LCQ20: Power supply incidents of two power companies

Following is a question by the Hon Chan Hok-fung and a written reply by the Secretary for Environment and Ecology, Mr Tse Chin-wan, in the Legislative Council today (June 7):

Question:

It has been reported that the Incident Investigation Report on the Incident of a 275-kV Fault in HK Electric's Power System on April 19, 2023, submitted to the Electrical and Mechanical Services Department by the Hongkong Electric Company, Limited has pointed out that, a short circuit caused by its engineer's mistake in energising a spare cable led to a power outage in some areas on Hong Kong Island in the early hours of April 19 this year. In this connection, will the Government inform this Council:

(1) whether it knows the respective numbers and details of power supply incidents of the two power companies in the past five years (set out in a table);

(2) whether it knows if, in the event of a failure of the power system, the two power companies currently have installed backup systems that will activate automatically for restoring power supply, or engineers are required to manually restart the relevant systems for restoring power supply; if the two power companies do not, whether it will request them to install such systems; and

(3) as it has been reported that the aforesaid incident was related to the failure to update the circuit diagrams of the Energy Management System of the Cyberport 275-kV Switching Station in a timely manner, whether it will request the two power companies to devise mechanisms to ensure the timely updating of various types of circuit diagrams, thereby reducing the risk of misconnection of cables?

Reply:

President,

The Government is very concerned about the power supply incident in some areas on Hong Kong Island of the Hongkong Electric Company, Limited (HEC) at around 0.45am on April 19, 2023, and has been closely following up with HEC on the development of the incident. After the incident, the Government requested HEC to conduct in-depth investigation of the cause of the incident, and has been monitoring the implementation of remedial measures. HEC submitted an investigation report to the Director of Electrical and Mechanical Services (the Director) on May 15. With assistance from an independent third-party expert, the Government is examining the report, including assessing whether the identified cause is well-founded and whether

rectification measures are appropriate, and will request HEC to make clarifications or provide further information if necessary. The Government urges HEC to implement improvement measures to prevent similar incidents from happening again.

Regarding the question raised by the Hon Chan Hok-fung, our reply is as follows:

(1) Whole-year figures and details of the incidents causing power interruption of the two power companies since the current Scheme of Control Agreements came into effect in late 2018/early 2019 are set out at Annex.

(2) When there is an electrical fault in the power system, the electrical protection system operates automatically to isolate the faulted equipment, so as to reduce the impact on the power system. In general, if a power interruption is caused by an electrical fault, the operator of the system control centre first has to confirm and verify the status of the system and the concerned faulted equipment, and then manually carries out power supply restoration work by remote control at a suitable time, in order to prevent further impact on the system. Under some special circumstances, the power companies also adopt automatic power supply restoration systems. For example, power supply automatic restoration systems are generally adopted for high voltage overhead lines as they are usually not damaged after lightning strikes.

(3) In general, there are different types of drawings of different purposes for the power supply systems of the two power companies. Under the existing mechanism, the two power companies are obliged to timely update the relevant drawings with regard to any changes on the power supply systems, including commission of new equipment or retirement of old equipment.

According to the investigation report of the power supply incident in some areas on Hong Kong Island on April 19 submitted by HEC to the Director, HEC indicated that the relevant drawings with specific uses were updated after the completion of the power network enhancement project at the Cyberport Substation in 2009. HEC explained that as the spare cable circuits were not used in the daily operation of the power network, the updates were not included in all drawings.

While the investigation by the Electrical and Mechanical Services Department is still underway, HEC's report has reflected HEC's inadequacies in the management of the drawings. In this regard, HEC is obliged for immediately formulating improvement measures on different aspects, including establishing guidelines on updating detailed transmission schematic drawings, single-line diagrams and circuit diagrams of energy management systems, as well as their respective methods of use and limitations, etc, in order to prevent reoccurrence of similar incidents.