

Detailed Report

Date of Submission : 18-04-2026 16:26

PALLOM - 220KV tripped at **14-04-2026 16:40** and restored at **18-04-2026 16:21**

Summary of Event (घटना का सारांश) : On 14.04.2026 at 16:40 hrs, a bus fault occurred at the 220 kV Switching Station, New Pallom. The fault was identified at the suspension insulator in the cross bus of 2NPPL, connected to the junction of Bus-1 and Bus-2 isolator.

Time and Date of the event (घटना का समय और दिनांक) : 14-04-2026 16:40

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

Event Category (श्रेणी के साथ इवेंट प्रकार) : GD - 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-SABARIGIRI-PALLOM-1 2. 220KV-PALLOM-NEW PALLOM-1	1. 220KV-KOTTAYAM-PALLOM-1		

**Station Connectivity / SLD
during antecedent**

Sl. No	Feeder Name	Load (MW)	Bus
1	220 kV Sabarigiri – Pallom	117	1
2	220 kV Kottayam – Pallom	104	2
3	220 kV Pallom – New Pallom	46	1
4	220/110 kV 200 MVA ICT-1	137	1
5	220/110 kV 200 MVA ICT-2	138	2
6	220 kV Bus Coupler	—	BC Closed

Weather Conditions

Normal

**Elements under outage
prior to the event**

**Other Information
(Antecedent Conditions)**

On 14.04.2026 at 16:40 hrs, a bus fault occurred at the 220 kV Switching Station, New Pallom. The fault was identified at the suspension insulator in the cross bus of 2NPPL, connected to the junction of Bus-1 and Bus-2 isolator.

During the event, the busbar protection did not operate as the check zone was found in a ‘non-operate’ condition. However, Main Zone-1 and Zone-2 protections operated. Upon analysis of the logic unit, it was observed that both Bus-1 and Bus-2 isolator status were indicated as ‘high’. Further investigation revealed that the Bus-1 isolator auxiliary contact was faulty and remained in the ‘high’ position, which resulted in incorrect zone selection and caused both zones to operate simultaneously.

Due to the non-operation of busbar protection, all feeders of Pallom and New Pallom—except 2NPPL—tripped from the remote end under Zone-2 protection. The affected feeders are listed below:

- 2SBPL
- 2KOPL
- 2PUNP
- 2KYNP
- 2IDNP

The event report of the busbar protection (GE B90) has been downloaded and is attached. Disturbance

Recorder (DR) data from the busbar protection is not available due to its non-operation.

Additionally, the following records are enclosed for detailed analysis:

- DR from backup 50/51 relay of 2NPPL at Pallom
- DR from Kottayam GIS
- DR from Sabarigiri Generating Station
- DR from Idukki Generating Station
- DR from Punnapra Substation

Renewable Energy Trip : False

Details of SPS Operation (if any): : False

Reason of tripping : Others

Other Reason : Pallom - N Pallom 220kV feeder tripped on fault. But due to delayed clearing of the fault , all incoming 220kV feeders to Pallom 220kV S/s tripped at remote end on Zone 2 DP.

Load and Generation Loss :
(लोड और जेनरेशन हानि)

Total Generation Loss (MW)	Total Load Loss(MW)
0 MW	270 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-SABARIGIRI-PALLOM-1
2. 220KV-KOTTAYAM-PALLOM-1

Station Connectivity/SLD during the event :

Analysis of the event : Delayed tripping of 220kV Pallom - N Pallom being reviewed.

**Protection / Operational
Issues observed**

: During the event, the busbar protection did not operate as the check zone was found in a '*non-operate*' condition. However, Main Zone-1 and Zone-2 protections operated. Upon analysis of the logic unit, it was observed that both Bus-1 and Bus-2 isolator status were indicated as 'high'. Further investigation revealed that the Bus-1 isolator auxiliary contact was faulty and remained in the 'high' position, which resulted in incorrect zone selection and caused both zones to operate simultaneously.

Due to the non-operation of busbar protection, all feeders of Pallom and New Pallom except 2NPPL tripped from the remote end under Zone-2 protection. The New Pallom Pallom tripped in backup protection around 505 ms

Restoration Details

Date	Element	Tripping Time	Charging Time
14.04.2026	220kV Idukki New Pallom	16:40	17:32
14.04.2026	220kV New Pallom Pallom	16:40	13:45 (16.04.2026)
14.04.2026	220kV Punnapra New Pallom	16:40	18:35
14.04.2026	220kV Kayamkulam New Pallom	16:40	18::31
14.04.2026	220kV Kottayam Pallom	16:40	17:16
14.04.2026	220kV Sabarigiri Pallom	16:40	17:19
14.04.2026	Pallom 200MVA 220/110kV Trasormer No 1	16:40	17:44
14.04.2026	Pallom 200MVA 220/110kV Trasormer No 2	16:40	17:44

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

: False

**Remedial Measures Taken
(सुधारात्मक सुझाव)**

**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	:	