

Office of the DGM Transmission O & M South  
Ceylon Electricity Board  
Kent Road,  
Colombo 00900.

Date: August 17, 2020.

Your Ref:

My Ref: DGM/TR/O&M/S/T/02

General Manager  
CEB.

Additional General Manager  
(Transmission)

### **Power Failure at Kerawalapitiya Grid Substation – August 17, 2020.**

#### **Initial Report:**

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#### **1.0 Incident at Kerawalapitiya:**

Routine Maintenance at 220kV Bus Coupler was being performed by the Electrical Superintendent in-charge of Kerawalapitiya GS. The 220kV Bus Bar No. 02 was switched on while 220kV Bus Bar No. 01 was switched off for maintenance works. Earth switch at the Bus Bar No. 01 was opened. Earth switch at Bus Bar No. 02 side was closed. The 220kV isolator at Bus Bar No. 02 was closed while earth switch was at the closed position. A three-phase short circuit was created at the 220kV Bus Bar No: 02.

- Incident Time: 12.30h
- Name of Electrical Superintendent: Mr. C.K. Tennakoon. He is the ES in-charge for Kerawalapitiya GS from year 2015. Routine maintenance works were carried out by him during last 05 years.

#### **2.0 Process followed during Maintenance Period at Kerawalapitiya GS:**

Routine maintenance works at Kerawalapitiya GS was started in June 03, 2020. Following maintenance works were carried out at Kerawalapitiya GS under the scheduled routine maintenance for Year 2020.

- 2.1 Routine maintenance works had been started from 33kV Bays, starting from June 03, 2020.
- 2.2 Meantime, according to the interruption arrangements, 220kV Lines Bays for Kotugoda GS were attended and completed.
- 2.3 Then maintenance works at 16 Nos. of 33kV Bays at the GS were attended and completed.
- 2.4 Then, maintenance works at 220/33kV Power Transformer 01 was attended and completed.
- 2.5 Maintenance works at 220kV Line Bay for Colombo Port Sub L was attended and

- completed.
- 2.6 Maintenance works at 220kV Generator No. 01 Bay was attended and completed.
  - 2.7 Then, maintenance works at 220/33kV Power Transformer 02 was attended and completed.
  - 2.8 Then, maintenance works at 220kV Generator No. 02 Bay was attended and completed.
  - 2.9 Maintenance works at 220kV Bus Coupler was being attended at the time of incident occurred.

Accordingly, 220kV Bus Coupler Bay was the last bay to carryout routine maintenance works at Kerawalapitiya GS to complete the scheduled routine maintenance works in year 2020.

### **3.0 Process followed at the Grid Substation before the incident:**

- 3.1 220kV Bus Coupler was taken for maintenance.
  - 3.1 Associated items with maintenance works relevant to Bus Coupler were,
    - 3.1.1 Two 220kV Bus Isolators
    - 3.1.1 One 220kV Breaker
    - 3.1.2 Two Earth switches connected with 220kV Coupler.
  - 3.2 Maintenance works at the Bus Coupler had been initiated with Isolator at Bus No: 01. Bus No. 01 was switched off during this maintenance period. Maintenance works at Isolator at Bus No. 01 was successfully completed.
  - 3.3 Then maintenance works at Isolator at Bus No. 02 had been initiated. Bus Bar No. 02 was energized. Isolator at Bus Bar No. 02 was initially at the Open position. To carry out the Isolator operations it was closed, while the earthed switch was at the closed position.
  - 3.4 A three-phase earth fault was created at the 220kV Bus Bar at Kerawalapitiya GS.

### **4.0 Loads at the 220kV Line Bays at the time of failure:**

- 220kV Generator Bay No. 01 9A
- 220kV Generator Bay No. 02 (397) A
- 220kV Kotugoda Line Bay No. 01 (38)A
- 220kV Kotugoda Line Bay No. 02 (38)A
- 220/33kV Power Transformer No. 01 34A
- 220/33kV Power Transformer No. 02 34A
- 220kV Line Bay for Sub L 351A

### **5.0 Observation:**

- It was observed all 220kV Bays are normal other than the Bus Coupler Bay.
- 220kV Bus Bar No. 01 is healthy and ready for energization by 14.30h.
- SF6 Gas pressure at all the 220kV Bays are above 6.0 bar and no SF6 gas leakage were observed after the incident at 220kV Bays.

- An earth fault had been created at the 220 kV Bus Bar No. 02 while operating the Bus Isolator.
- Bus Bar protection scheme for 220kV Bus was operated at the time of incident.

This is for your information, please.



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Deputy General Manager  
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