LCQ1: Enhancing stability of power supply systems

Following is a question by Dr the Hon Chow Man-kong and a reply by the Secretary for Environment and Ecology, Mr Tse Chin-wan, in the Legislative Council today (July 17):

Question:

It is learnt that the frequent occurrence of power supply incidents in recent years has aroused public concern about the stability of the power supply systems of the two power companies and their capability to respond to incidents in a timely manner. In this connection, will the Government inform this Council:

(1) of the number of power supply incidents of the two power companies since July 2021, with a breakdown by cause (e.g. impact of inclement weather, ageing of facilities and human factors) and the respective percentages; in respect of each incident, the district(s) and the number of customers affected, the time taken from the outage to the full resumption of normal power supply, the manpower deployed for emergency repair, as well as the measures taken for the full resumption of normal power supply;

(2) as it is learnt that in the past three months, the power supply system of CLP Power Hong Kong Limited broke down twice when the Thunderstorm Warning was in force, of the contingency measures put in place by the authorities and the two power companies at the present stage to enhance the capability of the power supply systems to withstand the impact of thunderstorms and other inclement weather conditions, and the relevant measures in the long term; the estimated cost of such measures and whether the cost will be passed on to the customers; and

(3) as there are views that with the Government's promotion of the development of digital infrastructure including data centres and the increasing popularity of electric vehicles in recent years, the demand for power in the community is increasing, whether the Government will, apart from urging the two power companies to enhance the capability of their power supply systems to cope with incidents, consider introducing other proposals to enhance the reliability and stability of power supply?

Reply:

President,

A stable and reliable power supply is very important to the daily lives of the public and every level of economic activities in Hong Kong. Recently, there have been a number of voltage dips and power supply interruption incidents of CLP Hong Kong Power Limited (CLP), and the frequency of these

incidents has led to concerns about whether CLP's service quality is on the decline. The Government is of the view that CLP needs to examine its company culture and management system for the entire power supply system to identify the root causes of the problem, make fundamental improvements to reduce the chances of similar incidents in the future, and maintain the stable and reliable power supply that Hong Kong has always been proud of.

On this, the Government has requested CLP to allocate resources for an independent consultant. The Electrical and Mechanical Services Department (EMSD) will be responsible for engaging an independent consultant to conduct a comprehensive examination of the causes of all voltage dips and power supply interruption incidents in the past three years and the capability of the entire power system to withstand the impact of external factors, and provide comprehensive recommendations on how to enhance the stability and reliability of the power supply. The Hongkong Electric Company Limited (HEC) has also pledged to take adequate measures to enhance the capability of power supply systems to withstand adverse weather.

In response to the question raised by Dr the Hon Chow Man-kong, my reply is as follows:

(1) From July 2021 till now, according to the reporting mechanism established between the EMSD and the two power companies, there were 26 significant power outage incidents in the power system of CLP, and five for HEC. Members may refer to the Annex for details of each incident.

The causes for power outage incidents are mainly classified into external factors (such as adverse weather and third-party interference) and internal factors (such as equipment fault). Among the 26 power outage incidents of CLP, 10 were caused by external factors, accounting for 38 per cent; 15 were caused by internal factors, accounting for 58 per cent; and the cause of one incident is to under review and to be confirmed by the EMSD, accounting for four per cent. Among the five power outage incidents of HEC, three were caused by external factors, accounting for 60 per cent; and two were caused by internal factors, accounting for 40 per cent.

With a view to restoring power supply as soon as practicable after power outage incidents, the two power companies would assess the situation instantly and deploy suitable professionals to the scene to identify the location of the incident and arrange for repair. The power companies would, based on the actual situations, adopt the most appropriate and effective power supply restoration plan, such as emergency repair, remote switching of alternative power, arranging temporary mobile generators and laying temporary power cables.

(2) Regarding measures in response to the increasingly frequent extreme weather, the Director of Electrical and Mechanical Services (DEMS) visited the two power companies earlier to receive briefings on the relevant work of the two power companies. In response to DEMS' requests, the two power companies have pledged to take adequate measures to enhance the capability of power supply systems to withstand adverse weather. CLP stated that it would:

(1) further increase manpower and adopt innovative technology to conduct inspections and maintenance of key facilities; (2) install lightning protection systems on some outdoor power facilities and flood prevention devices in electrical substations, as well as expedite renewal of power supply equipment; and (3) carry out a comprehensive review on management of CLP's power supply system. HEC stated that although most of its high-voltage cables are buried underground and are generally not affected by thunderstorm, in light of the more frequent extreme weather recently, HEC has gradually installed bund walls and flooding alarm/sump pump systems in relevant electrical substations which may be affected.

After the voltage dip incident occurred in CLP's 400kV overhead line power supply system connecting Yuen Long and Shenzhen in the early morning on June 23, 2024, the EMSD immediately followed up with CLP on how to enhance the lightning protection capability of power supply system. In addition, the EMSD has established a task force to solemnly follow up on the improvement measures proposed by CLP, with an aim to mitigating the impact of extreme weather on the power supply system. CLP stated that, with a view to ensuring a reliable power supply during peak demand periods, particularly during scorching summer days with sharply increased demand, CLP will continue to monitor the demand of the power supply system.

Regarding the capital projects of the two power companies to strengthen their power supply systems to withstand adverse weather, the Government has been stringently carrying out the gate-keeping duties under the framework of the Scheme of Control Agreements and scrutinises the capital expenditures of the two power companies to avoid increase in profits through premature, excessive or unnecessary investments, as well as requests the power companies to exercise stringent control over operating costs, with a view to preventing them from passing unnecessary costs onto citizens.

(3) The objectives of the Government's energy policies are to ensure that the energy needs of the community are met safely, reliably and efficiently at reasonable prices, to minimise the environmental impact of energy production and use, and to promote the efficient use and conservation of energy. We keep an open mind to any technically and financially feasible plans which can enhance the reliability and stability of the power supply. In addition to monitoring the performances of the two power companies, we are also actively exploring the enhancement of co-operation with neighbouring regions and the directions of co-operation on zero-carbon energy projects near Hong Kong, as well as identifying more sources of zero carbon energy supplies which will help stabilise tariff in the long run while ensuring stable and clean energy supply for Hong Kong.

Furthermore, the EMSD will continue to monitor the operation of the power companies, including strengthening the routine regulation and inspection of the two power companies' facilities to ensure that the two power companies provide safe and reliable power supply to the public. To further enhance the safety and reliability of the power supply system, the EMSD has requested the two power companies to adopt various innovative technologies to analyse the health conditions of power supply equipment,

thereby optimising the efficiency of maintenance work as well as enhancing the reliability of electricity supply.

Thank you.