

Detailed Report

Date of Submission : 04-08-2026 12:21

POTHENCODE - 220KV tripped at **02-08-2026 09:02** and restored at **02-08-2026 09:02**

Summary of Event (घटना का सारांश) : The 220 kV Busbar Protection operated at **220 kV Pothencode Substation** on **02.08.2026** at **09:01:45 Hrs** following the failure of the **disc insulator of the 220 kV Bus Coupler-1**. The insulator failure resulted in a bus fault, leading to the isolation of the following 220 kV elements from the grid:

1. 220 kV Pothencode–Trivandrum PGCIL-1 Feeder
2. 220 kV Pothencode–Trivandrum PGCIL-3 Feeder
3. 220 kV Edamon–Pothencode-2 Feeder
4. 220/110 kV, 200 MVA ICT No. 3

Time and Date of the event (घटना का समय और दिनांक) : 02-08-2026 09:02

Name of the Substation/Generating Station/Pooling Station affected (Along with Voltage level) : POTHENCODE - 220KV

Event Category (श्रेणी के साथ इवेंट प्रकार) : GI-1

Location/Control Area (स्थान/नियंत्रण क्षेत्र) : KERALA

Configuration of Bus (HV/LV) . Along with details of Bus split Operation (if any) :

Bus Configuration Type : Double Bus with Bus coupler

Bus Coupler Status : NA

Bus 1 Connected Elements	Bus 2 Connected Elements	Bus 3 Connected Elements	Bus 4 Connected Elements
1. 220KV-EDAMON-POTHENCODE-2 2. 220KV-POTHENCODE-TRIVANDRUM-1 3. 220KV-POTHENCODE-TRIVANDRUM-3 4. POTHENCODE - 220KV - Bus 1 5. POTHENCODE - 220KV - Bus 3	1. 220KV-EDAMON-POTHENCODE-1 2. 220KV-POTHENCODE-NEWKATAKADA-1 3. 220KV-POTHENCODE-TRIVANDRUM-2 4. POTHENCODE - 220KV - Bus 2		

Station Connectivity / SLD during antecedent :

Weather Conditions : Normal

Elements under outage prior to the event :

Other Information (Antecedent Cnditions) : BUSBAR PROTECTION ACTED ON BUS SECTION 1 AT 09:02 HRS ((2TVPC#1, 2TVPC#3, 2EMPC#2 & 200 MVA TRF #3 TRIPPED AT THE SAME TIME). NO LOAD LOSS.

Renewable Energy Trip : False

Details of SPS Operation (if any): : False

Reason of tripping : Others

Other Reason : R phase suspension insulator of 220 kv bus coupler (220 kV bus 1 side) flashed

Load and Generation Loss (लोड और जेनरेशन हानि) :

Total Generation Loss (MW)	Total Load Loss(MW)
0 MW	0 MW

Duration of interruption :
(रुकावट की अवधि)

Details of Equipment :
Failure (if any during the event):

Equipment Type	Equipment Make
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List of elements tripped during the event :
1. 220KV-POTHENCODE-TRIVANDRUM-1
2. 220KV-POTHENCODE-TRIVANDRUM-3
3. 220KV-EDAMON-POTHENCODE-2

Station Connectivity/SLD during the event :

Analysis of the event : Due to flashing of R phase suspension insulator of 220 kV bus coupler (220 kV bus 1 side) Busbar protection acted on bus section 1. 2TVPC#1, 2TVPC#3, 2EMPC#2 & 200 MVA TRF #3 has been tripped at the same time.

Protection / Operational Issues observed : There was **no load loss** due to the above tripping. Since the two **200 MVA ICTs were operating in parallel**, the load carried by ICT No. 3 was automatically shared by the healthy transformer and the connected 110 kV tie feeders, thereby maintaining uninterrupted supply.

Analysis of the Disturbance Records (DR) and Event Logs confirmed that the **220 kV Busbar Protection operated correctly**. The trip was initiated by **Zone-1** and **Zone-3 (Zone-1 extension)** of the busbar protection scheme. The total **fault clearing time was approximately 60 milliseconds**, and the differential current reduced to zero within this period, indicating satisfactory performance of the protection system.

Restoration Details :

Element	Trip Time	Restoration Time
220 kV	09:01:45	10:02 Hrs
Pothencode-		Hrs

Trivandrum-
1
220 kV
Pothencode- 09:01:45 10:04 Hrs
Trivandrum- Hrs
3
220 kV
Edamon- 09:01:45 09:23 Hrs
Pothencode- Hrs
2
220/110 kV, 09:01:45 09:19 Hrs
200 MVA Hrs
ICT No. 3

DR Time synchronization issues observed (सुरक्षा/प्रचालन समस्या) :

False

Remedial Measures Taken (सुधारात्मक सुझाव) :

The disturbance was caused by the failure of the **disc insulator of the 220 kV Bus Coupler-1**. The **220 kV Busbar Protection operated correctly and cleared the fault within approximately 60 ms**, thereby limiting the fault duration and preventing damage to other equipment. As the parallel transformer and 110 kV tie feeders adequately shared the load, **no load shedding or supply interruption occurred**. The affected elements were restored to service in a phased manner after isolating the faulty equipment and confirming system readiness.

Relay/PLCC Operation Details :

Control Panel Anunciation :

Main I Relay Indications :

Main II Relay Indications :

Other Relay Indications :

PLCC Counter Increment I/T :

PLCC Counter Increment D/T :

Fault Current Value (kAmp) : None

LA Counter :

Remarks :

Attachments :