

LCQ21: Ensuring stable electricity supply

Following is a question by the Hon Adrian Ho and a written reply by the Secretary for Environment and Ecology, Mr Tse Chin-wan, in the Legislative Council today (January 31):

Question:

Two power incidents involving CLP Power Hong Kong Limited (CLP) occurred in the same week this month, with the first one affecting a substation, and the second one which took place in the transformer room of a public rental housing estate even resulted in power outage at one point. Some members of the public are gravely concerned about the successive incidents involving electricity facilities. They are concerned about the safety, stability and reliability of electricity supply in Hong Kong, with worries about potential threats to their daily lives and safety. In this connection, will the Government inform this Council:

(1) as it is learnt that the authorities have requested CLP to submit detailed reports on the aforesaid two incidents, whether the authorities have strictly required CLP as well as the other electricity supplier in Hong Kong to formulate work plans for incident prevention, including preventing electricity facilities of all scales from ageing or falling into prolonged disrepair, and setting sufficiently stringent standards for the inspection of various equipment; if so, of the details; if not, the reasons for that;

(2) given that some members of the public are sceptical about CLP's routine inspection and repair work in the light of its successive power incidents, whether the authorities have gained an understanding of whether CLP has an adequate level of experienced staff to follow up repair work of the facilities, and whether it will continue to put in place proper recruitment and training of staff in the future;

(3) as there are views that while CLP indicated earlier that drone technology and robotics had been introduced for inspection of facilities in its power stations, the recent power incidents may reflect that the relevant facilities have yet to be benefited from such arrangement, whether the authorities have liaised with various electricity suppliers to gain an understanding of how they will further ensure the normal operation of their electricity facilities of all scales through technological application in the future; if so, of the details of the relevant technological application; and

(4) given that while the authorities completed an interim review of the Scheme of Control Agreements with the two power companies at the end of last year, with the introduction of a penalty scheme for large-scale electricity supply interruptions, under which penalties will be calculated according to a new indicator of "Customer Interruption Duration", it is learnt that the

penalty scheme has not been activated for the aforesaid power incident involving the transformer room, despite having 388 households affected by the power outage, whether the authorities will conduct a detailed review on the principles for activating the relevant penalty scheme in the near future, so as to avoid the scheme concerned being rendered as virtually non-existent and to gain support from the public; if so, of the details; if not, the reasons for that?

Reply:

President,

The Government is very concerned about CLP Power Hong Kong Limited (CLP)'s two power incidents, which were not caused by external factors such as adverse weather, in January 2024. The incidents affected the daily life and aroused concern of the public. Subsequent to the two incidents, the Electrical and Mechanical Services Department (EMSD) immediately sent staff to the site to conduct investigation, followed up with CLP on the development of the incidents, and monitored the progress of the repair work.

Regarding the incident of Nga Ying Chau Street Substation in Tsing Yi on January 1 and the power supply incident in On Mei House, Cheung On Estate, Tsing Yi, on January 7, the EMSD earlier requested the CLP to identify the causes of the incidents and submit investigation reports on the incidents within four weeks and two weeks respectively. Thereafter, the EMSD had a meeting with CLP on January 8 and requested CLP to immediately strengthen inspections on the power supply system in Tsing Yi district, targeting to complete all inspections within January 2024, as well as review the maintenance arrangements of the territory-wide transmission and distribution system.

The EMSD received on January 20 the investigation report submitted by CLP on the power supply incident of On Mei House, Cheung On Estate, Tsing Yi, on January 7, and received on January 27 the investigation report on the incident of Nga Ying Chau Street Substation in Tsing Yi on January 1. The EMSD is now examining the reports, including assessing whether the identified causes are well-founded and whether the rectification measures are adequate to prevent recurrence of similar incidents. The EMSD will request CLP to make clarifications or provide further information if needed.

Up till now, CLP has already completed inspections on the power supply system in Tsing Yi district and confirmed that the concerned facilities are in normal operation. The EMSD has reviewed the inspection work and found no abnormality. CLP will also continue to review the maintenance arrangements of the territory-wide transmission and distribution system. In view of the recent electrical incidents, the EMSD will step up inspections of the facilities and operations of the two power companies to monitor their technical and electrical safety performance.

Regarding the various parts of the question raised by the Hon Adrian Ho, a consolidated reply is as follows:

(1), (2), (3) and (4) The objectives of the Government's energy policies are to ensure 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. The Scheme of Control Agreements (SCAs) provide a framework for the Government to monitor the corporate affairs of the power companies. By signing the SCAs, the power companies pledge to provide sufficient facilities to meet the electricity demand, and are responsible for the provision, operation and proper maintenance of their facilities. In addition, the power companies must strictly abide by their responsibilities, including maintaining high efficiency and quality in terms of reliability of power supply.

In accordance with the SCAs, the Government conducts annual Auditing Review with the power companies with regards to technical, environmental and financial performance, including customer performance, of the power companies. Under the mechanism, an incentive and penalty mechanism has been established. The performance indicators relating to the stability of power supply are: (1) "Supply Reliability", which is the measure of the "Average Service Availability Index (ASAI)" achieved by the power companies in that year; and (2) "Supply Restoration", which is the measure of the "Average Grid Supply Restoration Time (Average GSRT)" achieved by the power companies in that year.

The Government completed the 2023 Interim Review of the SCAs with the two power companies at the end of 2023. After rounds of negotiations between the Government and the two power companies, with a view to enhancing the existing incentive and penalty mechanism in the SCAs, the two power companies eventually agreed with the introduction of a new penalty scheme for large-scale electricity supply interruptions. The new penalty scheme (Note 1), which targets serious large-scale electricity supply interruption incidents such as the CLP Cable Bridge Fire Incident on June 21, 2022, etc, is based on a new performance indicator of "Customer Interruption Duration" (CID) with details below:

Threshold		Penalty Adjustment on Permitted Return
CLP	The Hongkong Electric Company	
30 000 000 minutes > CID >= 15 000 000 minutes	10 000 000 minutes > CID >= 5 000 000 minutes	-0.015%
CID >= 30 000 000 minutes	CID >= 10 000 000 minutes	-0.03%

CID is the sum of the product of "number of customers being interrupted" and "duration of power interruption" expressed in minutes for each group of

affected customers for each large-scale electricity supply interruption incident (Note 2). "Affected customers" refers to the power companies' customers whose electricity supply is interrupted by power interruptions. Introducing the new penalty scheme for large-scale electricity supply interruption incidents complements the existing incentive/penalty mechanisms with "ASAI" and "Average GSRT", thereby enhancing the overall incentive and penalty mechanism of the SCAs.

The incentive and penalty mechanism in the SCAs is calculated on the basis of annual settlement and all power supply interruption incidents of the power companies are included in the calculation. The Government will visit the two power companies to sample and verify the relevant records and information submitted by the power companies during the annual Auditing Review, including information relevant to power supply incidents, to ensure the accuracy of the performance data provided by the power companies.

Apart from the SCAs, the EMSD monitors the operation of the power companies in accordance with the Electricity Ordinance (Cap. 406) (the Ordinance) to ensure a safe and reliable supply of electricity in Hong Kong. The Ordinance stipulates the powers and obligations of electricity suppliers, which includes giving the Director of Electrical and Mechanical Services a report of the cause of the accident and what remedial action has been or will be done after an electrical accident. The EMSD regulates the operation of the power companies in accordance with the Ordinance and closely monitors the conditions of their power supply systems through measures including daily communications with power companies, inspections of relevant power supply facilities and regular meetings with power companies for discussion of matters related to power supply.

As for the maintenance and repair regime of the power supply system, the maintenance and repair plans of the two power companies are established with reference to international standards, recommendations of equipment manufacturers and system operation experience. In addition, the Government attaches great importance to the training of talents in the electrical and mechanical industry, and encourages stakeholders (such as the two power companies) to adopt more innovation and technology to enhance the efficiency and performance of work. To our understanding, the two power companies have comprehensive training and development plans, including the regular recruitment of suitable talents and the provision of systematic training and regular assessments, to ensure the continuity of talent supply and the technical capability of engineering staff. With a view to enhancing the safety and reliability of the power supply system, the two power companies also adopt various innovation and technology, such as online condition monitoring of power supply equipment through installing advanced devices, and analysis of the health condition of power supply equipment through application of big data, thereby optimising the efficiency of maintenance work as well as enhancing the reliability of electricity supply.

Note 1: Incidents subject to the new penalty scheme will not be counted for incentives/penalties under "ASAI" or "Average GSRT".

Note 2: A single incident may cause supply interruptions to more than one

group of customers with different interruption durations. Therefore, summation is required to get the total customer interruption duration for a single incident.