified independent assessor. To avoid double counting, the scope 2 emission reported is therefore "zero".

## **C5.2**

### **(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

ISO 14064-1

Other, please specify (Hong Kong Environmental Protection Department, Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings, 2010)

## **C5.2a**

### **(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

Other - Hong Kong Environmental Protection Department, Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings, 2010

The principal sources of information used in developing the above HKEPD Guidelines are-

(a) GHG Protocol

(b) ISO 14064-1

## **C6. Emissions data**

## **C6.1**

### **(C6.1) What were your organization’s gross global Scope 1 emissions in metric tons CO2e?**

### **Reporting year**

### **Gross global Scope 1 emissions (metric tons CO2e)**

8510000

### **Start date**

January 1 2019

### **End date**

December 31 2019

### **Comment**

### **Past year 1**

### **Gross global Scope 1 emissions (metric tons CO2e)**

8410000

### **Start date**

January 1 2018

### **End date**

December 31 2018

### **Comment**

## **C6.2**

### **(C6.2) Describe your organization’s approach to reporting Scope 2 emissions.**

### **Row 1**

### **​Scope 2, location-based​**

We are reporting a Scope 2, location-based figure

### **Scope 2, market-based**

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

### **Comment**

HK Electric is a vertically integrated utility and does NOT purchase electricity or heat from others. All electricity is consumed locally and the losses in transmission and distribution of electricity are generated from HK Electric’s LPS. Hence, the Scope 2 emission is included in the Scope 1 emission which has been reported in accordance with the ISO 14064-1 requirements as verified by qualified independent assessor. To avoid double counting, the scope 2 emission reported is therefore "zero".

## **C6.3**

### **(C6.3) What were your organization’s gross global Scope 2 emissions in metric tons CO2e?**

### **Reporting year**

### **Scope 2, location-based**

0

### **Scope 2, market-based (if applicable)**

<Not Applicable>

### **Start date**

January 1 2019

### **End date**

December 31 2019

### **Comment**

HK Electric is a vertically integrated utility and does NOT purchase electricity or heat from others. All electricity is consumed locally and the losses in transmission and distribution of electricity are generated from HK Electric’s LPS. Hence, the Scope 2 emission is included in the Scope 1 emission which has been reported in accordance with the ISO 14064-1 requirements as verified by qualified independent assessor. To avoid double counting, the scope 2 emission reported is therefore "zero".

### **Past year 1**

### **Scope 2, location-based**

0

### **Scope 2, market-based (if applicable)**

<Not Applicable>

### **Start date**

January 1 2018

### **End date**

December 31 2018

### **Comment**

HK Electric is a vertically integrated utility and does NOT purchase electricity or heat from others. All electricity is consumed locally and the losses in transmission and distribution of electricity are generated from HK Electric’s LPS. Hence, the Scope 2 emission is included in the Scope 1 emission which has been reported in accordance with the ISO 14064-1 requirements as verified by qualified independent assessor. To avoid double counting, the scope 2 emission reported is therefore "zero".

## **C6.4**

### **(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

Yes

## **C6.4a**

### **(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

### **Source**

CO2 emissions from the limestone wet scrubbing process of the flue gas desulfurization plants

### **Relevance of Scope 1 emissions from this source**

Emissions are relevant but not yet calculated

### **Relevance of location-based Scope 2 emissions from this source**

No emissions from this source

### **Relevance of market-based Scope 2 emissions from this source (if applicable)**

Please select

### **Explain why this source is excluded**

According to the requirement of local Authority, Environmental Protection Department (EPD) of HKSAR, for reporting the GHG emissions, CO2 emissions from the limestone wet scrubbing process of the flue gas desulphurization plants need not be included in the corporate inventory and are therefore excluded. The relevant CO2 emissions are estimated to be of less than 0.5% of the total GHG emissions presented.

## **C6.5**

### **(C6.5) Account for your organization’s gross global Scope 3 emissions, disclosing and explaining any exclusions.**

### **Purchased goods and services**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

We published the HKEI’s Sustainability Reports (SR) 2019. There is no printed hard copywhile full version can be viewed online which aims to promote low carbon lifestyle and paper saving. As a result, there was no carbon emission associated with the production of SR2019. For other procurements, our local suppliers did not have any validated information available hence their emissions are not quantifiable at this stage.

### **Capital goods**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

Capital goods are sourced worldwide and we are unable to reliably estimate the embodied carbon emissions of the capital goods.

### **Fuel-and-energy-related activities (not included in Scope 1 or 2)**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

19686

### **Emissions calculation methodology**

We consumed 27,568 TJ of Liquefied Natural Gas (LNG) in 2019. 27,568 TJ of LNG is equivalent to approximately 26,129,420 mmBTU. We assume our daily boil off rate of LNG tanker is 0.2%/day and takes about 7 days from transportation process. Consequently, the estimated amount of LNG went into the shipping processes is equal to 26,129,420\*(1/(1-1.4%)-1) = 371,006 mmBTU. Using the emission factor provided by USEPA for LNG fuelled transportation is 53.06 kg CO2/mmBtu. 371,006 mmBTU\*53.06 kgCO2/mmBtu = 19,686 MT CO2 \*Note that the emission factor by USEPA for LNG transport is found on the "Emission Factors for Greenhouse Gas Inventories" Report published by USEPA and updated in March 2018.

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

### **Please explain**

Transportation of LNG from upstream LNG source to Guangdong Dapeng LNG Terminal.

### **Upstream transportation and distribution**

### **Evaluation status**

Relevant, not yet calculated

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

### **Waste generated in operations**

### **Evaluation status**

Relevant, not yet calculated

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

### **Business travel**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

151.01

### **Emissions calculation methodology**

Advised by airline company

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Please explain**

We purchased carbon credits from the airline company to offset the relevant emissions from business travel by air flight.

### **Employee commuting**

### **Evaluation status**

Relevant, calculated

### **Metric tonnes CO2e**

58.58

### **Emissions calculation methodology**

Advised by commuting bus service provider

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

100

### **Please explain**

### **Upstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

All of our assets are owned and operated by the company itself. Therefore, this is not relevant.

### **Downstream transportation and distribution**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

Our core business is to generate and sell electricity to all residents of the Hong Kong Island and Lamma Island. When compared to the Scope 1 emissions that would arise from our overall operations, Scope 3 emissions that come from the T&D system is therefore very insignificant.

### **Processing of sold products**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

As an electricity generation company, our primary product is used by each and every product/service provider on the Hong Kong Island and Lamma Island. Therefore, it is practically impossible for us to estimate the associated Scope 3 emissions that would arise from this aspect.

### **Use of sold products**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

As an electricity generation company, our primary product is used by each and every product/service provider as well as end users on the Hong Kong Island and Lamma Island. Therefore, it is practically impossible for us to estimate the associated Scope 3 emissions that would arise from this aspect.

### **End of life treatment of sold products**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

As an electricity generation company, our primary product is electricity. Therefore, no end-of-life treatment is required.

### **Downstream leased assets**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

No longer applicable. After spin-off in 2014, HKEI does not have any operations downstream leased assets.

### **Franchises**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

We do not adopt the franchises model for its business. Therefore, this is not relevant.

### **Investments**

### **Evaluation status**

Not relevant, explanation provided

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

HK Electric does not have any invested assets. Therefore, this is not relevant.

### **Other (upstream)**

### **Evaluation status**

Not evaluated

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

### **Other (downstream)**

### **Evaluation status**

Not evaluated

### **Metric tonnes CO2e**

<Not Applicable>

### **Emissions calculation methodology**

<Not Applicable>

### **Percentage of emissions calculated using data obtained from suppliers or value chain partners**

<Not Applicable>

### **Please explain**

## **C6.7**

### **(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?**

No

## **C6.10**

### **(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

### **Intensity figure**

0.000664

### **Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

8510000

### **Metric denominator**

unit total revenue

### **Metric denominator: Unit total**

12822000000

### **Scope 2 figure used**

Location-based

### **% change from previous year**

13.3

### **Direction of change**

Increased

### **Reason for change**

Due to increase of CO2e emission and decrease of our revenue in 2019.

### **Intensity figure**

0.81

### **Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

8510000

### **Metric denominator**

Other, please specify (megawatt hour electricity sold)

### **Metric denominator: Unit total**

10519000

### **Scope 2 figure used**

Location-based

### **% change from previous year**

1.25

### **Direction of change**

Increased

### **Reason for change**

Due to increase of CO2e emission and decrease of electricity sold in 2019

### **Intensity figure**

4808

### **Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

8510000

### **Metric denominator**

full time equivalent (FTE) employee

### **Metric denominator: Unit total**

1770

### **Scope 2 figure used**

Location-based

### **% change from previous year**

0.8

### **Direction of change**

Increased

### **Reason for change**

Due to increase of CO2e emission in 2019.

## **C7. Emissions breakdowns**

## **C7.1**

### **(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

Yes

## **C7.1a**

### **(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

|  |  |  |
| --- | --- | --- |
| **Greenhouse gas** | **Scope 1 emissions (metric tons of CO2e)** | **GWP Reference** |
| CO2 | 8480864 | IPCC Second Assessment Report (SAR - 100 year) |
| CH4 | 4537 | IPCC Second Assessment Report (SAR - 100 year) |
| N2O | 11897 | IPCC Second Assessment Report (SAR - 100 year) |
| HFCs | 450 | IPCC Second Assessment Report (SAR - 100 year) |
| PFCs | 7 | IPCC Second Assessment Report (SAR - 100 year) |
| SF6 | 11468 | IPCC Second Assessment Report (SAR - 100 year) |

## **C-EU7.1b**

### **(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Gross Scope 1 CO2 emissions (metric tons CO2)** | **Gross Scope 1 methane emissions (metric tons CH4)** | **Gross Scope 1 SF6 emissions (metric tons SF6)** | **Total gross Scope 1 emissions (metric tons CO2e)** | **Comment** |
| Fugitives | 9 | 13.2 | 0.48 | 12211 | GHG emissions under ''Total gross Scope 1 emissions (metric tons CO2e)'' includes CO2, CH4, SF6, HFCs and PFCs. |
| Combustion (Electric utilities) | 8478612 | 202.7 | 0 | 8494730 | GHG emissions under ''Total gross Scope 1 emissions (metric tons CO2e)'' includes CO2, CH4 and N2O. |
| Combustion (Gas utilities) | 0 | 0 | 0 | 0 |  |
| Combustion (Other) | 2243 | 0.14 | 0 | 2281 | GHG emissions under ''Total gross Scope 1 emissions (metric tons CO2e)'' includes CO2, CH4 and N2O. |
| Emissions not elsewhere classified | 0 | 0 | 0 | 0 |  |

## **C7.2**

### **(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

|  |  |
| --- | --- |
| **Country/Region** | **Scope 1 emissions (metric tons CO2e)** |
| China, Hong Kong Special Administrative Region | 8510000 |

## **C7.3**

### **(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By activity

## **C7.3c**

### **(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

|  |  |
| --- | --- |
| **Activity** | **Scope 1 emissions (metric tons CO2e)** |
| Generation activities | 8496631 |
| Transmission and distribution activities | 13369 |

## **C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4**

### **(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization’s total gross global Scope 1 emissions by sector production activity in metric tons CO2e.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Gross Scope 1 emissions, metric tons CO2e** | **Net Scope 1 emissions , metric tons CO2e** | **Comment** |
| Cement production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Chemicals production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Coal production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Electric utility activities | 8510000 | <Not Applicable> | For electricity generation only |
| Metals and mining production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (upstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (midstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Oil and gas production activities (downstream) | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Steel production activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport OEM activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Transport services activities | <Not Applicable> | <Not Applicable> | <Not Applicable> |

## **C7.9**

### **(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Increased

## **C7.9a**

### **(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Change in emissions (metric tons CO2e)** | **Direction of change** | **Emissions value (percentage)** | **Please explain calculation** |
| Change in renewable energy consumption |  | <Not Applicable> |  |  |
| Other emissions reduction activities |  | <Not Applicable> |  |  |
| Divestment |  | <Not Applicable> |  |  |
| Acquisitions |  | <Not Applicable> |  |  |
| Mergers |  | <Not Applicable> |  |  |
| Change in output |  | <Not Applicable> |  |  |
| Change in methodology |  | <Not Applicable> |  |  |
| Change in boundary |  | <Not Applicable> |  |  |
| Change in physical operating conditions | 100000 | Increased | 1.19 | Due to decreased thermal efficiency of the power plant. |
| Unidentified |  | <Not Applicable> |  |  |
| Other |  | <Not Applicable> |  |  |

## **C7.9b**

### **(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Location-based

## **C8. Energy**

## **C8.1**

### **(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 70% but less than or equal to 75%

## **C8.2**

### **(C8.2) Select which energy-related activities your organization has undertaken.**

|  |  |
| --- | --- |
|  | **Indicate whether your organization undertook this energy-related activity in the reporting year** |
| Consumption of fuel (excluding feedstocks) | Yes |
| Consumption of purchased or acquired electricity | No |
| Consumption of purchased or acquired heat | No |
| Consumption of purchased or acquired steam | No |
| Consumption of purchased or acquired cooling | No |
| Generation of electricity, heat, steam, or cooling | Yes |

## **C8.2a**

### **(C8.2a) Report your organization’s energy consumption totals (excluding feedstocks) in MWh.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Heating value** | **MWh from renewable sources** | **MWh from non-renewable sources** | **Total (renewable and non-renewable) MWh** |
| Consumption of fuel (excluding feedstock) | LHV (lower heating value) | 0 | 8497 | 8497 |
| Consumption of purchased or acquired electricity | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired heat | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired steam | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of purchased or acquired cooling | <Not Applicable> | <Not Applicable> | <Not Applicable> | <Not Applicable> |
| Consumption of self-generated non-fuel renewable energy | <Not Applicable> | 0 | <Not Applicable> | 0 |
| Total energy consumption | <Not Applicable> | 0 | 8497 | 8497 |

## **C8.2b**

### **(C8.2b) Select the applications of your organization’s consumption of fuel.**

|  |  |
| --- | --- |
|  | **Indicate whether your organization undertakes this fuel application** |
| Consumption of fuel for the generation of electricity | Yes |
| Consumption of fuel for the generation of heat | No |
| Consumption of fuel for the generation of steam | No |
| Consumption of fuel for the generation of cooling | No |
| Consumption of fuel for co-generation or tri-generation | No |

## **C8.2c**

### **(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

### **Fuels (excluding feedstocks)**

Diesel

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

7806

### **MWh fuel consumed for self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

0

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

<Not Applicable>

### **MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

### **Emission factor**

0.07333

### **Unit**

metric tons CO2 per GJ

### **Emissions factor source**

Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories

### **Comment**

The original emission factor in Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories is 20.2 metric tons carbon per TJ. There is no same unit (i.e. metric tons carbon per TJ) can be selected in ''Unit'' above, hence, an emission factor is then calculated to align with the unit ''metric tons CO2 per GJ'', i.e. 0.07333 = 20.2/1000\*0.99\*44/12

### **Fuels (excluding feedstocks)**

Petrol

### **Heating value**

LHV (lower heating value)

### **Total fuel MWh consumed by the organization**

691

### **MWh fuel consumed for self-generation of electricity**

0

### **MWh fuel consumed for self-generation of heat**

0

### **MWh fuel consumed for self-generation of steam**

<Not Applicable>

### **MWh fuel consumed for self-generation of cooling**

<Not Applicable>

### **MWh fuel consumed for self-cogeneration or self-trigeneration**

<Not Applicable>

### **Emission factor**

0.06861

### **Unit**

metric tons CO2 per GJ

### **Emissions factor source**

Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories

### **Comment**

The original emission factor in Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories is 18.9 metric tons carbon per TJ. There is no same unit (i.e. metric tons carbon per TJ) can be selected in ''Unit'' above, hence, an emission factor is then calculated to align with the unit ''metric tons CO2 per GJ'', i.e. 0.06861 = 18.9/1000\*0.99\*44/12

## **C-EU8.2d**

### **(C-EU8.2d) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.**

### **Coal – hard**

### **Nameplate capacity (MW)**

2000

### **Gross electricity generation (GWh)**

### **Net electricity generation (GWh)**

7601

### **Absolute scope 1 emissions (metric tons CO2e)**

7095295

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

933.5

### **Comment**

The electricity generations and emissions figures above cover coal/oil fuels. Fuel oil is mainly used for starting and flame stabilisation of coal-fired units and hence, specific breakdown for fuel oil is not given.

### **Lignite**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Oil**

### **Nameplate capacity (MW)**

555

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

The above are oil fired industrial gas turbine units operated as peak lopping units and no electricity generation recorded in 2019.

### **Gas**

### **Nameplate capacity (MW)**

680

### **Gross electricity generation (GWh)**

### **Net electricity generation (GWh)**

3287

### **Absolute scope 1 emissions (metric tons CO2e)**

1399435

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

425.7

### **Comment**

### **Biomass**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Waste (non-biomass)**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Nuclear**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Fossil-fuel plants fitted with CCS**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Geothermal**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Hydropower**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Wind**

### **Nameplate capacity (MW)**

0.8

### **Gross electricity generation (GWh)**

### **Net electricity generation (GWh)**

0.69

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Solar**

### **Nameplate capacity (MW)**

1

### **Gross electricity generation (GWh)**

### **Net electricity generation (GWh)**

1.07

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Marine**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Other renewable**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Other non-renewable**

### **Nameplate capacity (MW)**

0

### **Gross electricity generation (GWh)**

0

### **Net electricity generation (GWh)**

0

### **Absolute scope 1 emissions (metric tons CO2e)**

0

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

0

### **Comment**

### **Total**

### **Nameplate capacity (MW)**

3236.8

### **Gross electricity generation (GWh)**

### **Net electricity generation (GWh)**

10890

### **Absolute scope 1 emissions (metric tons CO2e)**

8494730

### **Scope 1 emissions intensity (metric tons CO2e per GWh)**

780

### **Comment**

## **C-EU8.4**

### **(C-EU8.4) Does your electric utility organization have a transmission and distribution business?**

Yes

## **C-EU8.4a**

### **(C-EU8.4a) Disclose the following information about your transmission and distribution business.**

### **Country/Region**

China, Hong Kong Special Administrative Region

### **Voltage level**

Transmission (high voltage)

### **Annual load (GWh)**

### **Annual energy losses (% of annual load)**

1.3

### **Scope where emissions from energy losses are accounted for**

Scope 1

### **Emissions from energy losses (metric tons CO2e)**

### **Length of network (km)**

441

### **Number of connections**

### **Area covered (km2)**

### **Comment**

Transmission (275 kV & 132 kV)

### **Country/Region**

China, Hong Kong Special Administrative Region

### **Voltage level**

Distribution (low voltage)

### **Annual load (GWh)**

### **Annual energy losses (% of annual load)**

2.1

### **Scope where emissions from energy losses are accounted for**

Scope 1

### **Emissions from energy losses (metric tons CO2e)**

### **Length of network (km)**

3918

### **Number of connections**

### **Area covered (km2)**

### **Comment**

Distribution (22 kV & 11 kV)

## **C9. Additional metrics**

## **C9.1**

### **(C9.1) Provide any additional climate-related metrics relevant to your business.**

### **Description**

Energy usage

### **Metric value**

110564

### **Metric numerator**

Terajoule

### **Metric denominator (intensity metric only)**

### **% change from previous year**

0.13

### **Direction of change**

Increased

### **Please explain**

For electricity generation only.

### **Description**

Waste

### **Metric value**

300

### **Metric numerator**

kilotonnes

### **Metric denominator (intensity metric only)**

### **% change from previous year**

1.3

### **Direction of change**

Decreased

### **Please explain**

These waste figures cover ash and gypsum produced from power generation process. All our ash and gypsum produced were collected for industrial uses so the recycling rate is 100%.

### **Description**

Other, please specify (Town water consumption)

### **Metric value**

2353

### **Metric numerator**

thousand cubic meter

### **Metric denominator (intensity metric only)**

### **% change from previous year**

7.6

### **Direction of change**

Increased

### **Please explain**

A water collection system is in operation at Lamma Power Station to collect rainwater and plant processing water for reuse. In 2019, approximately 121,000 cubic meter of water was collected and reused, thereby reducing our consumption of fresh water and discharge of wastewater.

## **C-EU9.5a**

### **(C-EU9.5a) Break down, by source, your total planned CAPEX in your current CAPEX plan for power generation.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Primary power generation source** | **CAPEX planned for power generation from this source** | **Percentage of total CAPEX planned for power generation** | **End year of CAPEX plan** | **Comment** |
| Gas | 16224400000 | 61 | 2023 |  |

## **C-EU9.5b**

### **(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Products and services** | **Description of product/service** | **CAPEX planned for product/service** | **Percentage of total CAPEX planned products and services** | **End of year CAPEX plan** |
| Other, please specify (Transmission & Distribution System) | New transmission facilities required by the new gas-fired units, cable replacement, construction of new zone substations in Eastern and Central Districts, as well as installation of smart meters to build an intelligent information exchange platform for customer energy management to facilitate Hong Kong's transformation into a smart city. | 9064600000 | 34 | 2023 |
| Other, please specify (Customer services) | Improve and enhance grid intelligence and automation features. Reinforce and enhance remote control and monitoring system. | 1297300000 | 5 | 2023 |

## **C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6**

### **(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?**

|  |  |  |
| --- | --- | --- |
|  | **Investment in low-carbon R&D** | **Comment** |
| Row 1 | No |  |

## **C10. Verification**

## **C10.1**

### **(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

|  |  |
| --- | --- |
|  | **Verification/assurance status** |
| Scope 1 | Third-party verification or assurance process in place |
| Scope 2 (location-based or market-based) | Third-party verification or assurance process in place |
| Scope 3 | No third-party verification or assurance |

## **C10.1a**

### **(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.**

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Type of verification or assurance**

Limited assurance

### **Attach the statement**

[HK Electric ISO 14064 Verification Statement 2019.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rOBneNxvUUqOVVVnqViIOg/HKElectricISO14064VerificationStatement2019.pdf)

### **Page/ section reference**

all

### **Relevant standard**

ISO14064-3

### **Proportion of reported emissions verified (%)**

100

## **C10.1b**

### **(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.**

### **Scope 2 approach**

Scope 2 location-based

### **Verification or assurance cycle in place**

Annual process

### **Status in the current reporting year**

Complete

### **Type of verification or assurance**

Limited assurance

### **Attach the statement**

[HK Electric ISO 14064 Verification Statement 2019.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/rOBneNxvUUqOVVVnqViIOg/HKElectricISO14064VerificationStatement2019.pdf)

### **Page/ section reference**

all

### **Relevant standard**

ISO14064-3

### **Proportion of reported emissions verified (%)**

100

## **C10.2**

### **(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

No, we do not verify any other climate-related information reported in our CDP disclosure

## **C11. Carbon pricing**

## **C11.1**

### **(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

No, and we do not anticipate being regulated in the next three years

## **C11.2**

### **(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

Yes

## **C11.2a**

### **(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

### **Credit origination or credit purchase**

Credit purchase

### **Project type**

Energy efficiency: households

### **Project identification**

In 2019, 151.01 tonnes of CO2e emissions from our business travel by air were offset by two carbon offset projects from the airline company. However, no breakdown of carbon credits purchased in terms of carbon offset project is provided by the airline company. Below is the project description of one of the carbon offset projects:- Bondhu Chula Cookstoves in Bangladesh. 90% of the 160 million Bangladeshis cook on “three-stone” open fires in their homes, which wastes energy and produces smoke that causes more than 45,000 premature deaths a year. The Bondhu Chula, or the ‘friendly stove’, is designed to ensure a more efficient burn reducing fuel use and the chimney takes the harmful pollutants out of the house. The project employs local entrepreneurs to produce and distribute the stoves. Fuel consumption can be reduced by approximately 50%, leaving families with more disposable income and better health.

### **Verified to which standard**

Gold Standard

### **Number of credits (metric tonnes CO2e)**

### **Number of credits (metric tonnes CO2e): Risk adjusted volume**

### **Credits cancelled**

Yes

### **Purpose, e.g. compliance**

Voluntary Offsetting

### **Credit origination or credit purchase**

Credit purchase

### **Project type**

Biomass energy

### **Project identification**

In 2019, 151.01 tonnes of CO2e emissions from our business travel by air were offset by two carbon offset projects from the airline company. However, no breakdown of carbon credits purchased in terms of carbon offset project is provided by the airline. Below is the project description of one of the carbon offset projects:- Generating clean energy from organic food waste in India. An estimated 240 million people in India are without electricity. Those who are connected suffer from poor output and regular power shortages. This causes residents to turn to natural resources for fuel, which can be harmful to health but also the local environment. The project will distribute over 15,000 biodigestors across India to replace fuelwood grid electricity and other fossil fuels. These units can be used to produce cooking gas, heat or even electricity on the larger scale units. Poor households benefit from saving on fuel costs and cleaner air. The slurry generated by the units can also be used as an organic fertilizer, reducing the use of chemical fertilizer.

### **Verified to which standard**

Gold Standard

### **Number of credits (metric tonnes CO2e)**

### **Number of credits (metric tonnes CO2e): Risk adjusted volume**

### **Credits cancelled**

Yes

### **Purpose, e.g. compliance**

Voluntary Offsetting

## **C11.3**

### **(C11.3) Does your organization use an internal price on carbon?**

No, and we do not currently anticipate doing so in the next two years

## **C12. Engagement**

## **C12.1**

### **(C12.1) Do you engage with your value chain on climate-related issues?**

Yes, our suppliers

Yes, our customers

## **C12.1a**

### **(C12.1a) Provide details of your climate-related supplier engagement strategy.**

### **Type of engagement**

Compliance & onboarding

### **Details of engagement**

Climate change is integrated into supplier evaluation processes

### **% of suppliers by number**

### **% total procurement spend (direct and indirect)**

### **% of supplier-related Scope 3 emissions as reported in C6.5**

### **Rationale for the coverage of your engagement**

### **Impact of engagement, including measures of success**

### **Comment**

Suppliers and contractors are required to register under the Company's Recognized Tenderers Register before tendering for the Company's contracts. For entry, The Company’s Code of Practice for Suppliers (the Code) covering climate-related issues is issued for suppliers and contractors to comply with. The Code can be accessed via the link below: https://www.hkelectric.com/en/corporate-social-responsibility/enhancing-supplier-partnership

## **C12.1b**

### **(C12.1b) Give details of your climate-related engagement strategy with your customers.**

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Run an engagement campaign to education customers about your climate change performance and strategy

### **% of customers by number**

### **% of customer - related Scope 3 emissions as reported in C6.5**

### **Portfolio coverage (total or outstanding)**

<Not Applicable>

### **Please explain the rationale for selecting this group of customers and scope of engagement**

We empower our customers with information to make better choices. Our electricity bills for residential customers contain data on electricity use, including monthly per capita consumption and carbon emissions per unit of electricity consumed. We offer a load profile enquiry service for non-residential customers to help them make better use of energy as part of their overall business strategy.

### **Impact of engagement, including measures of success**

### **Type of engagement**

Education/information sharing

### **Details of engagement**

Run an engagement campaign to education customers about your climate change performance and strategy

### **% of customers by number**

### **% of customer - related Scope 3 emissions as reported in C6.5**

### **Portfolio coverage (total or outstanding)**

<Not Applicable>

### **Please explain the rationale for selecting this group of customers and scope of engagement**

The vast majority of Hong Kong’s energy-saving opportunities arise in our built environment. Our policy is to engage regularly with various stakeholders in the community, including building owners, district council members and property managers, to promote energy efficiency and conservation. In 2019, we carried out more than 200 free energy audits for non-residential customers. These audits not only identify practical measures for energy saving, but also qualify eligible customers to apply for the Energy Efficiency Loan Scheme offered by collaborating banks for carrying out improvement works.

### **Impact of engagement, including measures of success**

For owners of residential buildings, subsidies are available through our Smart Power Fund on a 50/50 matching basis to implement projects that will improve the energy efficiency of existing building services installations for communal use. These projects often involve the installation of more energy-efficient lift driving systems, public lighting and air-conditioners. In response to environmental aspirations from the community, and in support of Government’s energy and environmental policy objectives, we launched a suite of “Smart Power Services” in 2018. Seven funding and service schemes were devised to cater for different sectors of the community aiming at promoting energy efficiency in the community as well as supporting the local development of renewable energy.

## **C12.3**

### **(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Direct engagement with policy makers

Trade associations

Other

## **C12.3a**

### **(C12.3a) On what issues have you been engaging directly with policy makers?**

|  |  |  |  |
| --- | --- | --- | --- |
| **Focus of legislation** | **Corporate position** | **Details of engagement** | **Proposed legislative solution** |
| Clean energy generation | Support | Details of engagement through various meetings and public seminars, General Manager (Corporate Development) engaged different stakeholders to outline HK Electric's effort and future plans on how to reduce emissions from electrical generation by substituting it with cleaner fuel as well as renewable energy. During the public consultation on future fuel mix in 2014, future electricity market development in 2015 and Long-term Decarbonisation Strategy Public Engagement in 2019, we lobbied the public and policy makers on promoting local clean gas generation and renewable energy in Hong Kong. | Increase local gas generation and develop indigenous RE |
| Energy efficiency | Support | We engage with relevant stakeholders including district councils, district councillors to promote our schemes for EE&C and renewable energy under our Smart Power Services. Chairmen of the relevant sub-committees under the district councils are also invited to join the vetting committee of our building fund program responsible for selecting building energy efficiency enhancement projects for subsidy. |  |

## **C12.3b**

### **(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

## **C12.3c**

### **(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

### **Trade association**

Business Environment Council

### **Is your position on climate change consistent with theirs?**

Consistent

### **Please explain the trade association’s position**

Business Environment Council (BEC) is the longest running independent, non-profit organization in Hong Kong promoting corporate, social and environmental responsibility. It aims to partner with the government, business and community organizations to address environmental concerns, with the overall objective of improving performance, and moving Hong Kong towards a more sustainable community and low carbon city. BEC considers climate change as an important global issue and the issue of climate change has risen from a marginal to a key business issue. BEC urged the Government, policy makers and business leaders to lead the fight against global warming by taking proactive measures to reduce the impact of carbon emissions associated with our economic development.

### **How have you influenced, or are you attempting to influence their position?**

Advocating use of low carbon fuel, e.g. natural gas and indigenous RE, and transforming Hong Kong to a low carbon and smart city.

## **C12.3e**

### **(C12.3e) Provide details of the other engagement activities that you undertake.**

We engage relevant stakeholders to promote electric living, deployment of renewable energy, EE&C and Electric Vehicle Charging support services to our customers via different channels (e.g. the corporate website, social media, public talks and seminars, etc.).

## **C12.3f**

### **(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Our management approach strives to balance the environmental issues and is manifested in the various policies and management systems we have implemented to drive our business forward, namely our corporate CSR policy, Environmental and Quality policies, and our environmental management, quality management and assets management systems. We have an Environment Committee to oversee the Company’s adherence to CSR and Environmental Policies and to coordinate engagements with the relevant stakeholders to ensure all of our direct and indirect activities that may have influence on policies are consistent with our overall climate change strategy. In addition, we also advocate a philosophy of total caring: caring for our people, our community, and our environment. We believe that our business is only sustainable if operations are in harmony with the society and with our surroundings. We have nurtured a Total Caring culture, with its implementation best reflected in the work of our CSR Committee, which is chaired by the CEO and drives our CSR efforts across the Company.

## **C12.4**

### **(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

### **Publication**

In mainstream reports

### **Status**

Complete

### **Attach the document**

[2019\_HKEI\_AR\_E\_FULL.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/Vwgdf860KEm5ZS7C6tQ4Vg/2019HKEIAREFULL.pdf)

[2019\_HKEI\_AR\_E\_FULL.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/JnqxL4Ic0U6v6lhIha8VZw/2019HKEIAREFULL.pdf)

### **Page/Section reference**

### **Content elements**

Governance

Strategy

Risks & opportunities

### **Comment**

### **Publication**

In mainstream reports

### **Status**

Complete

### **Attach the document**

[SR2019E.pdf](https://www.cdp.net/en/formatted_responses/files?file_path=k9me76vz7u2sozvqoi2gbw-cdp-credit360-com/4-7XHiJh50i2USC6XkOajA/SR2019E.pdf)

### **Page/Section reference**

### **Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

### **Comment**

## **C15. Signoff**

## **C-FI**

### **(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

## **C15.1**

### **(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

|  |  |  |
| --- | --- | --- |
|  | **Job title** | **Corresponding job category** |
| Row 1 | Chief Executive Officer. The CEO of HKEI is also the Managing Director of HK Electric. | Chief Executive Officer (CEO) |