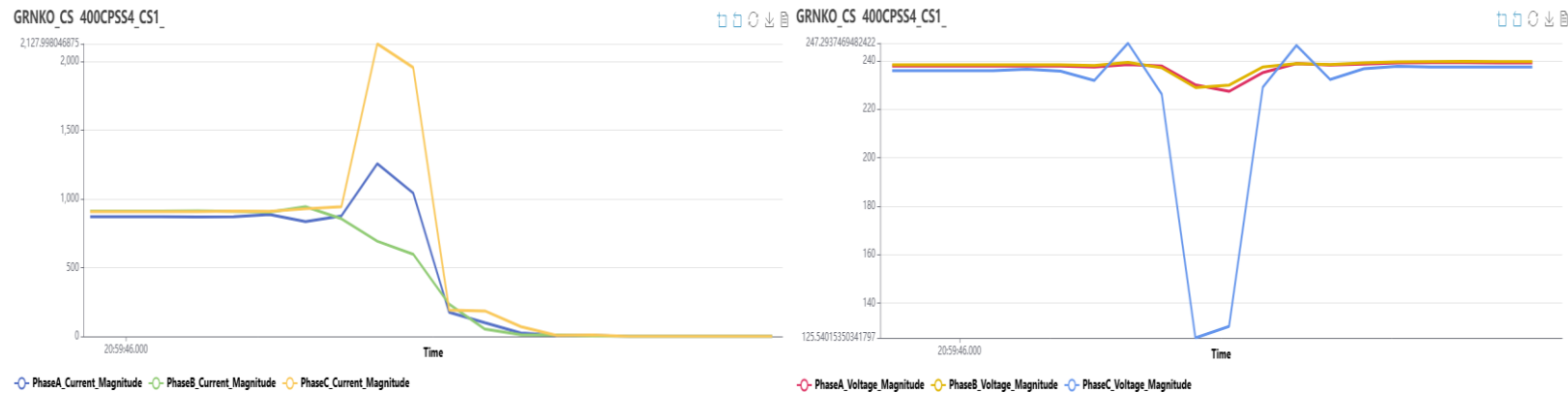


III. Single/Multiple Element Tripping with Protection Violation

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
1	400KV-GREENKO_CPSS-GREENKO_PSP-1	As per the reports submitted, B-G fault was sensed in Z3 at GREENKO_CPSS end in the line. As the voltage dipped to 36% and SOTF threshold was set to 40%, SOTF got triggered and the line was 3-ph tripped.	05-06-2026 20:59	<u>GREENKO</u> : SOTF trip for an external fault needs review.	

	GREENKO_CPSS	GREENKO_PSP
FIR	Zone 3 pickup in B-E and SOTF trip Initially Zone-3 pickup in B phase after that SOTF trip occur and all 3 phases are opened	NA
DR	DR Trigger Time:05-06-2026 20:59:46.275 E/F START, DIST. PICKUP B-E ZONE-3 PICKUP SOTF TRIP 86.2 OPERATED CB OPEN CB R-PH OPEN CB Y-PH OPEN, CB B-PH OPEN	NA
EL	Same as DR	NA
TR	Same as FIR	NA

PMU Analysis:

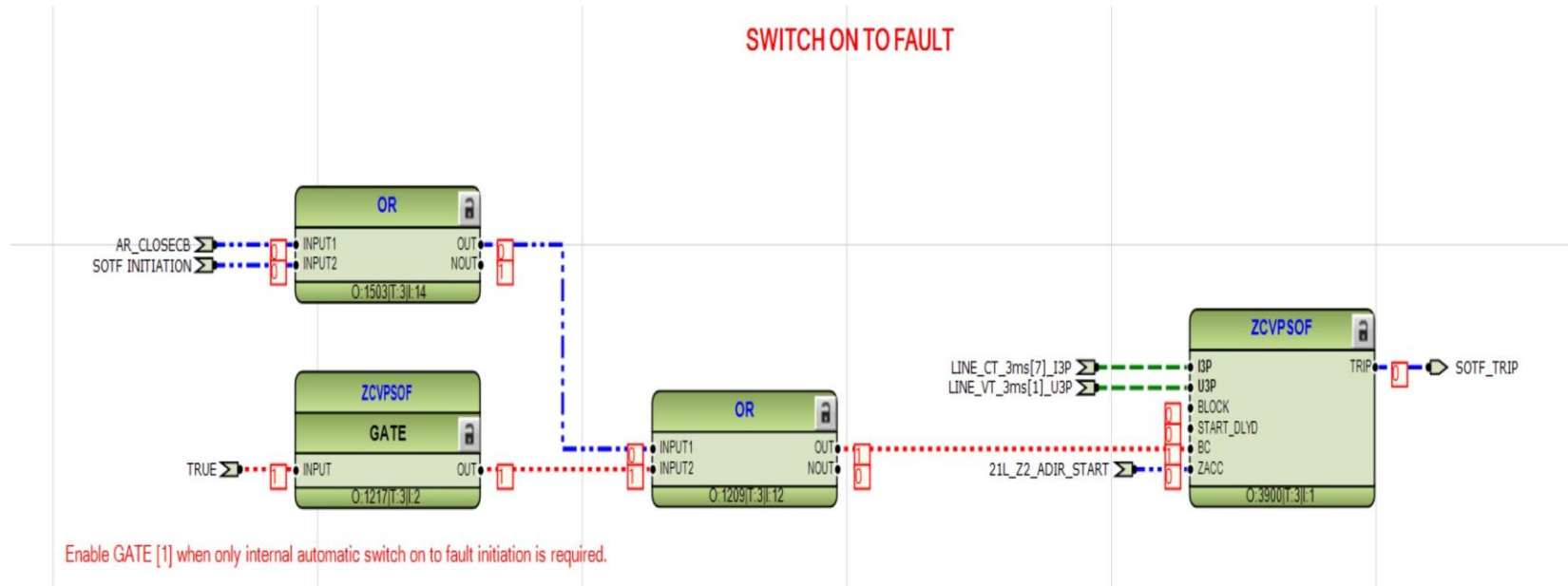


From the PMU plot, B-G fault can be observed without any delayed fault clearance.

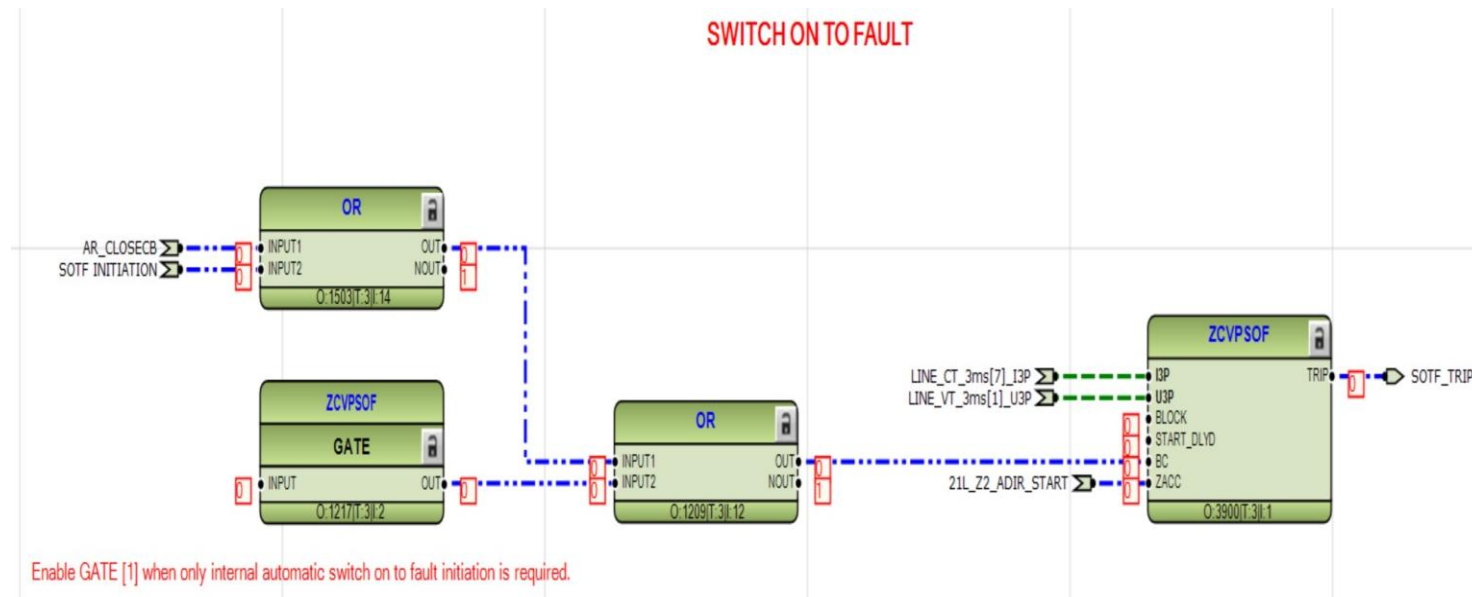
Deliberations:

1. M/s Greenko informed that, on 05.06.2026 at 20:59 hrs, a B-G fault was sensed and detected under Zone-3 protection at the Greenko CPSS end on the 400 kV Greenko CPSS–Greenko PSP-1 line. Initially, Zone-3 pickup was observed in both Main-1 and Main-2 relays.
2. M/s Greenko further informed that Main-2 relay with the Zone-3 pickup initiated SOTF trip signal after 36 mSec on fault detection resulting in the opening of the circuit breaker in 42 ms.
3. Upon detailed investigation, M/s Greenko identified that the SOTF (Switch-On-To-Fault) function logic had been incorrectly configured. A continuous high input signal (Fixed TRUE) was mapped to the SOTF enable input instead of the appropriate SOTF initiation signal.
4. Due to the incorrect logic configuration, the SOTF function remained continuously enabled. Subsequently, during the Zone-3 fault, the SOTF operating conditions were satisfied, resulting in the unintended initiation of the SOTF trip command.

Before Modification SOTF LOGIC



After Modification SOTF LOGIC



5. Corrective Action Details

- M/s Greenko informed that the SOTF (Switch-On-To-Fault) logic of Line-1 has been modified to ensure correct operational behaviour. The logic has been configured such that the SOTF function is enabled only during the intended SOTF initiation period.
- Under normal operating conditions, the SOTF function remains disabled and is enabled only upon initiation of Auto-Reclosure (AR), in accordance with the intended protection scheme.
- M/s Greenko further informed that the modified SOTF logic of Line-1 has been aligned with the proven and correctly functioning logic implemented in Line-2.

6. M/s Greenko concluded the following

- M/s Greenko informed that the tripping of Line-1 was due to maloperation of the SOTF function resulting from incorrect logic configuration.
- The identified issue has been rectified by modifying the SOTF logic of Line-1 in accordance with the intended protection scheme and the proven logic of Line-2.
- M/s Greenko confirmed that, following the modification, the SOTF protection logic is functioning as intended.

7. SRLDC enquired about the implementation of the SOTF logic in Line-2. M/s Greenko informed that the SOTF logic in Line-2 was verified and found to be correctly implemented. SRLDC advised M/s Greenko to verify the SOTF logic and TOR logic configuration at all other Greenko sites as well and ensure that the same is in accordance with the intended protection scheme.

Recommendations:

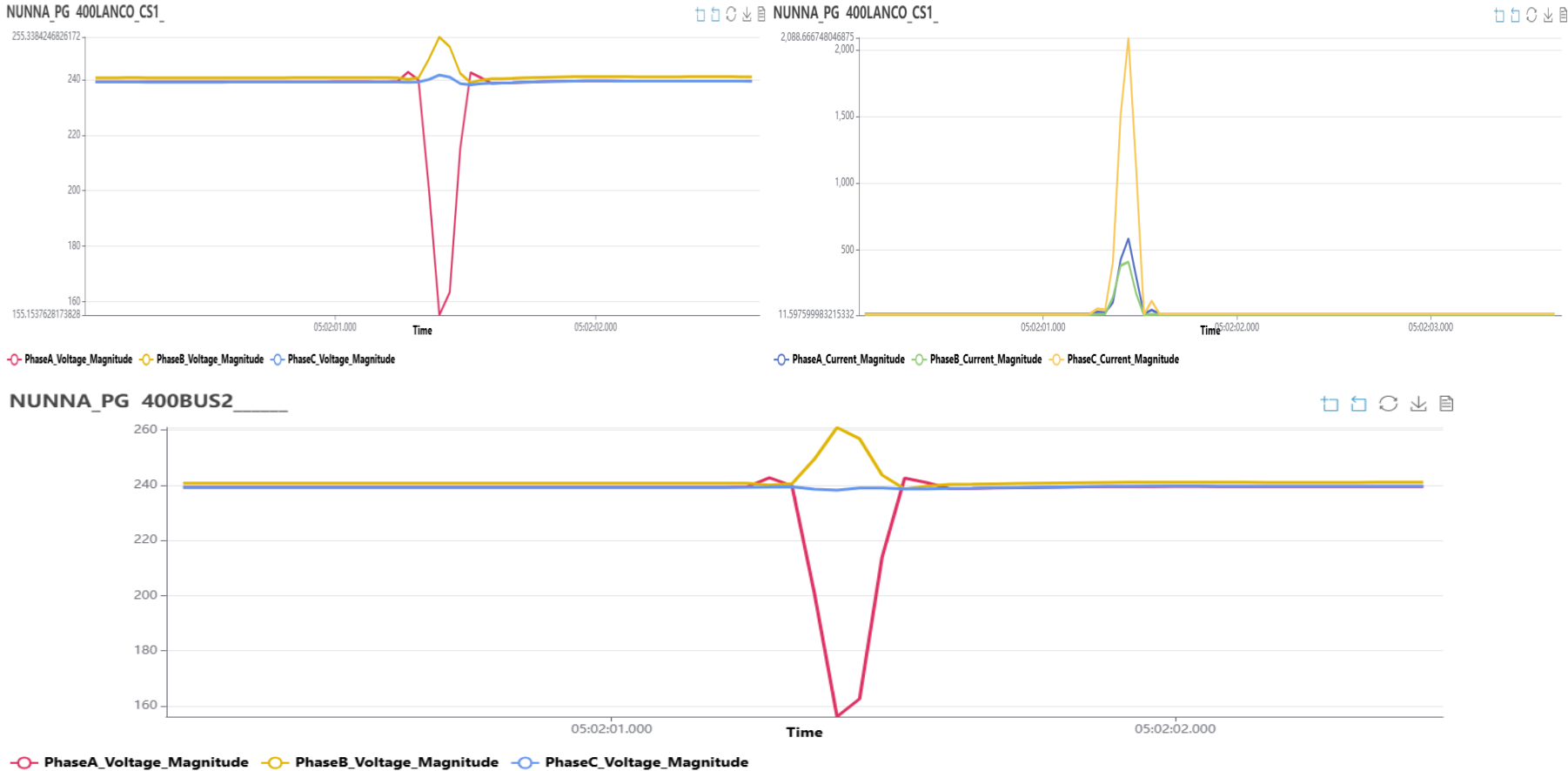
- ✚ **SOTF may be enabled for the persistent fault during manual breaker closure or initial breaker closure and TOR logic to be enabled for persistent fault on automatic Auto Reclosure**

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
2	400KV-LKPPL_STG2-VIJAYAWADA -2	As per the reports submitted, the triggering incident was R-G fault in the line. At Vijayawada end, the fault was sensed in Z1 at a distance of 1km, carrier was sent to remote end, A/R operated and the line was holding. At Lanco end, the fault was sensed in Z3, carrier received and the line tripped without any A/R operation.	11-06-2026 05:02	<u>LKPPL</u> : 1. Tripping of the line instantaneously after sensing the fault in zone-3 and receiving carrier signal needs review. 2.Non operation of A/R at LKPPL end needs review.	<u>LKPPL</u> : Line patrolling carried out and found no abnormalities

	LKPPL_STG2	VIJAYAWADA
FIR	During Heavy rain, wind and thunders, R phase to ground relay acted at Nunna end, carrier received at LANCO end and tripped.	During heavy rain, wind and thunders, 400 KV Lanco - Vijayawada Line-2 tripped at 05:02 hrs on 11.06.2026
DR	DR Trigger Time:11-06-2026 05:40:31.216 Any Start Z3 L6 B-PH AR INI, L7 C-PH AR INI Any Trip, Any Trip B, Any Trip C, L5 A PH AR INI, R2 B-PH TC-1, R3 C-PH TC-1, R7 T0 86A RELAY Any Trip A, R1 A-PH TC-1 L3 C-PH OPEN L1 A-PH OPEN, L2 B-PH OPEN L12 86A POTD L13 86A SUPERVIS	DR Trigger Time:11-06-2026 05:02:01.385 DIST Fwd DIST Fwd Any Trip, DIST Trip A L10 M2 PROT OPTD L1 MCB R-PH OPEN, L14 TCB R-PH OPE L4 CAR CH-1 RECI L9 CAR CH-2 RECV L6 A/R POTD
EL	Same as DR	Same as DR

TR	Same as FIR	Same as FIR
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PMU Analysis:



From the PMU plot, R-G fault can be observed during the event without any delayed fault clearance

No representation by the LKPPL in the 145th PCSC meeting.

Recommendations:

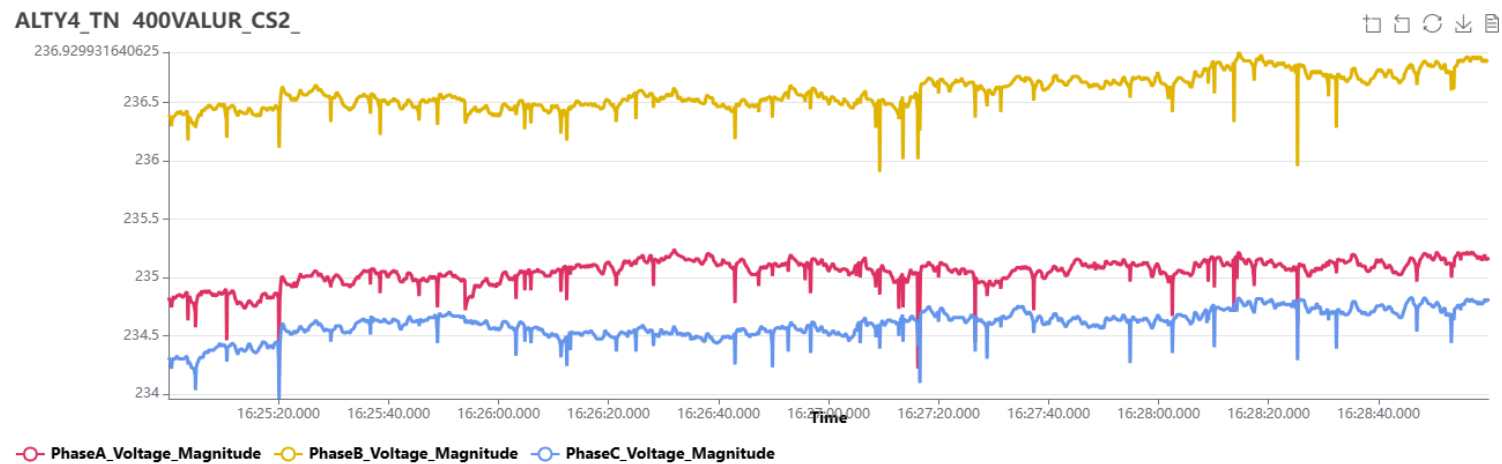
- ✚ LKPPL to review the DR time synchronization issue at LKPPL_STG2

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
3	400KV-VALLUR-ALAMATHY-1	As per the reports submitted, the line tripped on suspected PD relay mal operation at Vallur end and the line was holding at Alamathy end.	18-06-2026 16:27	NTECL: 1. Maloperation of PD relay at Vallur end needs review	

	VALLUR	ALAMATHY
FIR	PD relay mal operation. All breaker contacts and cables found healthy.	Holding
DR	NA	NA
EL	NA	NA
TR	Same as FIR	Same as FIR

PMU Analysis:

ALTY4_TN 400VALUR_CS2_



From the PMU, no fault is observed during the event.

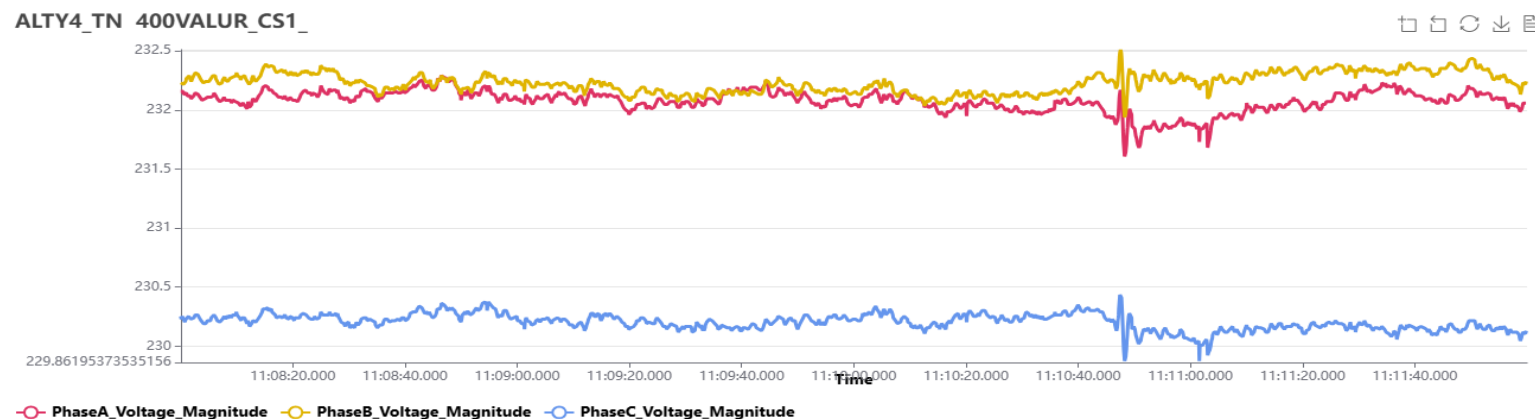
Deliberations:

1. NTECL Vallur informed that the 400 kV Vallur–Alamathy-1 line tripped on 18.06.2027 at 16:27 hrs, suspected to be due to maloperation of the Pole Discrepancy (PD) relay at Vallur end, while the line remained in service from the Alamathy end.
2. NTECL Vallur informed that only PD alarm was observed during the incident, with no other protection indications.
3. NTECL Vallur further informed that light drizzle was prevailing at the time of the incident, no fault current was observed, no other alarm was recorded, and the line remained charged at Alamathy end.
4. NTECL Vallur informed that all circuit breaker NO/NC contacts and the associated control cables were checked and found healthy.
5. NTECL Vallur further informed that, after verification of the control cables and associated circuitry, the line was charged successfully.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
4	400KV-VALLUR-ALAMATHY-1	As per the reports submitted, 400KV VALLUR-ALAMATHY line got tripped due to PD relay maloperation caused by DC Earth fault at Vallur end. During the event, no fault can be observed and line was holding at Alamathy end.	19-06-2026 11:10	<u>NTECL</u> : 1. Maloperation of PD relay at Vallur end needs review	<u>NTECL</u> : PD relay replaced

	VALLUR	ALAMATHY
FIR	Due to DC earth fault PD relay maloperated	Holding
DR	NA	NA
EL	NA	NA
TR	Same as FIR	Same as FIR

PMU Analysis:



From PMU analysis, it can be observed that there is no fault

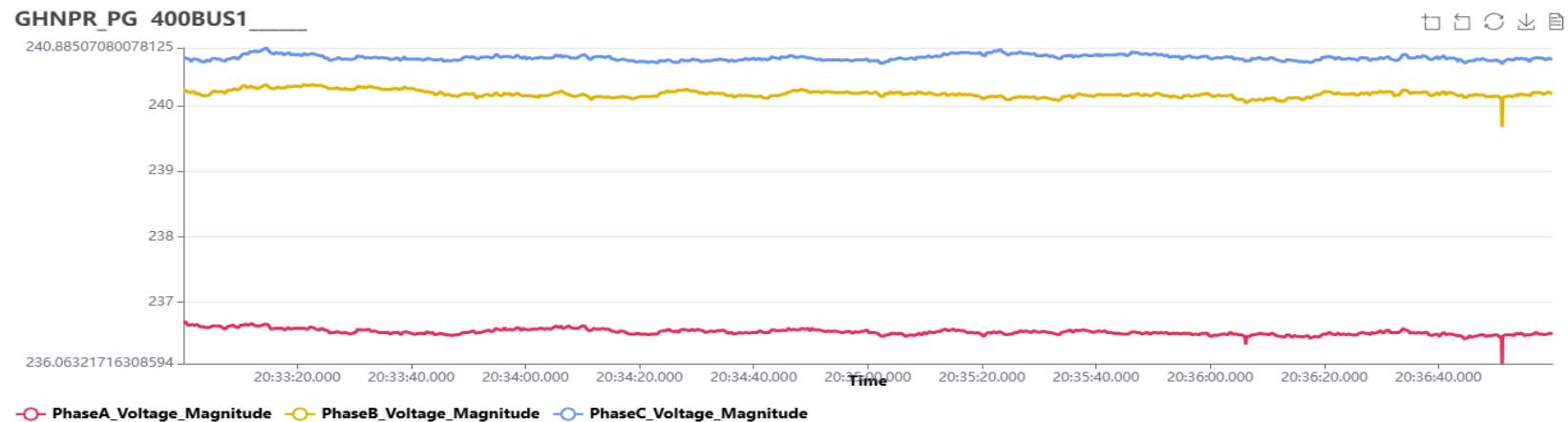
Deliberations:

1. NTECL Vallur informed that, after successful charging of the 400 kV Vallur–Alamathy Line-1 on 18.06.2026, the line tripped again on 19.06.2027 due to suspected maloperation of the Pole Discrepancy (PD) relay at Vallur end, attributed to a DC earth fault. During the event, no fault was observed on the line and the line remained in service from the Alamathy end.
2. NTECL Vallur further informed that a DC earth fault was observed and traced to Bay-410 (GT-2), which was under shutdown. It was also observed that the PD protection of Bay-414 operated whenever a DC earth fault occurred in the station.
3. As a corrective measure, the PD relay was replaced, following which the incident has not recurred.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
5	400KV/220KV NIRMAL-ICT-1	As per the reports submitted, the triggering incident was the Relay Maloperation at Nirmal end. ICT-1 got tripped due to B phase REF protection operated with no fault observed in the PMU.	24-06-2026 20:35	TGTRANSCO: Tripping of the ICT on REF protection without any fault	TGTRANSCO: Transformer, relay testing is under progress

	NIRMAL-ICT
FIR	315MVA ICT-I tripped on operation of B-Phase REF protection. Transformer, relay testings are under progress.
DR	DR Trigger Time:24-06-2026 20:35:52.363 OSC TRIGGER ON (VO64), RESTD GND FT3 OP
EL	Same as DR
TR	Same as FIR

PMU Analysis:



From the PMU plot, it can be observed that there is no fault

Deliberations:

1. TGTRANSCO informed that the triggering incident was suspected maloperation of the protection relay at Nirmal end, resulting in tripping of 315 MVA ICT-1 on operation of B-phase REF protection. No corresponding fault was observed in the PMU records.
2. TGTRANSCO informed that, during testing carried out on 29.06.2026, the relay again issued an unwarranted trip command to the ICT. Based on the observations during testing, the GE make T60 REF relay was suspected to be malfunctioning.
3. TGTRANSCO informed that the suspected GE make T60 REF relay was replaced with a spare T60 REF relay, following which ICT-1 was successfully charged on 29.06.2026.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
6	Multiple Trippings at 400kV Alamathy	As per the reports submitted, the triggering incident is a Y-G fault on 110kV HVF feeder. The feeder breaker failed to isolate the fault and fault current persisted for more than 200ms, hence LBB operated and tripped 400KV/110KV ALAMATHY-ICT-1 and 400KV/110KV ALAMATHY-ICT-2.	26-06-2026 18:38	<u>TANTRANSCO</u> : Reason for non-isolation of the fault at 110kV side	<u>TANTRANSCO</u> : Faulty 110kV bay was isolated & ICT normalized.

400KV/110KV ALAMATHY-ICT-1

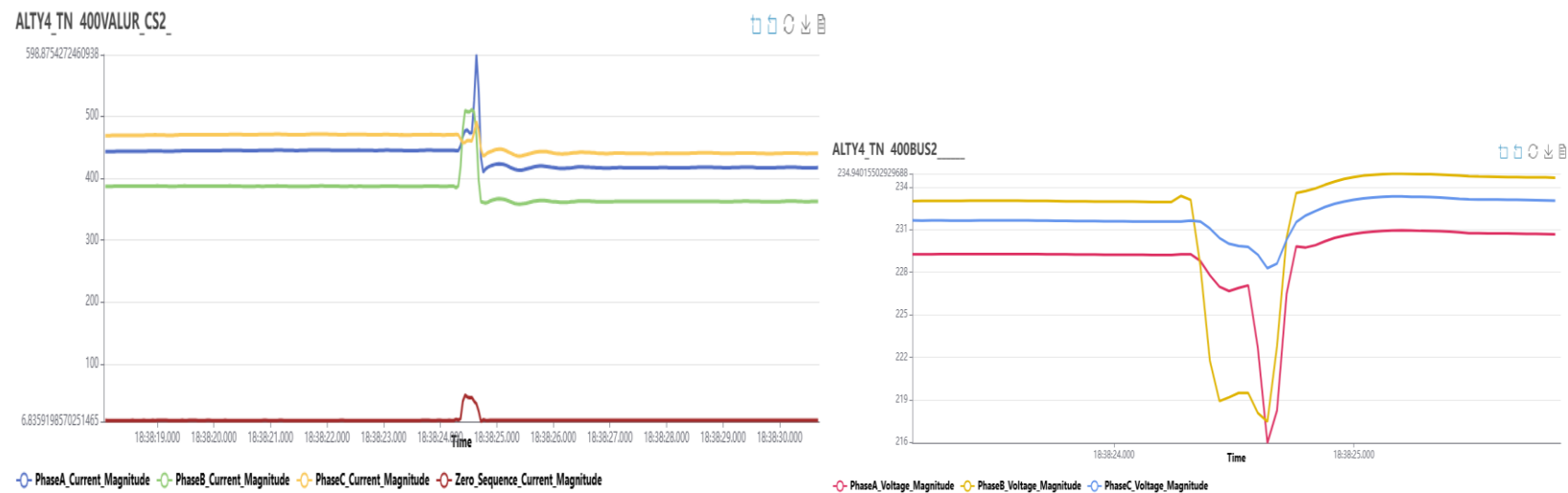
	ALAMATHY
FIR	For a single line to ground fault in 110kV HVF feeder, the feeder breaker fails to isolate the fault. Hence LBB operated
DR	DR Trigger Time:26-06-2026 18:38:24.680 LV CB OPEN HV MCB OPEN
EL	Same as DR
TR	Same as FIR

400KV/110KV ALAMATHY-ICT-2

	ALAMATHY
FIR	For a single line to ground fault in 110kV HVF feeder, breaker fails to isolate the fault hence LBB protection operated
DR	DR Trigger Time:26-06-0026 18:36:03.130 T1 R1 TR LINE TC1, R2 TR LINE TC2, R4 TR B/C TC1, R5 TR B/C TC2, R6 TR B/C LBB, DIST Sig.

	Send, R12 O/V 2-BR CON, Any Trip, Z1 tBF1 Trip
EL	Same as DR
TR	Same as FIR

PMU Analysis:

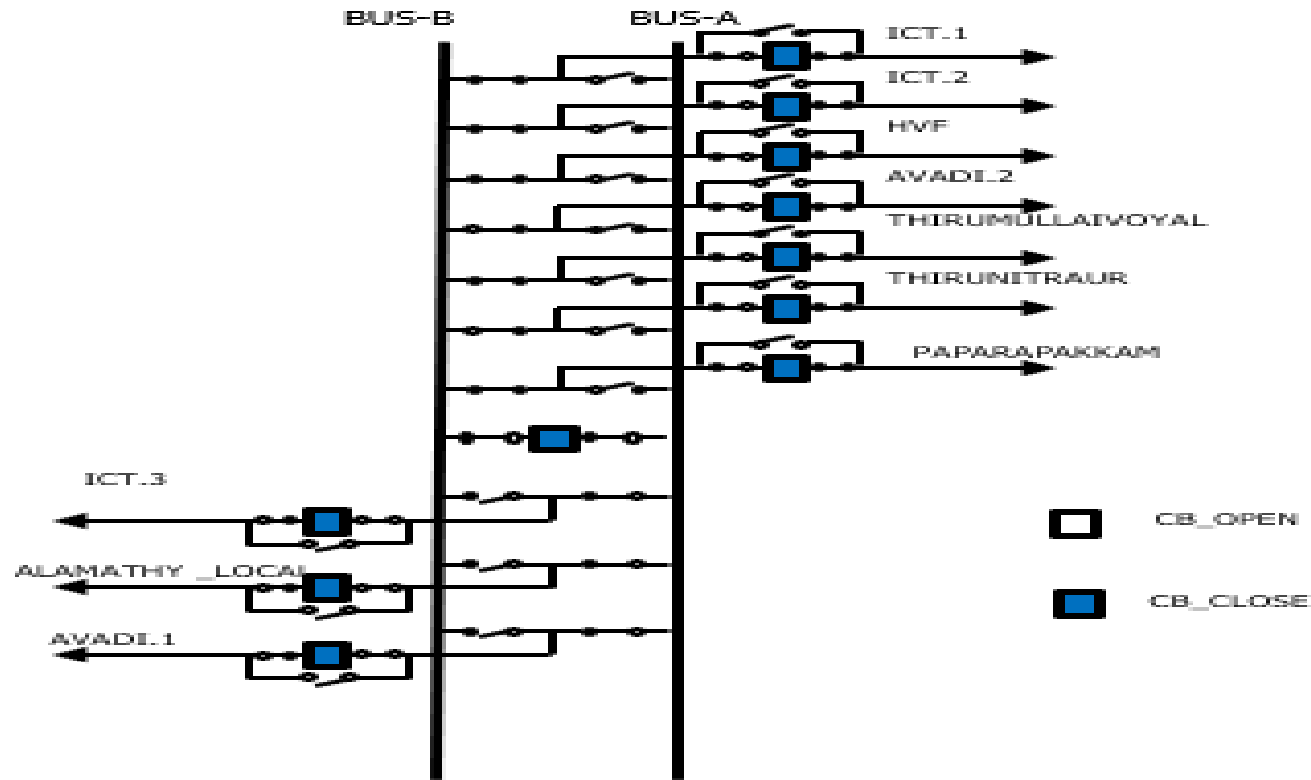


From the PMU plot, Y-G fault can be observed during the event with delayed fault clearing.

Deliberations:

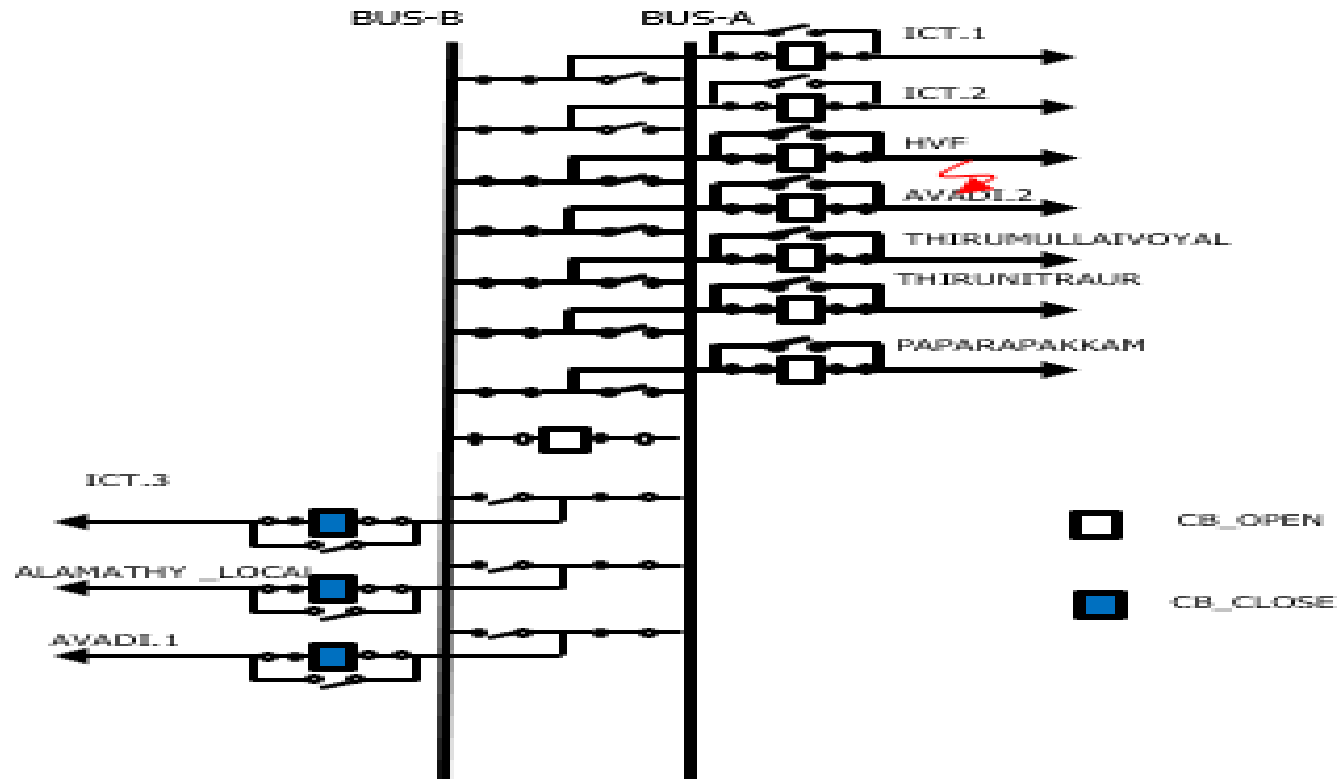
1. Prefault conditions at 400kV Alamthy SS on 26.06.2026 are as follows.
 - Alamathy 400kVSS is having double bus configuration at 110kV Bus
 - Double bus operation was maintained and Bus coupler closed condition.
 - Eight 110kV feeders & 3 ICTs were connected in 110kV Bus.

ANTECEDENT CONDITION

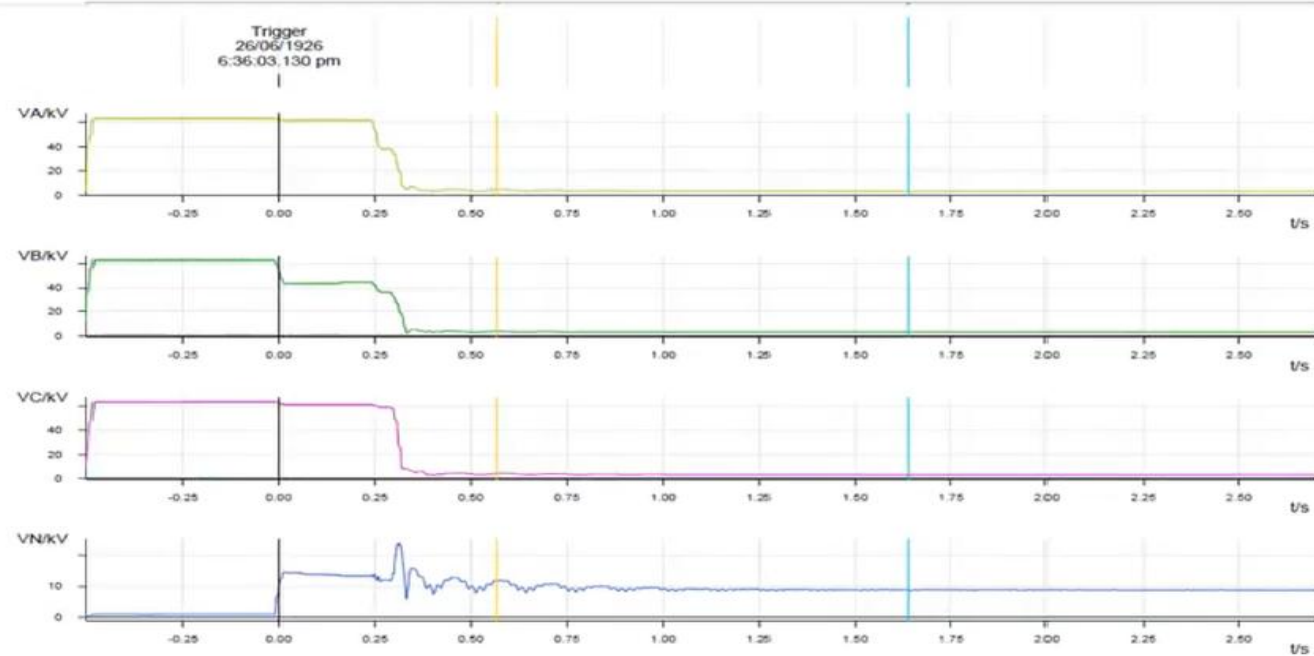


2. TANTRANSCO informed that the triggering incident is a Y-G fault on 110kV HMF feeder. The feeder breaker failed to isolate the fault and fault current persisted for more than 200ms, hence LBB operated and tripped 400KV/110KV ALAMATHY-ICT-1 and 400KV/110KV ALAMATHY-ICT-2.

3. For a single line to ground in 110kV HVF feeder (shown below), breaker fails to isolate the fault hence LBB protection operated in 110kV Bus B. 110kV Bus A found stable. Load Loss around 104MW



4. TANTRANSCO presented the DR of 110kV HVF feeder as below



30/07/2026 / 3:44:59 pm
SIGRA 4.59

26 JUNE 2026 18:36:03.000 CFG

5. Remedial action taken

- Line patrol done in 110kV HVF feeder & no visible fault Noticed.
- Breaker operation checked & found Normal.
- Line test charged & stood OK.

6. Restoration details

Name of element	Restoration date & time
200MVA 400/110kV ICT1	26.06.2026 HV at 22.14 hrs and LV at 22.23 hrs.

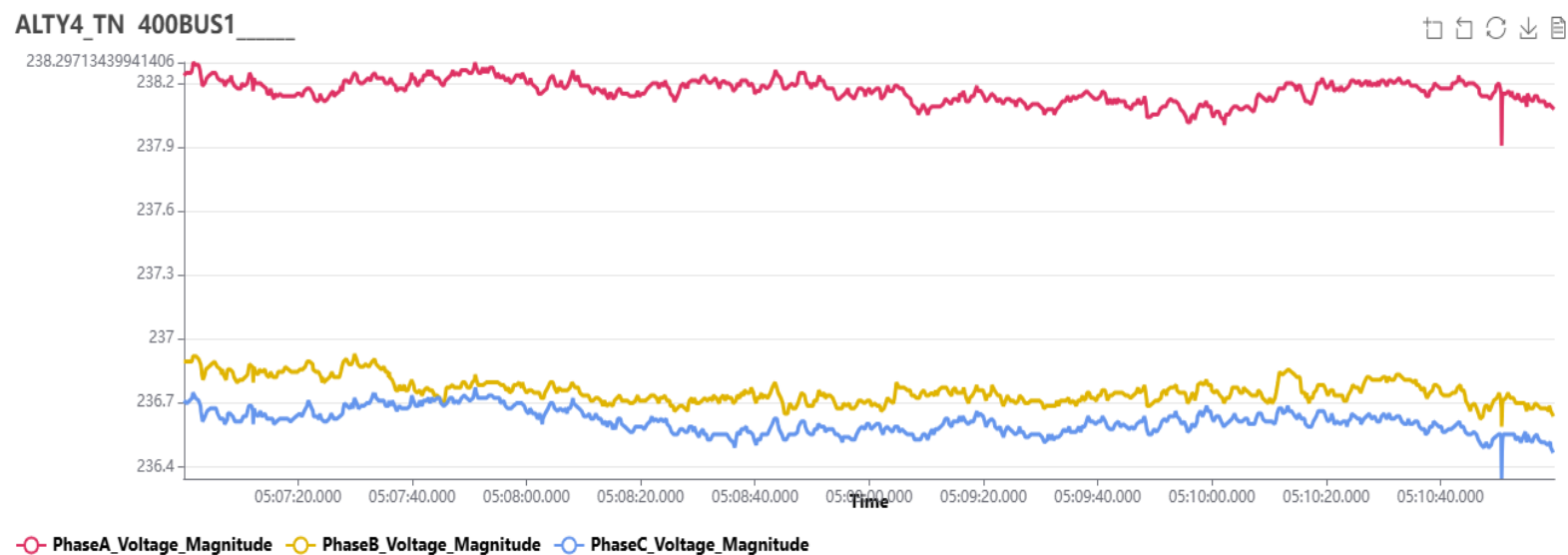
200MVA 400/110kV ICT2	19:53
110kV AVADI FEEDER.2	20:13
110kV THIRUMULLAIVOYAL	20:22
110kV PAPP	20:20
110kV THIRUNITRAVUR	20:19
110kV PERIYAPALAYAM	20:19
110kV HVF	23:16

7. SRPC advised TANTRANSCO to carry out the periodic maintenance of the Circuit Breakers and associated equipment at 400kV Alamathy SS

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
7	400KV/230KV KORATTUR-ICT-3	As per the reports submitted, the Korattur ICT tripped due to the operation of the Main 1 relay caused by unintended contact intended for the Main 2 PRV. The PRV operated for 10 seconds and then reset automatically. After obtaining line clearance, the PRV cover was opened, and dust accumulation along with traces of moisture ingress were observed on the contact of the Main 1 relay.	28-06-2026 05:09	<u>TANTRANSCO</u> : PRV maloperation needs review	<u>TANTRANSCO</u> : After availing Line clear, The PRV cover opened and observed that dust formation and traces of moisture entry in contact for main.1 relay

	KORATTUR
FIR	Main.2 PRV operated due to Contact of Main 1 relay intended for Main.2 PRV operated for 10 sec & resetted No Fault observed during the incident.
DR	DR Trigger Time:28-06-2026 05:09:48.535 PRV-2 TRIP MAIN CB Y OPEN, MAIN CB B OPEN MAIN CB R OPEN IV CB OPEN TIE CB R OPEN, TIE CB Y OPEN, TIE CB B OPEN
EL	Same as DR
TR	Same as FIR

PMU Analysis:



From the PMU plot, it can be observed that there is no fault

Deliberations:

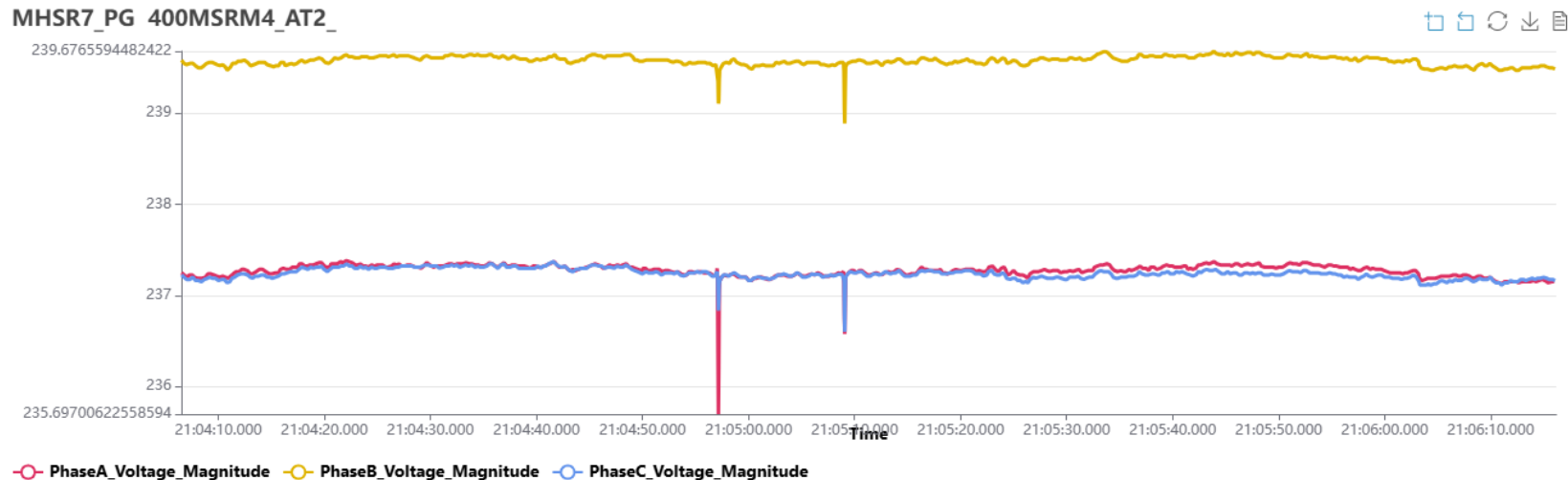
1. As per the reports submitted, the Korattur ICT tripped due to operation of the Main-1 relay caused by an unintended contact associated with the Main-2 PRV circuit. The PRV operated for approximately 10 seconds and subsequently reset automatically. After availing Line Clearance (LC), the PRV cover was opened for inspection, during which dust accumulation and traces of moisture ingress were observed on the contact associated with the Main-1 relay.
2. Remedial Action Taken: After availing Line Clearance (LC), the PRV cover was opened and the condition of the contacts was inspected. Dust accumulation and traces of moisture ingress observed on the Main-1 relay contact were identified and addressed.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
8	400KV/11.5KV YADADRI TPP-ST-2	As per the reports submitted, 400KV/11.5KV YADADRI TPP-ST-2 tripped on LV1 REF for an external fault	29-06-2026 21:05	TGGENCO: Tripping of ICT ST-2 for an external fault	TGGENCO: Matter referred to OEM, modifications shall be made as early as possible

	YADADRI TPP
FIR	ST tripped on LV1 REF for an external fault
DR	DR Trigger Time:29-06-2026 21:05:09.395 IREF> Trip MCB RPH OPEN On, TCB BPH OPEN On MCB YPH OPEN On
EL	Same as DR
TR	Same as FIR

PMU Analysis:

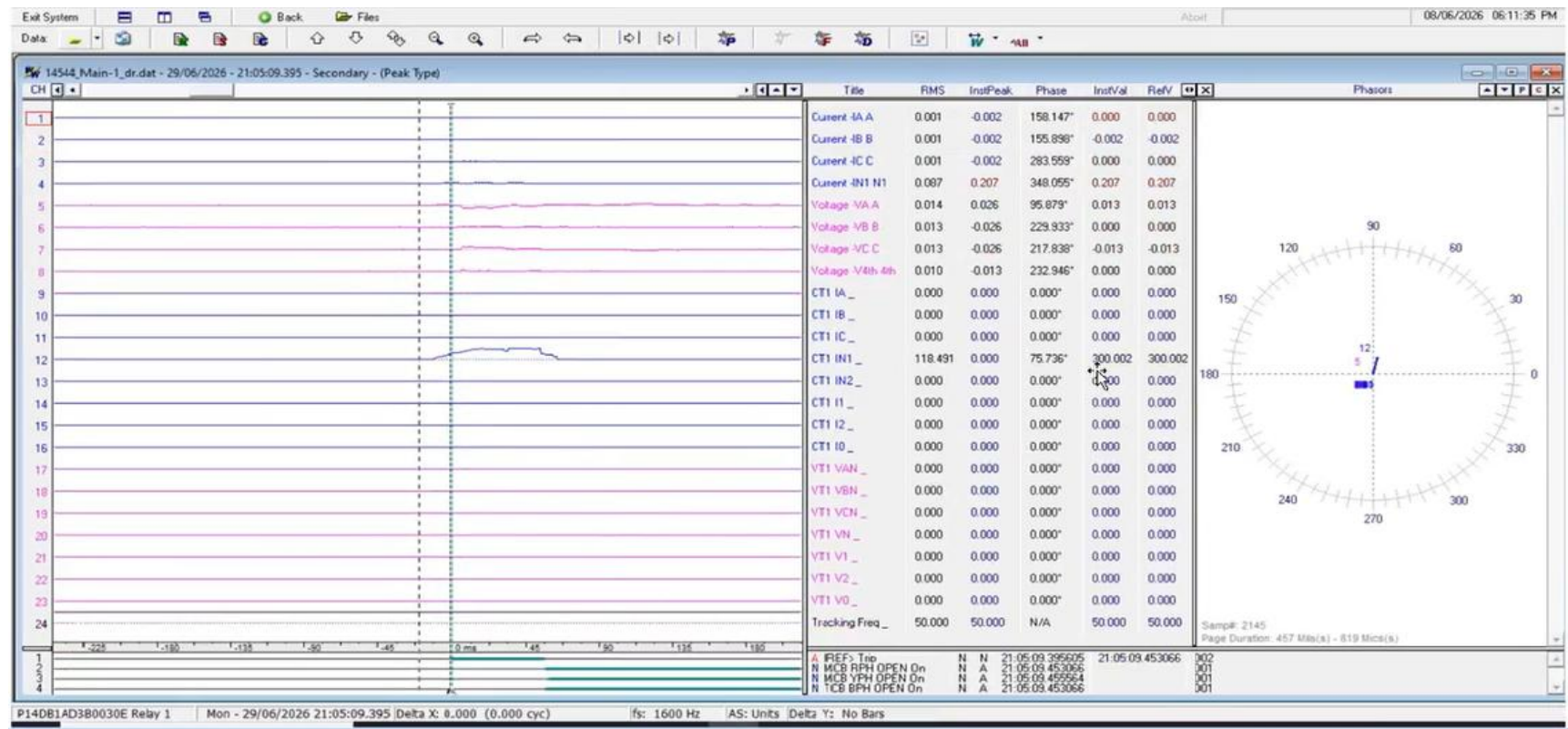
MHSR7_PG 400MSRM4_AT2_



From PMU analysis, the fault in the line is observed

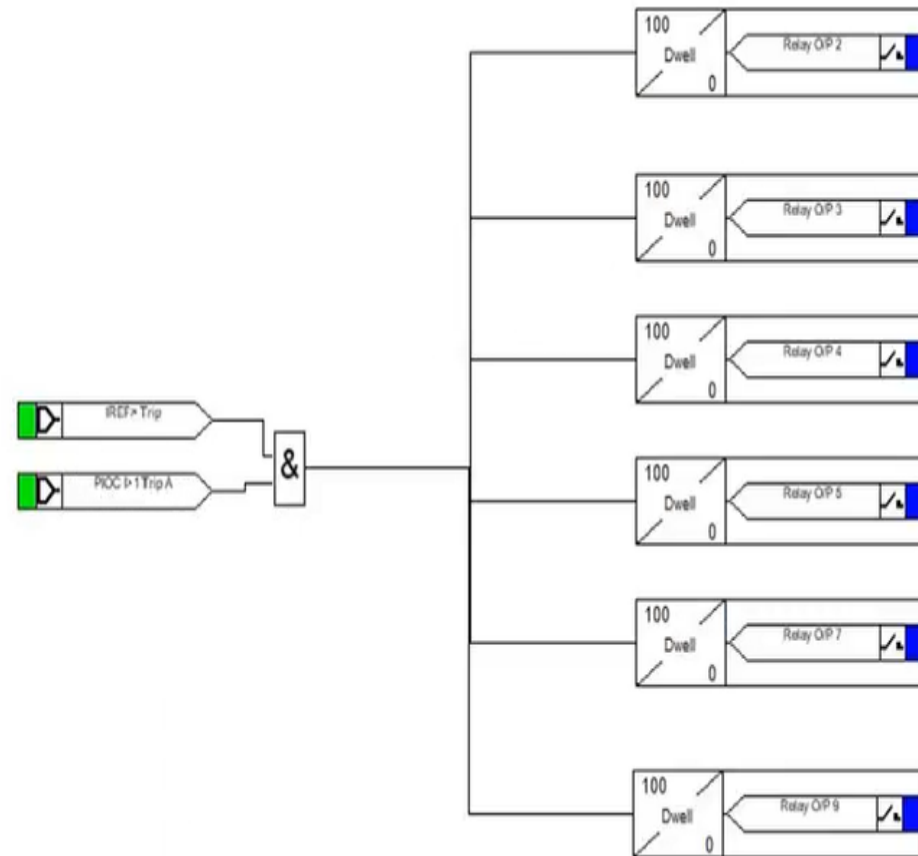
Deliberations:

1. TGGENCO informed that, as per the reports submitted, the 400 kV/11.5 kV Yadadri TPP–ST-2 tripped on operation of LV-1 REF protection during an external fault.
2. TGGENCO further informed that LV-1 and LV-2 of the Station Transformer are provided with separate REF protection. During the incident, a heavy through-fault current of approximately 25 kA occurred outside the LV-1 REF zone of ST-2, resulting in the operation of LV-1 REF protection and subsequent tripping of the 400 kV breakers 433-52 and 432-52.
3. TGGENCO suspected that CT saturation during the high through-fault current may have resulted in the maloperation of the Station Transformer REF protection and informed that the matter had been referred to the OEM for detailed analysis.
4. TGGENCO informed that the OEM provided the disturbance recorder (DR) records pertaining to the incident, which indicated that the transformer tripped instantaneously on operation of the REF protection.



5. TGGENCO informed that similar tripping incidents have occurred in other Station Transformers also. TGGENCO further informed that the OEM had recommended modification of the REF protection scheme to prevent inadvertent tripping. In the modified scheme, the neutral CT is connected to an overcurrent element to ensure that the actual neutral current is considered and to prevent maloperation due to CT saturation when the neutral current exceeds 300 A, as observed in the present case.
6. The Forum observed that the REF protection scheme should not be associated with any additional protection element, such as the overcurrent element proposed in the present case. The Forum suggested exploring modification of the stabilizing resistor value to prevent inadvertent operation of the REF protection. TGGENCO informed that attempts had already been made to modify the stabilizing resistor value; however, the inadvertent tripping persisted. Hence, as a last preventive measure, the OEM had recommended modification of the REF protection scheme.
7. The Forum stated that it could not recommend modification of the REF protection scheme. However, TGGENCO may proceed with the OEM's recommendation after due consideration. The Forum further advised TGGENCO to review the scheme and take appropriate

corrective action if inadvertent tripping persists even after implementation of the modified REF protection scheme.

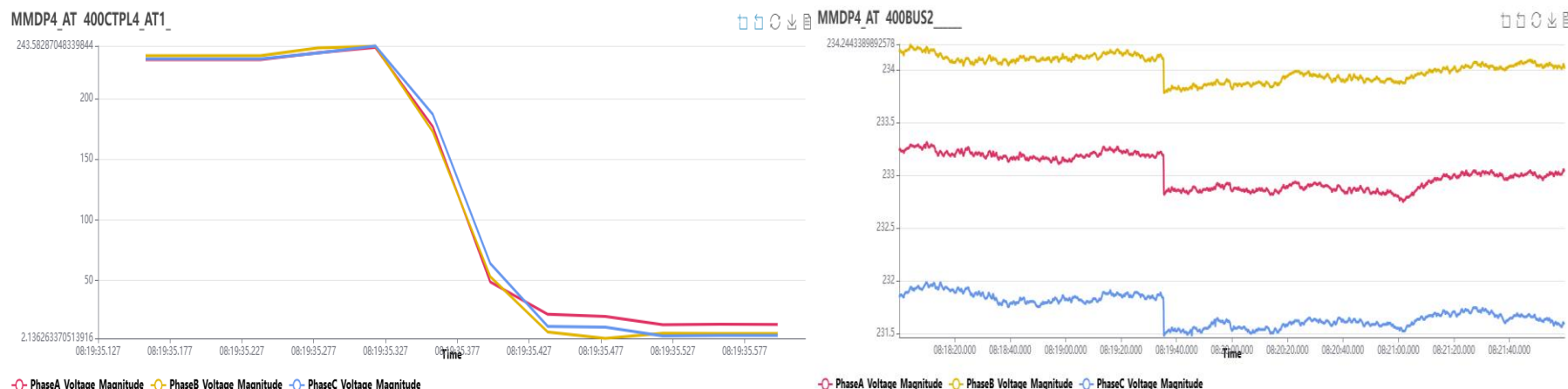


S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
9	400KV-MAMIDAPALLI-CHOUTUPPAL-1	As per the reports submitted, the triggering incident is the PRV Relay maloperation in the 63MVAR line reactor which is kept in OFF condition at MAMIDAPALLI end in 400KV-MAMIDAPALLI-CHOUTUPPAL-1 and the line got tripped suspectedly due to the climbing of peacocks (as per FIR) and DT was sent to remote end. At Choutuppal end, DT was received and the line 3ph tripped.	01-07-2026 08:20	TGTRANSCO: 1. Tripping of the line due to PRV maloperation in the line reactor needs review 2. Non availability of SCADA SOE at CHOUTUPPAL end needs review	

	MAMIDAPALLI	CHOUTUPPAL
FIR	Tripped on operation of PRV protection on 63MVAR line reactor which is kept in OFF condition. Direct trip command was sent to other end Observed PRV operation on line reactor due to climbing of peacocks.	Tripped on Direct trip received indications at Choutuppal end.
DR	DR Trigger Time:01-07-2026 08:19:35.368 1352 B NC-11 1452 Y NC-13, 1452 B NC-14 1352 Y NC-10, 1452 R NC-12 Any Start, 1352 R NC-09, GNRL START-14	DR Trigger Time:01-07-2026 08:19:35.399 L11 DT-1 RECVD L14 GRP-A OPTD, L20 T GRP-A OPTD L1 M CB B PH OPN L4 T CB R PH OPN, L5 T CB Y PH OPN, L6 T CB B PH OPN L2 M CB Y PH OPN L1 M CB R PH OPN

EL	Same as DR	Same as DR
TR	Same as FIR	Same as FIR

PMU Analysis:



From the PMU data, 400KV-MAMIDAPALLI-CHOUTUPPAL-1 3phase tripping can be observed and there was no fault during the event.

Deliberations:

1. TGTRANSCO informed that the triggering incident was maloperation of the Pressure Relief Valve (PRV) relay associated with the 63 MVAR line reactor at Mamidipally end of the 400 kV Mamidipally–Choutuppall-1 line. The line reactor was kept in OFF condition due to the reconfiguration of the line.
2. It was suspected that the PRV relay operated due to peacocks climbing on the equipment, resulting in initiation of the Direct Transfer Trip (DT) command to the remote end. At Choutuppall end, the DT command was received and the line tripped three-phase.
3. TGTRANSCO informed that the DC supply to the line reactor, which is kept in OFF condition, was isolated to prevent recurrence of such unwanted tripping.

Recommendations:

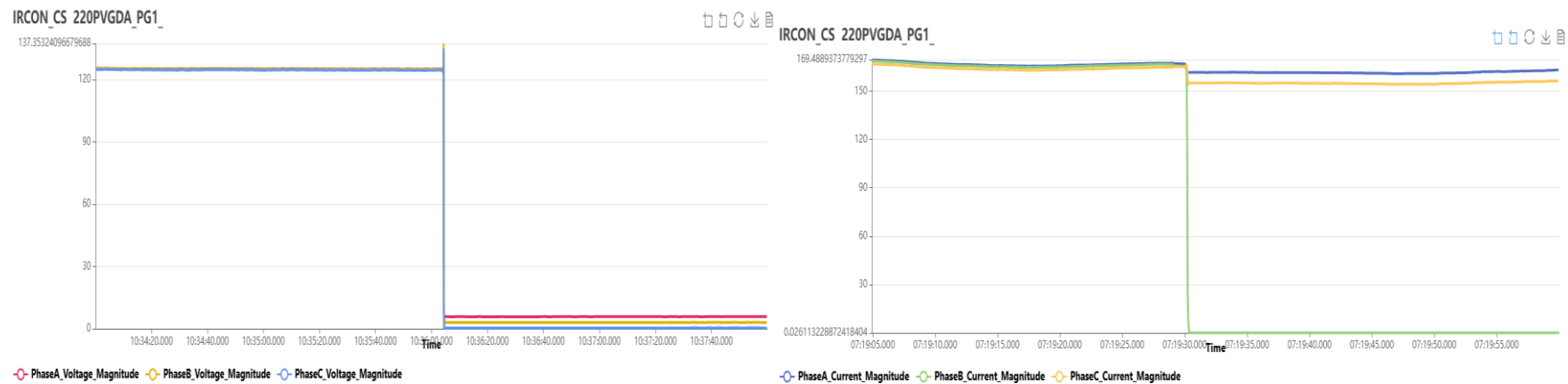
- ✚ TGTRANSCO to review the operation of PRV in the line reactor



S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
10	220KV-PAVAGADA_PG-IRCON_PVG_S-1	As per the reports submitted, the triggering incident is the broken conductor in the line due to Isolator misalignment in Y-phase at 30-06-2026 19:30 Hrs. During the event, tripping of 220 kV PVG-IRCON CKT-1 was observed at both ends where in at IRCON_PVG_S tripped on earth fault protection operation and DT was sent to remote ends. The line at 220 kV Pavagada end tripped on receipt of Direct Trip (DT) signal from the IRCON end.	03-07-2026 10:36	<u>PVG IRCON S</u> : 1. Tripping of the line due to Broken Conductor needs review 2. Sending of DT to remote end needs review	<u>PGCIL SR-2</u>: Line tripped on receipt of DT from IRCON end

	PAVAGADA_PG	IRCON_PVG_S
FIR	Line tripped on receipt of DT from IRCON end	On 03-07-2026 at 10:26 PVG IRCON CKT-1 tripped on Master trip Operated and Zonal protection common fault. Observed Zero Current flowing through CT of Y Phase. Checking work under progress
DR	DR Trigger Time:03-07-2026 10:36:03.678 >Trig.Wave.Cap., DTRC1/2 GRA/B_OPD PR3P_TR M CB_YO, M CB_BO M CB_RO	DR Trigger Time: 09:24:52.662 BRC Start
EL	NA	67N picked up FORWARD ON 50N-2 PICKED UP ON 50N / 51N: Trip 3pole ON 50N-2 TRIP ON
TR	Same as FIR	NA

PMU Analysis:



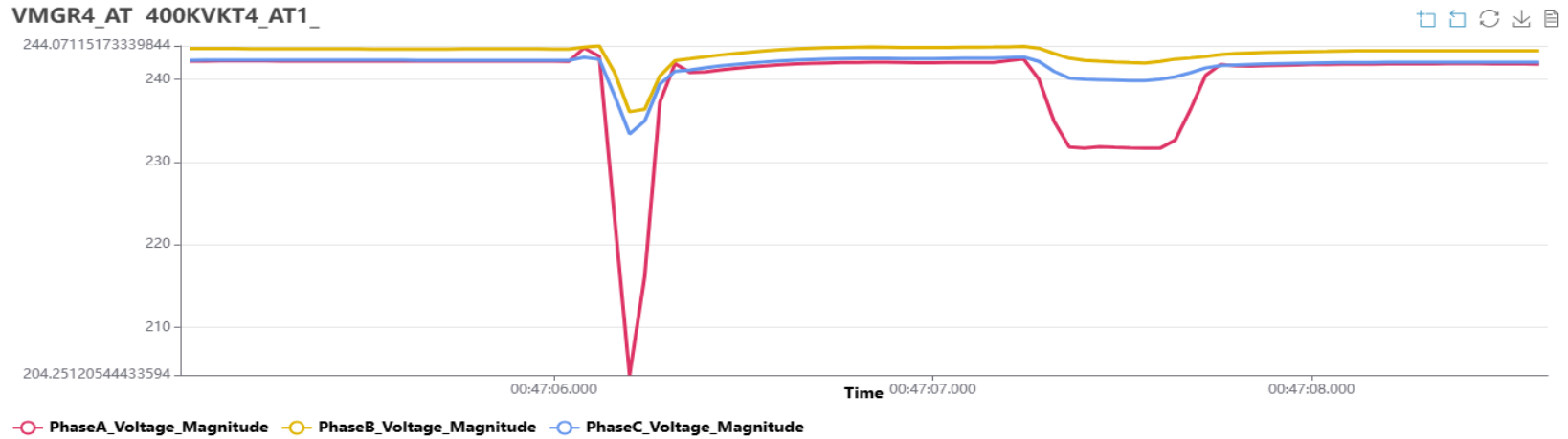
From the PMU data, 220KV-PAVAGADA_PG-IRCON_PVG_S-1 line change in power can be observed.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
11	400KV-GUDDIGUEDEM-HINDUJA-2	As per the reports submitted, the triggering incident is R-G fault on 400KV-GUDDIGUEDEM-HINDUJA-2 line. At GUDDIGUEDEM end, the fault was detected in Z2 and Tripped on carrier aided trip. A/R operated but on the persistent fault sensed in Z2, tripped after Z2 time around 350ms without SOTF operation. At HINDUJA end, the fault was sensed in Z1, AR did not get operated due to the adaptive AR voltage logic as the grid end failed to auto reclose successfully and 3ph tripped.	04-07-2026 00:47	<u>APTRANSCO</u> : 1. Non operation of SOTF/ToR during AR operation leading to delayed fault clearance needs review	<u>APTRANSCO</u> : Earth wire snapped between the loc.no 18 & 19. Attended the rectification work by lines wing.

	GUDDIGUEDEM	HINDUJA
FIR	Feeder was tripped at both ends, Auto reclosure unsuccessful at Guddigudem end due to fault persisting	HNPCL-Guddigudem Line-2 tripped on Zone-1 R-Phase fault. A/R not operated due to time-based AR operation (AR Lockout occurred before re-closing due to under-voltage sensing).
DR	DR Trigger Time:04-07-2026 00:47:06.183 PHS-STFWL1, PHS-STFWPE PHS-STND ZONE4 START EF START ZONE2 START CARR RCV CH1	DR Trigger Time:04-07-2026 00:47:06.185 PHS-STFWL1, PHS-STFWPE TRIP, TRIP-R, ZM01-TRIP, ZM01-START, ZM02-START, ZM03-START, ZM04-START, CARR_SEND TUV1-START, TUV2-START, TUV1-TRIP AR_LO, TR_R_MAIN_CB

	CAR RECC, ZCOM CRL TIE CB OP R MAIN CB OP R M1 PROTN OPTD, ZCOM TRIP, ZCOM TRIP, MAIN_TRIP R, TIE_TRIP R, AR-START FAULT LOOP R M_PREP 3PH TR, T_PREP 3PH TR FF_BLKU MCB ARCLS CMD PHS-STND PHS-STFWL1, PHS-STFWPE EF START ZONE4 START ZONE2 START MCB AR SUCESS M1 PROTN OPTD, ZONE1 TRIP, ZONE1 START, ZCOM CS, MAIN CB 3P TR, TIE CB 3P TR, MAIN_TRIP R, MAIN_TRIP Y, MAIN_TRIP B, TIE_TRIP R, TIE_TRIP Y, TIE_TRIP B, AR-START FAULT LOOP R TIE CB OP B MAIN CB OP R, TIE CB OP Y MAIN CB OP Y, MAIN CB OP B ZONE2 TRIP, AR-BLOCK	AR BLK UV TOV1_START CARRIER_RECD2, CARRIER_REC
EL	Same as DR	Same as DR
TR	Same as FIR	Same as FIR

PMU Analysis:



From the PMU plot, R-G fault can be observed with delayed fault clearance.

Deliberations:

1. APTRANSCO informed that the triggering incident was an R-G fault on the 400 kV Guddigudem–Hinduja-2 line. At Guddigudem end, the fault was detected in Zone-2, and carrier-aided tripping operated along with Auto Reclosure (AR). As the fault persisted, it was subsequently cleared on Zone-2 time-delayed tripping after approximately 350 ms. TOR protection did not operate.
2. At Hinduja end, the fault was detected in Zone-1. Auto Reclosure (AR) did not operate due to the adaptive AR voltage logic, as the grid-end breaker failed to reclose successfully. Subsequently, three-phase tripping operated.
3. The non-operation of SOTF/ToR during AR operation resulted in delayed fault clearance. APTRANSCO informed that the earth wire had snapped between Location Nos. 18 and 19.
4. As a remedial measure, APTRANSCO informed that the ToR settings were enabled at Guddigudem end on 29.07.2026. The settings were tested and found satisfactory.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
12	Multiple trippings at 400kV Nellore SS	As per the reports submitted, a 400 kV Bus-2 shutdown was availed against OCC-296, and all breakers connected to Bus-2 were opened. When the last breaker, i.e., 1252 (ICT-3 HV CB), was manually tripped, the VTPS (401) Reactor Busbar Protection relay operated due to loss of voltage to the relay and issued trip signals to the Main and Tie breakers of the 400 kV Nellore AP-VTPS IV-1 line. Consequently, DTT signal was sent to the VTPS end. The 400 kV/220 kV Nellore AP ICT-1 was in the same dia as the 400 kV Nellore AP-VTPS IV-1 line, and its Main CB was already under manual trip condition due to the 400 kV Bus-2 shutdown, while the supply was being fed through 400 kV Bus-1 via the 400 kV VTPS feeder and Tie-1. Therefore, tripping of the line led to tripping of the 400/220kV ICT-1.	09-07-2026 10:14	<u>APTRANSCO</u> : Operation of Line reactor relay impedance protection during loss of voltage at Nellore SS needs review	

400KV/220KV NELLORE_AP-ICT-1

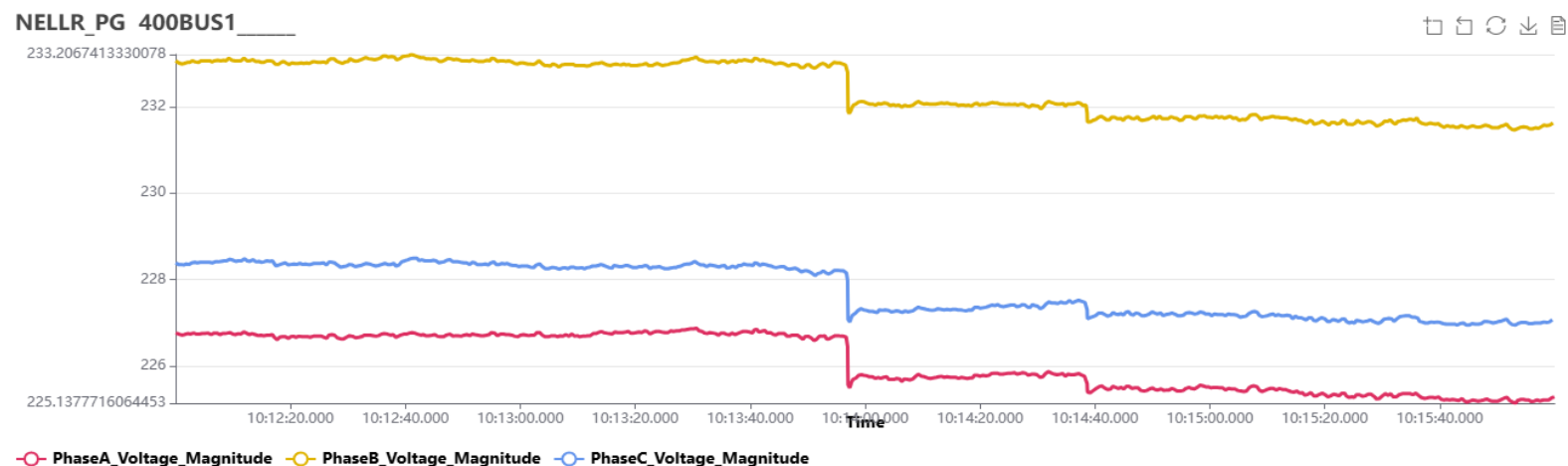
	NELLORE_AP
FIR	NIL
DR	NA
EL	NA
TR	NIL

400KV-NELLORE_AP-VTPS_IV-1

	NELLORE_AP	VTPS_IV
FIR	Due to non-selection of 75C voltage selection relay because of loose contact in the wiring, when 400 kV Bus 2 voltage is interrupted, voltage to the Reactor Backup impedance relay through 75B failed and it has issued trip signal.	DT Ch-1 & 2 received from other end
DR	DR Trigger Time:09-07-2026 10:13:56.425 21R STARTED 21R TRIP OPTD GENERAL_TRIP, TRIP R-PH, TRIP Y-PH, TRIP B-PH 21R TRIP OPTD, 21R STARTED 21R TRIP OPTD, 21R STARTED 21R TRIP OPTD, 21R STARTED 21R STARTED 21R STARTED DR Trigger Time:09-07-2026 10:13:56.961 AR_LOCKOUT TIE_CB_PREP3P MAIN_CB_R_OP MAIN_CB_B_OP MAIN_CB_Y_OP TIE_CB_R_OPEN TIE_CB_Y_OPEN TIE_CB_B_OPEN TOV1-START TOV1-START TOV1-START DT_RECV_CH1/2	DR Trigger Time:09-07-2026 10:13:56.964 DT CH-1 RECVD DT CH-2 RECVD GR_A_OPTD TEF1-2NDHARMD GR_B_OPTD CB_POLE_OPEN MAIN CB R CLS, MAIN CB Y CLS, MAIN CB B CLS TEF1-2NDHARMD CB_POLE_OPEN TOV1_STG1/UF GEN_TRIP, TRIP-R POLE, TRIP-Y POLE, TRIP-B POLE, 3PH_TRIP DT CH-1 RECVD DT CH-2 RECVD TOV1_STG1/UF GEN_TRIP, TRIP-R POLE, TRIP-Y POLE, TRIP-B POLE, 3PH_TRIP TOV1_STG1/UF TOV1_STG1/UF GEN_TRIP, TRIP-R POLE, TRIP-Y POLE, TRIP-B POLE, 3PH_TRIP TOV1_STG1/UF

	MAIN1_TRIP, 3PH_GR_A_OPTD, 3PH_GR_B_OPTD, TRP1-TRL1, TRP1-TRL2, TRP1-TRL3, TIE_TRP1-TRIP, TIE_TRP1- TRL1, TIE_TRP1-TRL2, TIE_TRP1-TRL3	TOV1_STG1/UF GEN_TRIP, TRIP-R POLE, TRIP-Y POLE, TRIP-B POLE, 3PH_TRIP DT CH-1 RECVD DT CH-2 RECVD
EL	Same as DR	Same as DR
TR	Same as FIR	Same as FIR

PMU Analysis:



From PMU, no fault is observed during the event.

Deliberations:

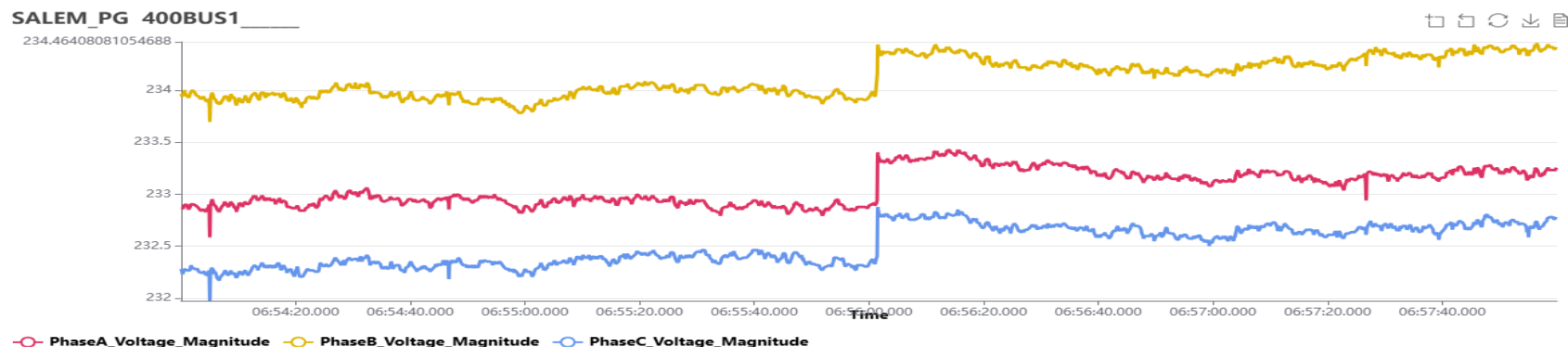
1. While the process of issuing Line Clear (LC) for 400 kV Bus-2 was in progress, for which all circuit breakers (CBs) connected to Bus-2 were required to be manually tripped.
 - i. Accordingly, CBs 3-52 (Main CB of 315 MVA ICT-1), 6-52 (Main CB of 315 MVA ICT-2), 9-52 (Main CB of 500 MVA ICT-4), and 12-52 (Main CB of 315 MVA ICT-3) were scheduled for manual tripping.
 - ii. Initially, CB 3-52 was manually tripped. Consequently, 315 MVA ICT-1 remained connected to 400 kV Bus-1 through Tie CB 2-52. CB 1-52 is the main CB of the VTPS feeder.

- iii. Subsequently, CBs 6-52 and 9-52 were also manually tripped as part of the process of issuing LC for 400 kV Bus-2.
 - iv. Finally, while manually tripping CB 12-52, *the VTPS line reactor tripped due to the operation of backup impedance protection*, which also resulted in the tripping of Tie CB 2-52. The backup impedance protection operated due to the pickup of 75B (Bus-2 voltage) voltage selection relay instead of 75C (line voltage) voltage selection relay, owing to a loose contact in the voltage selection relay circuit.
2. Consequently, 315 MVA ICT-1 was disconnected from the 400 kV (HV) grid, while its 220 kV (LV) side remained energized and connected to the 220 kV system.
 3. As a remedial measure, the loose contact in the voltage selection relay circuit was rectified.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
13	400KV/230KV SALEM_TN-ICT-2	As per the reports submitted, 400KV/230KV SALEM_TN-ICT-2 got tripped on Moisture ingress in R phase PRV switch. It is reported that on verification inconsistent performance of contact was observed. Hence the same was replaced with spare one	12-07-2026 06:56	<u>TANTRANSCO:</u> PRV maloperation needs review	<u>TANTRANSCO:</u> 1 Defective contact of R phase PRV switch was replaced. 2 Sealant applied to arrest moisture ingress. 3 IR value checked & found Normal.

	SALEM_TN
FIR	Moisture ingress observed in R phase PRV switch. on Verification inconsistent performance of contact was observed. Hence the same was replaced with spare one
DR	DR Trigger Time:12-07-2026 06:56:01.462 Osc Trig On, PRV TRIP On
EL	Same as DR
TR	Same as FIR

PMU Analysis:



From the PMU plot, no fault is observed

Deliberations:

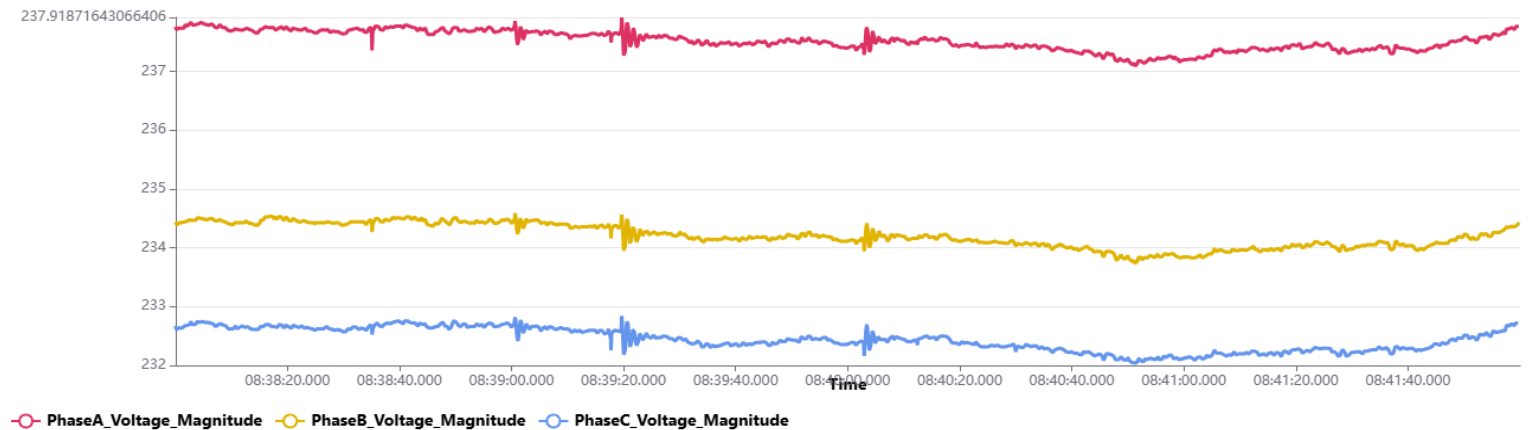
- As per the reports submitted, 400KV/230KV SALEM_TN-ICT-2 got tripped on Moisture ingress in R phase PRV switch. It is reported that on verification inconsistent performance of contact was observed.
- Remedial action taken by TANTRANSCO
 - Defective contacts of R phase PRV switch was replaced.
 - Sealant applied to arrest moisture ingress.
 - IR value checked & found Normal.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
14	400KV/220KV TALGUPPA-ICT-3	As per the reports submitted, the triggering incident was operation of low set backup overcurrent protection due to momentary rise in CT R-phase current due suspected CT cable failure.	14-07-2026 08:40	KPTCL: Tripping of the ICT on backup overcurrent protection due to CT cable failure	

	TALGUPPA
FIR	315 MVA ICT 3 tripped on 400KV Side Backup OC/EFR protection Max current IL1:0.45xIn Max current IL2:0.234xIn Max current IL3:0.222xIn Recorded momentary shoot up of R phase current leads to tripping under Low set of Backup OCR relay (ABB REF 615) System fluctuation leads to rise of current in R phase leads to tripping stage 2 set value- 0.45 X In i.e. 500A Definite time Non directional time setting 500ms
DR	NA
EL	31I>-> (1) OPERATE 31>-> (2) OPERATE 31>-> (2) START
TR	Same as FIR

PMU Analysis:

HASAN_PG 400TLGPA_KA1_



From PMU, no fault is observed during the event

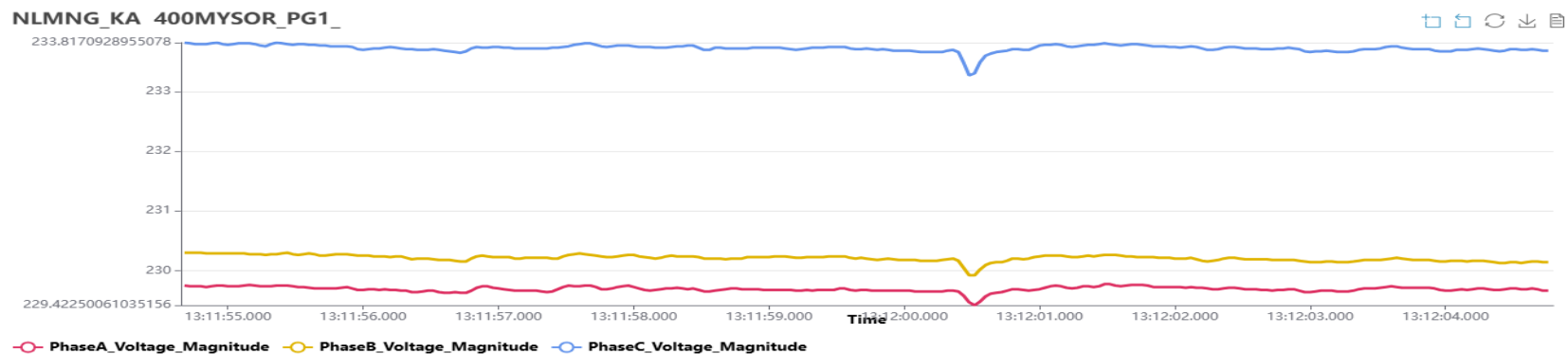
Deliberations:

1. In the Prefault scenario 400kV Talaguppa, 315 MVA ICT-1 and 2 were operating in parallel and 315MVA ICT-3 was operating in radial mode. ICT-1 & 2 were carrying load to an extent of 115 MW each, and ICT-3 load was 145MW.
 - **315 MVA ICT-1 & 2:** 220kV ST- 1&2 line and STRP line, ST1 line was under scheduled outage.
 - **315MVA ICT-3:** 220kV ST-3 line was connected.
2. KPTCL informed that on 14-07-2026 at 08:40 Hrs, HV CB of 315 MVA ICT-3 tripped on operation of back up over current protection due to operation of $3I >> 2$ protection function. Current recorded on HV side of ICT-3 in R phase was double the current recorded in Y&B phases.
 - R phase: 0.45A secondary (450 Amp primary); with CTR: 1000/1A
 - Y phase: 0.234 A Secondary (234 Amp primary);
 - B phase: 0.222 A Secondary (222 Amp primary);
3. Momentary fluctuations were observed which resulted in shoot-up of R phase (current more than 0.5Amp) resulted in tripping of ICT-3 on operation of HV side Backup OCR relay (ABB REF 615) .
4. KPTCL further informed that, after charging the ICT, a similar tripping occurred on the same day at 13:12 hrs.
5. KPTCL informed that a detailed investigation was carried out to identify the reason for the R-phase current being recorded at approximately twice the magnitude of the currents in the other two phases by the HV-side backup protection relay. During the investigation, it was found that the 4th core of the 400 kV CT, connected to the backup protection with terminals 4S1 and 4S3 for a 1000/1 A ratio, had a severely arced 4S1 terminal lug. Due to a loose connection at the 409 bays, the R-phase CT secondary 4S1 lead and lug had arced and intermittently open-circuited, resulting in the 4S1 lead making contact with the 4S2 terminal on the CT secondary terminal board.
6. KPTCL informed that, due to the above issue, the effective CT ratio for the R-phase backup overcurrent protection was reduced from 1000/1 A to 500/1 A, resulting in the operation of the backup overcurrent protection and subsequent tripping of the ICT. The issue was rectified before restoration of the ICT.
7. KPTCL further informed that as a preventive measure advised the field officials to check the similar cable integrity in all other bays.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
15	400KV/220KV TALGUPPA-ICT-3	As per the reports submitted, the triggering incident was operation of low set backup overcurrent protection due to momentary rise in CT R-phase current due suspected CT cable failure.	14-07-2026 13:12	KPTCL: Tripping of the ICT on backup overcurrent protection due to CT cable failure	

	TALGUPPA
FIR	315 MVA ICT#3 tripped on 400KV Side Backup OC/EFR protection Max current IL:0.45xIn Max current IL2:0.234xIn Max current IL3:0.222xInRecorded momentary shoot up of R phase current leads to tripping under Low set of Backup OCR relay (ABB REF 615) System fluctuation leads to rise of current in R phase leads to tripping stage 2 set value- 0.45 X In i.e. 500A Definite time Non directional time setting 500ms.
DR	NA
EL	31I>-> (1) OPERATE 31>-> (2) OPERATE 31>-> (2) START
TR	Same as FIR

PMU Analysis:



From PMU, no fault is observed during the event.

Deliberations:

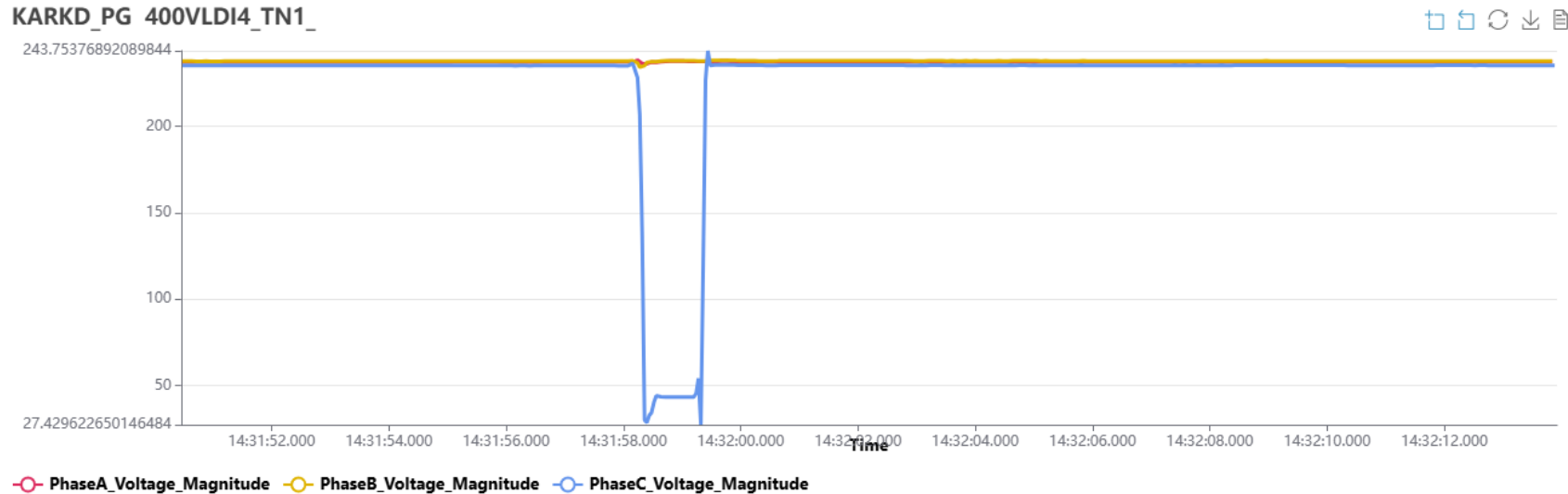
1. In the Prefault scenario 400kV Talaguppa, 315 MVA ICT-1 and 2 were operating in parallel and 315MVA ICT-3 was operating in radial mode. ICT-1 & 2 were carrying load to an extent of 115 MW each, and ICT-3 load was 145MW.
 - **315 MVA ICT-1 & 2:** 220kV ST- 1&2 line and STRP line, ST1 line was under scheduled outage.
 - **315MVA ICT-3:** 220kV ST-3 line was connected.
2. KPTCL informed that on 14-07-2026 at 08:40 Hrs, HV CB of 315 MVA ICT-3 tripped on operation of back up over current protection due to operation of 3I>>2 protection function. Current recorded on HV side of ICT-3 in R phase was double the current recorded in Y&B phases.
 - R phase: 0.45A secondary (450 Amp primary); with CTR: 1000/1A
 - Y phase: 0.234 A Secondary (234 Amp primary);
 - B phase: 0.222 A Secondary (222 Amp primary);
3. Momentary fluctuations were observed which resulted in shoot-up of R phase (current more than 0.5Amp) resulted in tripping of ICT-3 on operation of HV side Backup OCR relay (ABB REF 615) .
4. KPTCL further informed that, after charging the ICT, a similar tripping occurred on the same day at 13:12 hrs.
5. KPTCL informed that a detailed investigation was carried out to identify the reason for the R-phase current being recorded at approximately twice the magnitude of the currents in the other two phases by the HV-side backup protection relay. During the investigation, it was found that the 4th core of the 400 kV CT, connected to the backup protection with terminals 4S1 and 4S3 for a 1000/1 A ratio, had a severely arced 4S1 terminal lug. Due to a loose connection at the 409 bays, the R-phase CT secondary 4S1 lead and lug had arced and intermittently open-circuited, resulting in the 4S1 lead making contact with the 4S2 terminal on the CT secondary terminal board.
6. KPTCL informed that, due to the above issue, the effective CT ratio for the R-phase backup overcurrent protection was reduced from 1000/1 A to 500/1 A, resulting in the operation of the backup overcurrent protection and subsequent tripping of the ICT. The issue was rectified before restoration of the ICT.
7. KPTCL further informed that as a preventive measure advised the field officials to check the similar cable integrity in all other bays.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
16	400KV/230KV VELLALAVIDUTHI-ICT-3	As per the reports submitted, at 400kV Vellalaviduthi- Karaikudi line, the triggering incident B-G fault was sensed in Z1 and AR operated and was successful at Vellalaviduthi end (as per FIR and PMU). During which, Vellalaviduthi ICT-3 tripped with HV instantaneous earth fault protection.	14-07-2026 14:31	<u>TANTRANSCO</u> : Tripping of 400KV/230KV VELLALAVIDUTHI-ICT-3 for fault in 400KV-VELLALAVIDUTHI-KARAIKUDI-1	<u>TANTRANSCO</u> : Setting revised as per TANTRANSCO protection setting Policy

	VELLALAVIDUTHI
FIR	For a single line to ground fault (B, N) in 400kV Vellalaviduthi- Karaikudi line AR successful at Vellalaviduthi end. During that time ICT.3 tripped with HV instantaneous earth fault protection operated.
DR	DR trigger time: 14:31:58.259hrs Ib-1064kA Inst earth fault operated 3P trip
EL	FD. Pkp INSTANT_EARTH_FAULT_OPTD Op_Prot INSTANT_EARTH_FAULT_START MAIN_CB_OPEN LBB_3-PHASE_INITIATION
TR	Same as FIR

PMU Analysis:

KARKD_PG 400VLDI4_TN1_



From the PMU Analysis, B-G fault can be observed in 400kV Vellalaviduthi Karaikudi Line-1 with A/R successful during the event.

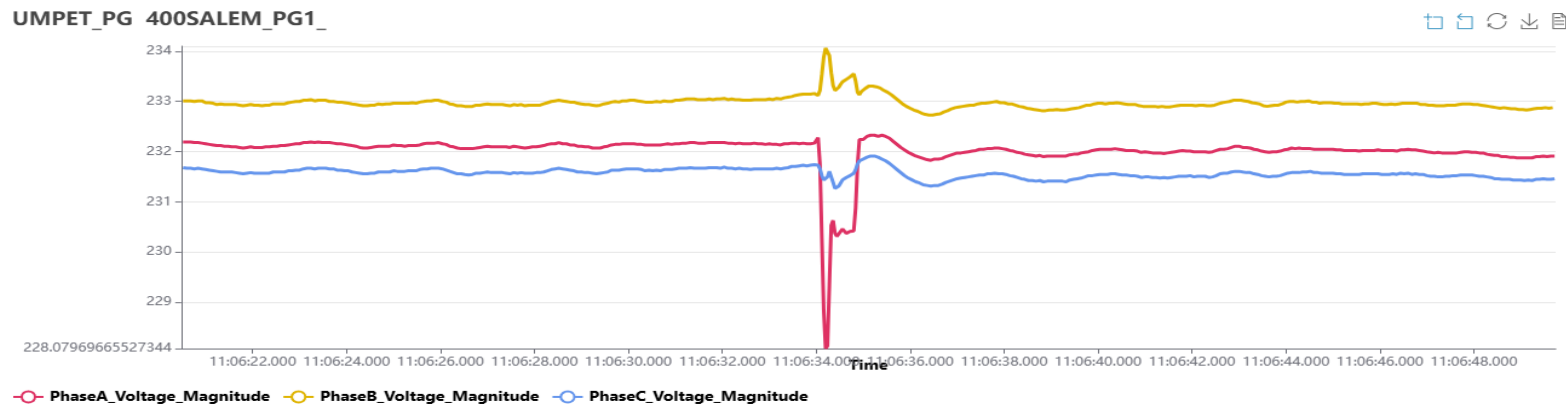
Deliberations:

1. As per the reports submitted, at 400kV Vellalaviduthi- Karaikudi line, the triggering incident B-G fault was sensed in Z1 and AR operated and was successful at Vellalaviduthi end (as per FIR and PMU). During that time, Vellalaviduthi ICT-3 tripped with HV instantaneous earth fault protection.
2. Remedial action instantaneous earth fault set as 1.70 time of I nominal. Setting revised as per TANTRANSCO protection setting Policy (ie.11.5 time of I nominal) on 14-07-2026 in ICT3.
3. SRPC advised TANTRANSCO to review the other ICTs protection settings.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
17	220KV-UDUMALPET-Pallivasal-1	As per the reports submitted, the triggering incident was R-G fault in the line. At Pallivasal end, the fault was sensed in Z2 at a distance of 56km and carrier was also received and the line tripped with a delay of around 550ms. At Udumalpet end, the fault was sensed in Z1 at a distance of 20km and A/R operated and was successful	15-07-2026 11:06	KSEB: Delayed tripping of the line at Pallivasal even after sensing in Z one-2 and receiving carrier signal	

	UDUMALPET	PALLIVASAL
FIR	For a single line to ground fault in R phase AR successful	DISTANCE PICK UPZONE-2, DISTANCE-M1-56.30 KM Phase R
DR	DR Trigger Time:15-07-2026 11:06:34.108 Any Start T1 DIST Fwd, DIST Start A Z3 Z2 Any Trip, DIST Trip A, Z1, DIST Sig. Send A/R 1P In Prog CB Aux A Any Pole Dead Z3 A/R Close	DR Trigger Time:15-07-2026 11:06:34.121 Relay PICKUP, Relay PICKUP L1, Relay PICKUP E >DisTel Rec.Ch1 Dis.Pickup L1, Dis. Pickup Z2, Dis. Pickup Z3 Dis.TripZ2/3p, Relay TRIP L1, Relay TRIP L2, Relay TRIP L3, Relay TRIP 86.1&2 opt
EL	Same as DR	Same as DR
TR	Same as FIR	Same as FIR

PMU Analysis:



From the PMU Analysis, R-G fault can be observed during the event with a delay of around 760ms.

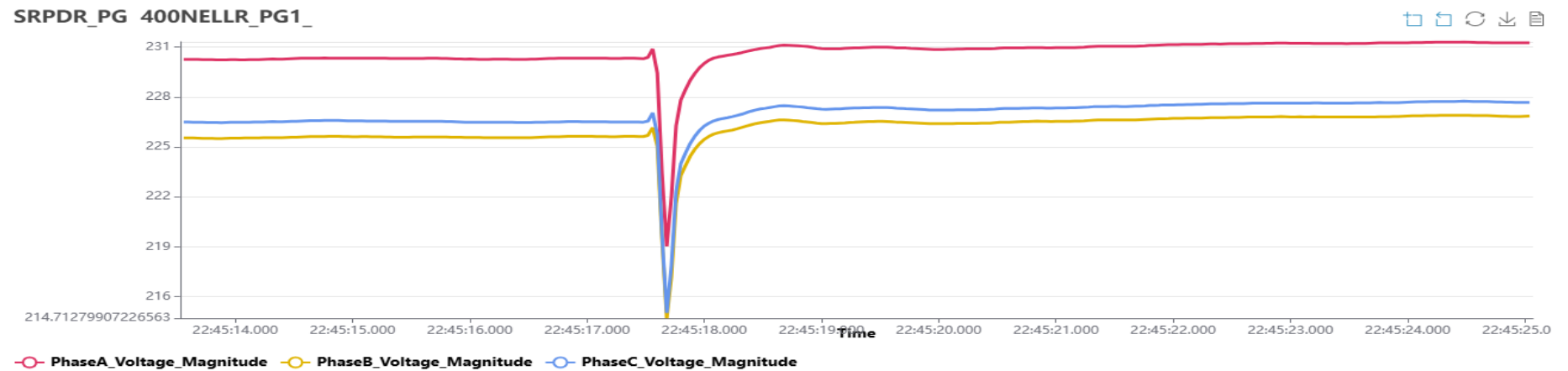
Deliberations:

1. KSEB informed that, as per the reports submitted, the triggering incident was an R-G fault on the line. At Pallivasal end, the fault was detected in Zone-2 at a distance of 56 km, and the carrier signal was received. However, the line tripped after a delay of approximately 550 ms. At Udumalpet end, the fault was detected in Zone-1 at a distance of 20 km, and Auto-Reclosure (A/R) operated successfully.
2. KSEB further informed that the delayed tripping at Pallivasal end occurred despite detection of the fault in Zone-2 and receipt of the carrier signal. The fault was detected at Pallivasal end after the circuit breaker had already tripped at Udumalpet end. The Zone-2 time delay at Pallivasal end was set at 500 ms.
3. KSEB informed that the carrier last time was set at 12 ms, which was considered insufficient and may have contributed to the delayed Zone-2 tripping at Pallivasal end despite receipt of the carrier signal.
4. KSEB further informed that, following the incident, the carrier last time setting of the 220 kV Udumalpet–Pallivasal-1 line was increased from 12 ms to 100 ms.
5. The Forum advised KSEB to maintain the carrier last time at 100 ms for all applicable transmission lines, subject to the approved protection and communication scheme, to avoid recurrence of similar incidents.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
18	400KV/110KV MANALI-ICT-1	As per the reports submitted, 400KV/110KV MANALI-ICT-1 got tripped on REF protection for a through fault in the 110kV Manali-Mathur feeder (RYB fault during test charging of the line).	15-07-2026 22:45	<u>TANTRANSCO</u> : 1. REF operation for 400KV/110KV MANALI-ICT-1 during a through fault needs review	<u>TANTRANSCO</u> : REF operating time is revised from 0 msec to 30msec

	MANALI
FIR	During test charging of 110kV Manali Mathur feeder, REF trip operated
DR	DR Trigger Time:15-07-2026 22:45:17.427 FD.Pkp, HVS. 64REF.TrigDFR 87T.TrigDFR_Biased HVS. 64REF.Op, TrpOut01, TrpOut02, TrpOut04, TrpOut05, Sig_Trp ICT_HV_52_CB_STATUS Or16.out, Or16.out, Or16.out, ICT_TIE_52_CB_STATUS, Or16.out ICT_LV_52_CB_STATUS
EL	Same as DR
TR	Same as FIR

PMU Analysis:



From the PMU plot, RYB fault can be observed during the event without any delayed fault clearance

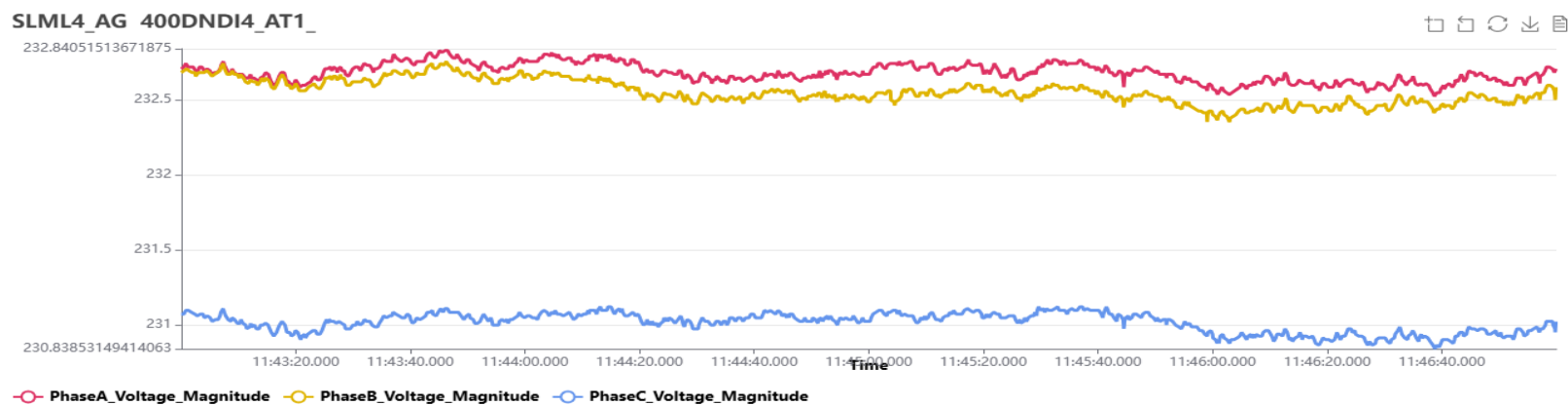
Deliberations:

1. As per the reports submitted, 400KV/110KV MANALI-ICT-1 got tripped on REF protection for a through fault in the 110kV Manali-Mathur feeder (RYB fault during test charging of the line).
2. Remedial action: As per the OEM recommendation REF operating time is revised from 0 msec to 30msec.
3. SRLDC advised TANTRANSCO to examine the other relays in the 400kV Manali SS.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
19	220KV-SRISAILAM_RIGHT_BANK-DINDI-1	As per the reports submitted, 220KV-SRISAILAM_RIGHT_BANK-DINDI-1 line got tripped on pole discrepancy indications at Dindi end only due to suspected DC earth leakage (as per FIR). Line was holding at Srisailam end.	19-07-2026 11:45	TGTRANSCO: 1. Tripping of the CB on PD due to DC earth leakage needs review	

	SRISAILAM_RIGHT_BANK	DINDI
FIR	Feeder tripped at other end only due to Circuit breaker problem	Tripped on pole discrepancy indications at Dindi end only due to suspected DC earth leakage
DR	NA	NA
EL	NA	CL_Y-PH_POS Open AL_POLE DISC Alarm R-PH_POS Open B-PH_POS Open
TR	Same as FIR	NA

PMU Analysis:



From the PMU plot, no fault is observed

Deliberations:

1. TGTRANSCO informed that the 220 kV Srisailam Right Bank–Dindi-1 line tripped on Pole Discrepancy (PD) indication at Dindi end only, suspected to be due to DC earth leakage, as indicated in the FIR. The line remained in service from the Srisailam end.
2. TGTRANSCO further informed that during the line clearance (LC) availed on 23.07.2026, a lizard was found inside the Breaker Marshalling Box (MB) and was removed. TGTRANSCO also informed that the O&M staff were instructed to ensure proper sealing of all cable glands to prevent ingress of external objects and recurrence of such incidents.

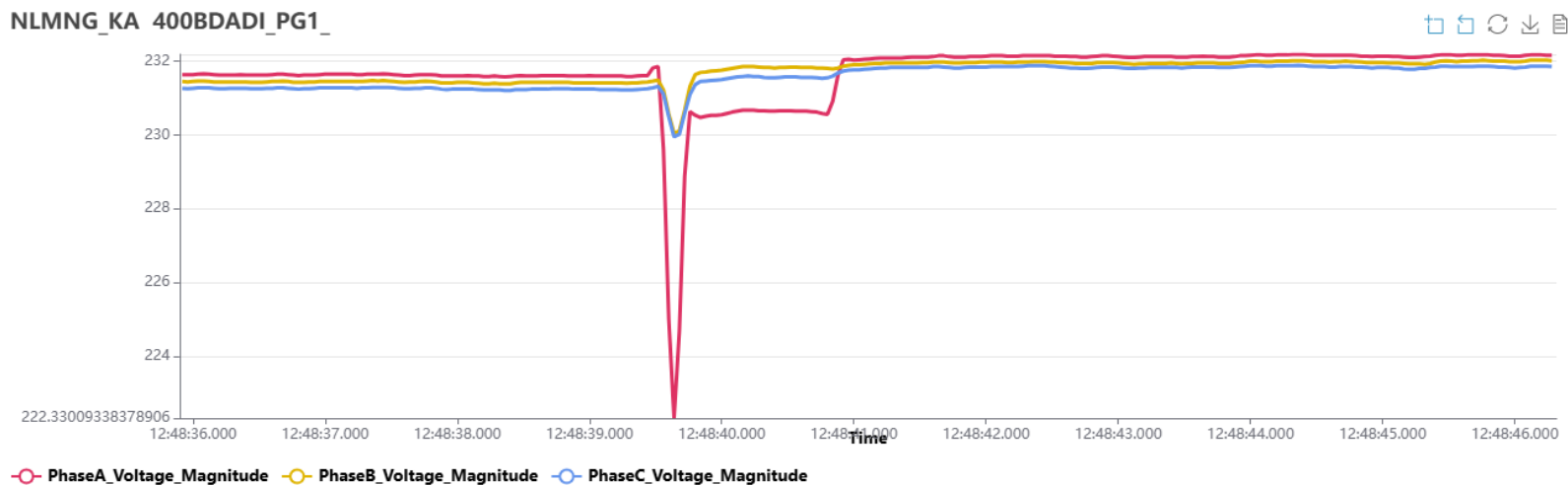
S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
20	400KV-NELAMANGALA-TALGUPPA-1	As per the reports submitted, the triggering incident was R-G fault in the line. At Neelmangala end, the fault was sensed in Z1 at a distance of 396km and A/R operated and was successful. At Talaguppa end, the fault was sensed in Z1 at a distance of 39km and R-pole opened. After around 120ms, Y and B poles opened upon receiving DT. Line is under charged condition from Neelmangala end.	19-07-2026 12:48	<u>KPTCL</u> : Tripping of the line only at Talaguppa end on receiving DT	<u>KPTCL</u> : Line synchronized at Talaguppa end at 13:18 Hrs

	NELAMANGALA	TALGUPPA
FIR	400kV Neelmangala-Talaguppa line Auto-reclosure successful at Neelmangala end. However, line tripped at Talaguppa end.	400KV Talaguppa-Neelmangala line tripped on DPR M2. Line is under charged condition from Neelmangala end.
DR	DR Trigger Time:19-07-2026 12:48:39.585 T1 L1 CARR RECV CH2, DIST UNB CR	DR Trigger Time:19-07-2026 12:48:39.588 Any Start DIST Start A, Any Trip A, Z1, DIST Sig. Send,

	Z3 Any Trip, Z1, DIST Sig. Send L12 TIE R OPEN L9 MAIN R OPEN L8 MAIN CB AR CL	DIST Fwd, Any Trip, R PH TRP LINE CB, R PH TRIP TIE CB, CARRIER SEND, CARRIER SEND R PH TIE CB OPN R PH LINE CB OPN DIST. Chan Recv, CARRIER RECEIVED DT RECEIVED A/R Lockout, AR LOCKOUT, 86A/86B OPERATED, BAR B PH TIE CB OPN Y PH LINE CB OPN, B PH LINE CB OPN Y PH TIE CB OPN
EL	Same as DR	Same as DR
TR	Same as FIR	Same as FIR

PMU Analysis:

NLMNG_KA 400BDADI_PG1_



From the PMU plot, R-G fault can be observed during the event without any delayed fault clearance

Deliberations:

1. KPTCL informed that, as per the reports submitted, the 400 kV Nelamangala–Talaguppa-1 line tripped on 19.07.2026 at 12:48 hrs due to receipt of a spurious Direct Transfer Trip (DT) signal at Talaguppa end.
2. KPTCL further informed that, at Nelamangala end, an R-phase-to-ground fault occurred with a fault current of 1.43 kA. The fault was detected in Zone-1 at a distance of 274.7 km, and the line successfully auto-reclosed.
3. At Talaguppa end, the 400 kV Nelamangala line detected an R-N fault in Zone-1 at a distance of 39 km from Talaguppa end. Initially, the R-phase pole opened after approximately 120 ms. Subsequently, the Y- and B-phase poles also opened due to receipt of a spurious DT signal, while the line was being fed from the Nelamangala end.
4. KPTCL informed that the issue of spurious DT operation is persisting. Accordingly, end-to-end testing of the PLCC channels along with through-checking of the complete protection and communication scheme at both ends has been scheduled for 14.08.2026, jointly by the RT and TCD teams. KPTCL informed that a detailed report would be submitted after completion of the testing.
5. SRPC enquired about the healthiness of the OPGW cable associated with the 400 kV Nelamangala–Talaguppa-1 line. KPTCL informed that the OPGW is healthy. KPTCL further informed that, if the issue is not resolved during the scheduled end-to-end testing on 14.08.2026, the DT scheme would be configured through DTPC to eliminate the possibility of spurious DT operation due to PLCC-related issues.

Recommendations:

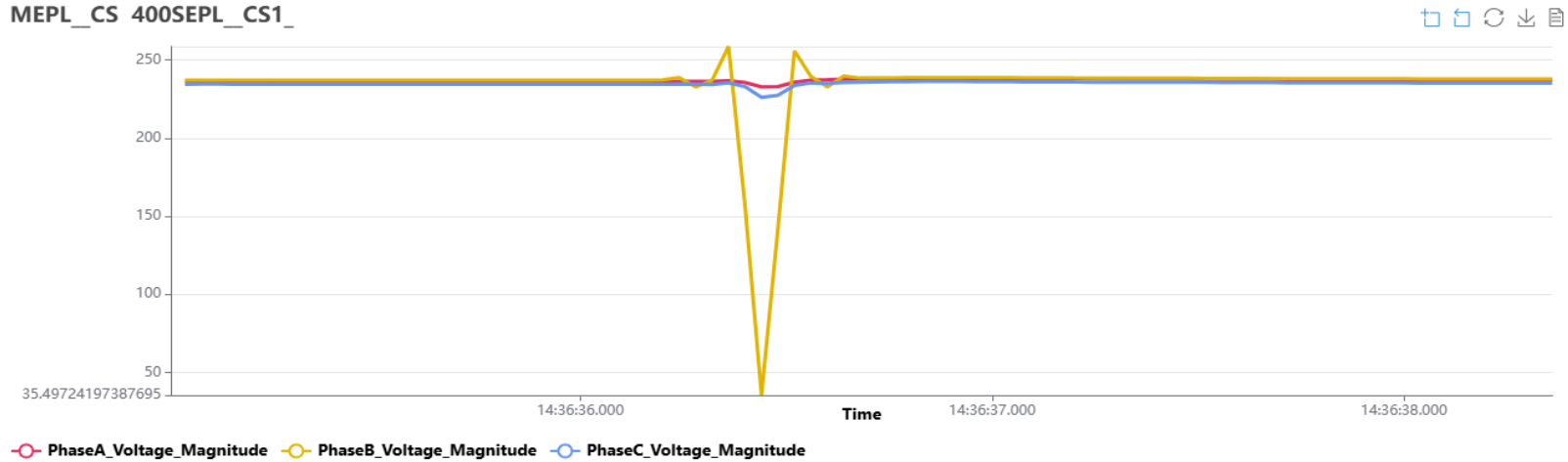
- ✚ KPTCL to submit detailed report on the end-to-end testing of PLCC channels along with the findings of RT and TCD teams at both ends of the line

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
21	400KV-MEPL-SEPL-1	As per the reports submitted, the triggering incident was Y-G fault Insulator failure in GT-4 at SEPL (as per SCADA SOE). At SEPL end, the Y-G fault was sensed in Instantaneous over current protection (non-directional) and the line tripped. Line was holding at MEPL end.	19-07-2026 14:36	<u>SEPL</u> : 1. Enabling of Over Current Protection in 400kV lines needs review	<u>SEPL</u> : Faulty Insulator replaced

	MEPL	SEPL
FIR	NA	Due to Insulator Failure in gt-4 circuit, fault fed through SEL_MEPL line and got tripped on Y-Phase fault
DR	NA	DR Trigger Time:19-07-2026 15:36:36.437 TEF1-START TRIP-TRIP, IOC1-TRIP 86A_OPTD, 86B_OPTD TC_FAULTY Q52_RPH_CLOSE, Q52_YPH_CLOSE, Q52_BPH_CLOSE, Q52_RPH_OPEN, Q52_YPH_OPEN Q52_BPH_OPEN
EL	NA	Same as DR
TR	NA	NA

PMU Analysis:

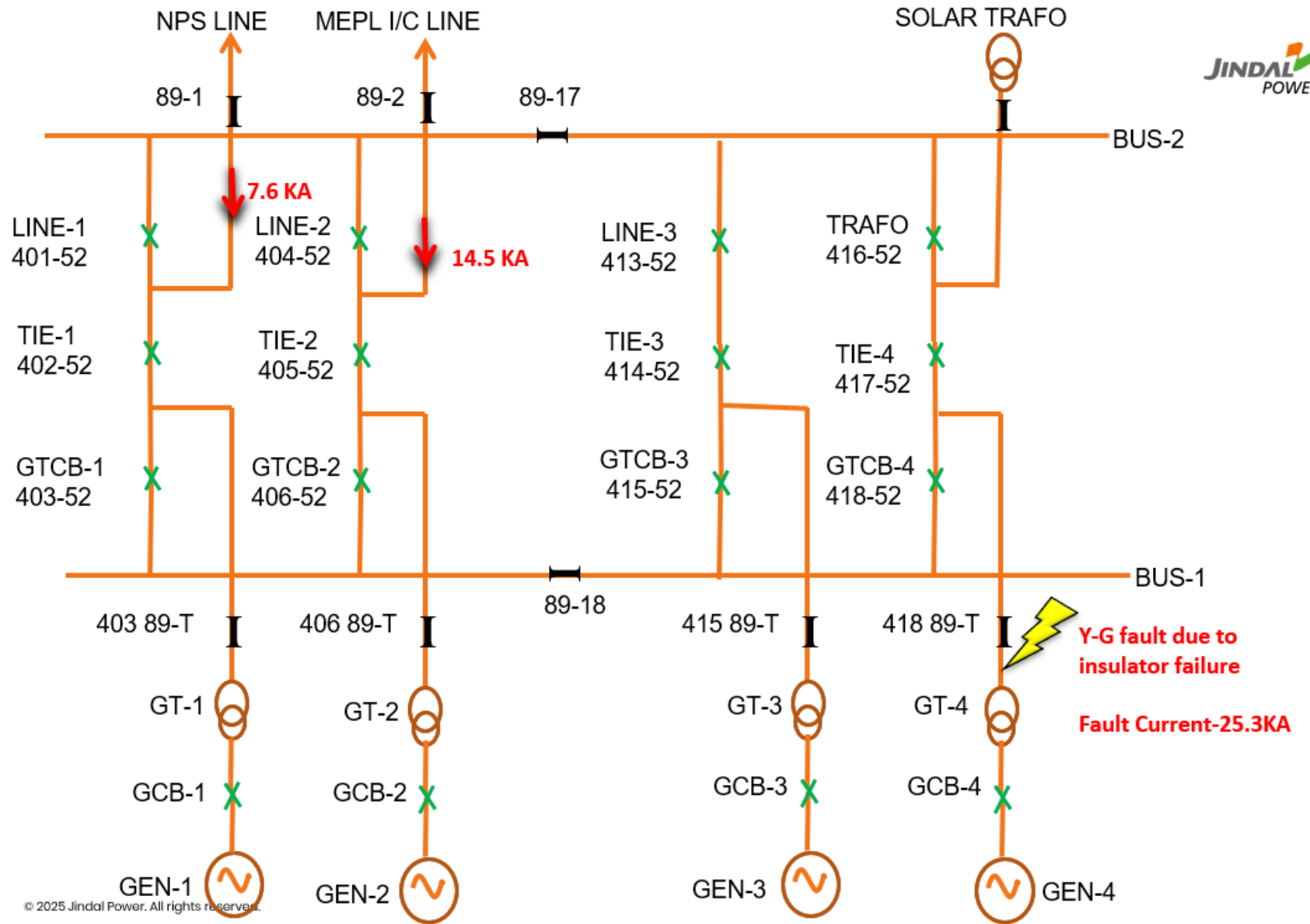
MEPL_CS 400SEPL_CS1_



From the PMU plot, Y-G fault can be observed during the event without any delayed fault clearance

Deliberations:

1. SEPL informed that, as per the reports submitted, the triggering incident was a Y-G phase fault due to failure of the Y-phase string insulator of GT-4 at SEPL. The fault was detected by the instantaneous overcurrent (50) protection at SEPL end, resulting in tripping of the SEL–MEPL line, while the line remained in service from the MEPL end.
2. SEPL further informed that the Y-phase string insulator failure of GT-4 resulted in a phase-to-ground fault, with a fault current of approximately 25.3 kA. The fault was cleared by the GT-4 feeder protection within 63 ms. During the fault, a reverse fault current of approximately 14.5 kA flowed through the SEL–MEPL line.
3. SEPL informed that the instantaneous overcurrent (50) pickup setting of the SEL–MEPL line was 12.25 kA. Since the reverse fault current of 14.5 kA exceeded the pickup setting, the instantaneous overcurrent protection operated and resulted in tripping of the SEL–MEPL line.
4. SEPL stated that the SEL–MEPL line tripping was due to the operation of the instantaneous overcurrent (50) protection caused by the high reverse fault current associated with the external Y-G fault at GT-4.



5. SEPL informed that all porcelain-type insulators had been replaced with polymer insulators except those installed in the GT-4 row and Line-1 & Line-2. Following the incident, SEPL replaced the porcelain insulators in the GT-4 row and informed that replacement of the insulators in Line-1 & Line-2 is also planned.
6. SRLDC advised SEPL to disable the definite-time overcurrent and instantaneous overcurrent protection functions provided on both 400 kV lines. SEPL informed that, since the 400 kV MEPL–SEPL Line-1 is only approximately 900 m in length, line differential protection has been provided as the primary protection, with overcurrent protection provided as backup protection.
7. SEPL was informed that distance protection should be provided as the backup protection for short lines with line differential protection. Accordingly, SRLDC advised SEPL to enable distance protection as backup protection for the line differential protection on both 400 kV lines. SEPL agreed to implement the same.

Recommendations:

- ✚ SEPL to provide distance protection as backup protection for the both 400 kV MEPL-SEPL short lines along with the primary line differential protection.

IV. Non-operation of Auto recloses during transient fault

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
1	400KV-GUDIWADA-VEMAGIRI_AP-1	As per the reports submitted, the triggering incident was Y-G fault in the line. At Gudiwada end, the fault was sensed in Z1 at a distance of 50km, A/R did not operate and the line tripped. At Vemagiri end, the fault was sensed in Z1 at a distance of 66km, A/R operated with successful and feeder continued to be in service without interruption and line was holding	28-06-2026 14:22	APTRANSCO : Non operation of A/R at Gudivada end	APTRANSCO : Line is holding from Vemagiri end and breaker closed at Gudiwada end and stood ok.

APTRANSCO Vide Mail dated 05.08.2026 has furnished the following information

Details of the event:

- ❖ Triggering incident was Y-G fault in the line. At Gudiwada end, the fault was sensed in Zone-1 at a distance of 50km, A/R has not operated. At Vemagiri end, the fault was sensed in Zone-1 at a distance of 66km, A/R operated with successful and feeder continued to be in service without interruption and line was holding.

Remedial action taken:

- ❖ As per the recommendations of OEM (M/s. Siemens), configuration changes shall be carried out to allow single phase trip for 1 phase fault. The same will be attended during next shutdown.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
2	400KV-KAMUDHI-OTTAPIDARAM-1	As per the reports submitted, the triggering incident is B-G fault on 400KV-KAMUDHI-OTTAPIDARAM-1 line. At both ends, the fault was detected in Z1 and B-phase was tripped. At OTTAPIDARAM end, within dead time, rebooting of FOTE led to failure carrier Ch.1 & 2. Due to carrier fail, reclose in progress terminated & lockout trip initiated at both ends.	02-07-2026 11:15	<u>TANTRANSCO</u> : 1. Non operation of AR at both ends needs review	<u>TANTRANSCO</u> : Communication DC voltage healthiness has to be checked. FOTE placed at Kiosk, reason of disturbance of 48V DC has to be checked.

TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information

- ❖ As per the reports submitted, the triggering incident is B-G fault on 400KV-KAMUDHI-OTTAPIDARAM-1 line. At both ends, the fault was detected in Z1 and B-phase was tripped. At OTTAPIDARAM end, within dead time, rebooting of FOTE led to failure carrier Ch.1 & 2. Due to carrier fail, reclose in progress terminated & lockout trip initiated at both ends.

Remedial action:

- ❖ Reason for rebooting of FOTE was analysed.
- ❖ Load test was conducted in Communication battery & found in order.
- ❖ Hitachi make FOTE (FOX 615) is available wherein one dual power converter is available which isolate the load while any variation in

input voltage. Suspected this may block the input voltage during any event of disturbance in input voltage due to earthing issue. This has to be checked.

- ❖ This is old model FOX 615 without having DC to DC converter. If any repeated event observed then 48V DC to DC converter will be introduced.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
3	220KV-SRISAILAM_RIGHT_BANK-DINDI-1	As per the reports submitted, the triggering incident was B-G fault in the line. At Srisailam Right Bank end, the fault was sensed in Z1 at a distance of 2km and the line 3ph tripped without AR operation. At Dindi end, the fault was sensed in Z1 at a distance of 62km, A/R operated and was successful and the line was holding.	05-07-2026 19:43	<u>APGENCO</u> : 1. Non operation of AR at SRISAILAM_RIGHT_BANK needs review	<u>APGENCO</u> : Feeder test charged and stood ok

Recommendations:

- ❖ APGENCO to review the Non operation of Auto Reclosure in 220KV-SRISAILAM_RIGHT_BANK-DINDI-1 at SRISAILAM_RIGHT_BANK end.
- ❖ All Zone settings also to be reviewed at both ends of 220 kV Srisailam_right_bank - Dindi-1 line.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
4	220KV-ASUPAKA-LOWER_SILERU-1	As per the reports submitted, the triggering incident was high impedance B-G fault (fault angle of around 55 degrees from Lower Sileru end) in the line. At Asupaka end, the fault was sensed in Z1 at a distance of 45km, B pole opened, A/R did not operate and the line tripped after A/R dead time. At Lower Sileru end, the fault was	07-07-2026 20:22	<u>TGTRANSCO</u> : 1. Non operation of AR at Asupaka needs review	

		sensed in Z1 at a distance of 80km, B pole opened and A/R operated the line tripped due to persistent fault			
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TGTRANSCO Vide Mail dated 06.08.2026 has furnished the following information

❖ Tripped on B-Phase to ground, Zone-1 indications at Asupaka end. A/R initiated but not successful.

Remedial Actions taken:

❖ Replacement of suspected Main-1 D60 relay with new ABB make REL670 relay is taken up.

❖ As per the received PSSG recommendations the relay would be commissioned after duly availing LC.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
5	220KV-ASUPAKA-LOWER_SILERU-1	As per the reports submitted, the triggering incident was high impedance B-G fault (fault angle of around 50 degrees from Lower Sileru end) in the line. At Asupaka end, the fault was sensed in Z1 at a distance of 41km, B pole opened, A/R did not operate and line tripped after around 1s. At Lower Sileru end, the fault was sensed in Z1 at a distance of 80km, B pole opened and A/R operated the line tripped due to persistent fault	07-07-2026 21:32	<u>TGTRANSCO</u> : Non operation of A/R at Asupaka end	

TGTRANSCO Vide Mail dated 06.08.2026 has furnished the following information

❖ Tripped on B-Phase to ground, Zone-1 indications at Asupaka end. A/R initiated but not successful.

Remedial Actions taken:

❖ Replacement of suspected Main-1 D60 relay with new ABB make REL670 relay is taken up.

❖ As per the received PSSG recommendations the relay would be commissioned after duly availing LC.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
6	400KV-SEIL_P2-NPS-1	As per the reports submitted, the triggering incident was R-G fault in the line during the removal of the old damaged OPGW cable on the 400KV NPS Line-1 between tower no. 11 and 13. During the activity, the cable came with in the minimum safe electrical clearance which resulting in the tripping of the line. At SEIL end, the fault was sensed in Z1 at a distance of 2km and the line tripped without A/R operation. At NPS end, the fault was sensed in Z1 at a distance of 29km and the line tripped without A/R operation.	13-07-2026 13:15	<u>SEIL</u> : Non operation of A/R needs review <u>PGCIL SR-1</u> : Non operation of A/R needs review	<u>SEIL</u> : At 14:12 hrs NBFC issued on 400KV NPS Line-1 for OPGW cable removal work, after completion of work 400 NPS Line-1 charged at 18:10 hrs

PGCIL SR-1 Vide Mail dated 04.08.2026 has furnished the following information

- ❖ As per the past history there was no failure of Auto reclosure function.
- ❖ On 17.10.2025, the A/R operation for R-G was successful at both ends.
- ❖ The present settings and configuration verified and generally in order.
- ❖ The A/R test functionality will be verified in next shutdown.

Recommendations:

- ✚ Both SEIL and PGCIL-SR-I to coordinate and verify the functionality of A/R at their respective ends.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
7	400KV-VELLALAVIDUTHI-KARAIKUDI-1	As per the reports submitted, the triggering incident was B-G fault in the 400KV-VELLALAVIDUTHI-KARAIKUDI-1 line. At Vellalaviduthi end, at 14:31hrs the fault was sensed in Z1 at a distance of 38km and Main CB A/R operated but Tie CB A/R did not operate PD operated after around 4s and Tie CB tripped and during the incident main CB only in service. At 14:53hrs, the B-G fault was sensed in zone-1, Main CB A/R operated and the line tripped on persistent fault. At Karaikudi end, the fault was sensed in carrier aided Z2 at a distance of 121km, B pole opened and A/R operated the line tripped on persistent fault after a dead time of 2s.	14-07-2026 14:54	<u>TANTRANSCO</u>: Non operation of Tie CB A/R at Vellalaviduthi end <u>PGCIL SR-2</u> : A/R dead time is set to 2s at Karaikudi end and the same needs review.	<u>TANTRANSCO</u> : Line patrol conducted & no visible fault

TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information

- ❖ As per the reports submitted, the triggering incident was B-G fault in the 400KV-VELLALAVIDUTHI-KARAIKUDI-1 line.
- ❖ At Vellalaviduthi end, at 14:31hrs the fault was sensed in Z1 at a distance of 38km and Main CB A/R operated but Tie CB A/R did not operate PD operated after around 4s and Tie CB tripped and during the incident main CB only in service.
- ❖ At 14:53hrs, the B-G fault was sensed in zone-1, Main CB A/R operated and the line tripped on persistent fault. At Karaikudi end, the fault was sensed in carrier aided Z2 at a distance of 121km, B pole opened and A/R operated the line tripped on persistent fault after a dead time of 2s.

Remedial action:

- ❖ AR Scheme & PD timer has to be checked. Line clear awaited

PGCIL SR-2 Vide Mail dated 04.08.2026 has furnished the following information

Brief Description: -

- ❖ On 14.07.2026 at 14:53:19:637 hrs., M1 Z2 & Z3 Bph Started.
- ❖ At 14:53:19:670 Carr Ch-1 & 2 received & Carr Aided trip Optd.
- ❖ At 14:53:18:705- 417 Tie CB B-pole Opened.
- ❖ In 418 Main CB B-pole Opened at 14:53:18: 706. Due to CB AR cycle got reset the CB Close command is not issued by Main BCU – All 3 poles tripped on AR Block at 14:53:21:886 hrs.
- ❖ At 14:53:21:721- 417 AR Tie CB close command was issued after lapse of 2 Sec.-Priority hold timer as per scheme.
- ❖ SOTF operated at 14:53:21:847 due to Persisting fault in line and 417-Tie CB also tripped.
- ❖ This Line Last AR Successful during May 2025.

Analysis: -**418 BCU Events**

P	7/14/2026 2:53:19.682 PM	AR_START_BI	On
P	7/14/2026 2:53:19.692 PM	AR_READY	Off
P	7/14/2026 2:53:19.696 PM	Q52_BPH_CLOSE	Off
P	7/14/2026 2:53:19.701 PM	Q52_BPH_OPEN	On
P	7/14/2026 2:53:19.757 PM	AR_START_BI	Off
P	7/14/2026 2:53:19.796 PM	AR-PREP3P	On
P	7/14/2026 2:53:20.287 PM	63AR_CB_RDY	Off
P	7/14/2026 2:53:21.852 PM	AR_BLOCK_BI	On
P	7/14/2026 2:53:21.872 PM	Q52_YPH_CLOSE	Off
P	7/14/2026 2:53:21.878 PM	Q52_YPH_OPEN	On
P	7/14/2026 2:53:21.880 PM	Q52_RPH_CLOSE	Off
P	7/14/2026 2:53:21.886 PM	Q52_RPH_OPEN	On
P	7/14/2026 2:53:21.892 PM	UV_OPTD	On

- ❖ From the 418 Main BCU Events it is seen that AR Started at 14:53:19:682 hrs.
- ❖ 41852 Bph Opened at 14:53:19:696 hrs.

- ❖ AR prepare 3ph signal is high at 14:53:19:796 hrs. in between the AR dead time. Hence AR Cycle is stopped.
- ❖ After the reclose attempt by 417 CB the AR Block Signal is high at 14:53:21:852 and the other two poles of Main CB Tripped at 14:53:21:886 hrs.

246		2026-07-14 14:53:21.880	KARAIKUDI	TIE(417)	Q52	CB Bph Indication	Open
247		2026-07-14 14:53:21.880	KARAIKUDI	TIE(417)	Q52	CB Yph Indication	Open
248		2026-07-14 14:53:21.880	KARAIKUDI	TIE(417)	Q52	CB Rph Indication	Open
249		2026-07-14 14:53:21.716	KARAIKUDI	Pugalur Line2	REC	AR Priority wait to TIE	Normal
250	*	2026-07-14 14:53:21.881	KARAIKUDI	Pugalur Line2	REL	Overvoltage start stage-1	Alarm
251	*	2026-07-14 14:53:21.877	KARAIKUDI	TIE(417)	Q52	CB Bph Indication	Intermediate
252	*	2026-07-14 14:53:21.877	KARAIKUDI	TIE(417)	Q52	CB Yph Indication	Intermediate
253	*	2026-07-14 14:53:21.877	KARAIKUDI	TIE(417)	Q52	CB Rph Indication	Intermediate
254	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	M1 AR Block	Alarm
255	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	Zone-2 Start	Alarm
256	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	SOTF Trip	Alarm
257	*	2026-07-14 14:53:21.844	KARAIKUDI	Pugalur Line2	REL	Zone-3 Start	Alarm
258	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	TIE CB Bph Trip	Alarm
259	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	TIE CB Yph Trip	Alarm
260	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	TIE CB Rph Trip	Alarm
261	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	Main CB Bph trip	Alarm
262	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	Main CB Yph trip	Alarm
263	*	2026-07-14 14:53:21.847	KARAIKUDI	Pugalur Line2	REL	Main CB Rph trip	Alarm
290	*	2026-07-14 14:53:19.700	KARAIKUDI	Pugalur Line2	REC	AR Priority wait to TIE	Alarm
301		2026-07-14 14:53:19.702	KARAIKUDI	TIE(417)	REC	AR Start	Normal
302	*	2026-07-14 14:53:19.713	KARAIKUDI	Pugalur Line2	MMXU	Current L3	Overflow
303	*	2026-07-14 14:53:19.706	KARAIKUDI	Pugalur Line2	Q52	Breaker position indication	Faulty
304	*	2026-07-14 14:53:19.706	KARAIKUDI	Pugalur Line2	Q52	CB Bph Indication	Faulty
305	*	2026-07-14 14:53:19.706	KARAIKUDI	Pugalur Line2	Q52	CB Yph Indication	Faulty
306	*	2026-07-14 14:53:19.706	KARAIKUDI	Pugalur Line2	Q52	CB Rph Indication	Faulty
307		2026-07-14 14:53:19.721	KARAIKUDI	Pugalur Line2	REL	DEF Start	Normal
308		2026-07-14 14:53:19.732	KARAIKUDI	Pugalur Line2	REL	AR Start	Normal
309		2026-07-14 14:53:19.732	KARAIKUDI	Pugalur Line2	REL	Carrier aided protection trip	Normal
310	*	2026-07-14 14:53:19.694	KARAIKUDI	Pugalur Line2	REC	Start AR	Alarm
311	*	2026-07-14 14:53:19.692	KARAIKUDI	Pugalur Line2	REC	AR In Progress	Alarm
312	*	2026-07-14 14:53:19.705	KARAIKUDI	TIE(417)	Q52	Breaker position indication	Faulty

- ❖ For 417 Tie CB- Auto Reclosed after Lapse of 2 Sec due to AR Priority Hold timer.

Remedial Action: -

- ❖ AR Scheme for 418 & 417 Vellaviduthi Bays at Karaikudi is to be checked in next Shutdown for further proper checking of the scheme.
- ❖ Since the Line and Bays at Karaikudi belongs to TANRANSCO- Shutdown is required to be arranged by TANTRANSCO.

V. PLCC Maloperation-related Events

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
1	400KV-KALPAKKA-VEMAGIRI_AP-1	As per the reports submitted, the triggering incident was a DC earth fault at the Vemagiri end. Earth leakage was observed in the GVK-1 Tie Breaker (426-52) interpole cable between the CBMB and the B-pole mechanism box. The feeder was in service from the Vemagiri end, and the DT send count was incremented at the Vemagiri Telecom panel of 400kV Vemagiri Kalpakka Line-1. Subsequently, the line tripped at the Kalpakka end.	28-06-2026 08:38	<u>APTRANSCO</u> : Sending DT to Kalpakka end from Vemagiri end	<u>APTRANSCO</u> : Damaged cable is replaced with the spare cable.

APTRANSCO Vide Mail dated 05.08.2026 has furnished the following information

Details of the event:

- ❖ Triggering incident was a DC earth fault at the Vemagiri end. Earth leakage was observed in the GVK-1 Tie Breaker (426-52) interpole cable between the CBMB and the B-pole mechanism box.
- ❖ The feeder was in service from the Vemagiri end, and the DT send count was incremented at the Vemagiri Telecom panel of 400kV Vemagiri Kalapaka Line-1. Subsequently, the line tripped at the Kalapaka end.

Remedial action taken:

- ❖ Damaged inter pole cable from CBMB to B-Pole mechanism box replaced with spare cable.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
2	400KV-PALAVADI-MTPS_ST_III-2	As per the reports submitted, while attending the Carrier fail fault, inadvertent trip occurred at MTPS end and DT trip can be observed from the DR. During the event, no fault is observed. Line was holding at Palavadi end.	08-07-2026 11:11	<u>TANTRANSCO</u> : 1. Inadvertent tripping of the line at MTPS end needs review	

Recommendations:

- ❖ TANTRANSCO to review the inadvertent tripping of the line at MTPS end due to PLCC mal operation.

S. No.	Event	Event Analysis	Outage Date & time	Points for Review	Remedial Actions Furnished
3	400KV-CUDDAPAH-CHITTOOR-1	As per the reports submitted, the triggering incident is the PLCC maloperation leading to DT-1 Receive command at Kadapa end and 3ph tripped whereas there is no Counter increment of DT-1 command at 400KV Chittoor SS end. Line was holding at Chittoor end.	20-07-2026 13:16	<u>APTRANSCO</u> : 1. PLCC Maloperation needs review	<u>APTRANSCO</u> : Feeder Charged at 13.47Hr on 20-07-2026.

APTRANSCO Vide Mail dated 05.08.2026 has furnished the following information

Details of the event:

- ❖ Triggering incident is the PLCC maloperation leading to DT-1 Receive command at Kadapa end (due to suspected coaxial cable) and 3ph tripped whereas there is no Counter increment of DT-1 command at 400KV Chittoor SS end. Line was holding at Chittoor end.

Remedial action taken:

- ❖ Suspecting problem with coaxial cable at Kadapa end will be attended soon by replacing the same

VI. DR Time Synchronization Issues Related Events

Sl. No	Element	Date & Time	Station at which DR time synchronisation was not observed
1	220KV-VTPS-CHILLAKALLU-2	21-06-2026 05:05	CHILLAKALLU - 220KV
APTRANSCO Vide Mail dated 05.08.2026 has furnished the following information ❖ DR Time Synchronization Issue would be attended.			
2	220KV-AMBEWADI-PONDA-2	21-06-2026 10:37	AMBEWADI - 220KV
❖ KPTCL advised to review the DR Time Synchronization Issue at AMBEWADI - 220KV			
3	765KV-WARANGAL(NEW)-CHILAKALURIPETA-2	22-06-2026 13:06	WARANGAL(NEW) - 765KV
❖ WKTL advised to review the DR Time Synchronization Issue at WARANGAL(NEW) - 765KV			
4	400KV-DICHPALLY-RAMAGUNDAM-1	22-06-2026 13:28	DICHPALLY - 400KV
TGTRANSCO Vide Mail dated 06.08.2026 has furnished the following information Remedial Actions taken: ❖ The relays are GPS time synchronized at Dichpally SS.			
5	400KV-PAVAGADA_PG-TUMKUR-1	25-06-2026 14:32	PAVAGADA_PG - 400KV
PGCIL SR-2 Vide Mail dated 04.08.2026 has furnished the following information ❖ Pavagada end 1 sec delay Observed in M1 & M2 both. ❖ PGCIL SR-II advised to review the DR Time Synchronization Issue at PAVAGADA_PG - 400KV			
6	765KV-WARANGAL(NEW)-WARORA-1	25-06-2026 20:29	WARANGAL(NEW) - 765KV
7	400KV/110KV ALAMATHY-ICT-2	26-06-2026 18:38	ALAMATHY - 400KV
TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information			

❖ GPS sync Checked on 03-08-2026 & relay sync with GPS receiver.			
8	400KV/110KV ALAMATHY-ICT-2	26-06-2026 18:38	ALAMATHY - 400KV
TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information			
❖ GPS sync Checked on 03-08-2026 & relay sync with GPS receiver.			
9	400KV-GUDIWADA-VEMAGIRI_AP-1	28-06-2026 14:22	GUDIWADA - 400KV
APTRANSCO Vide Mail dated 05.08.2026 has furnished the following information			
❖ It will be attended.			
10	400KV-PAVAGADA_PG-HIRIYUR-1	28-06-2026 14:51	PAVAGADA_PG - 400KV
PGCIL SR-2 Vide Mail dated 04.08.2026 has furnished the following information			
❖ Pavagada end 1 sec delay Observed in M1 & M2 both.			
11	400KV-KAIGA-NARENDRA-2	30-06-2026 21:25	KAIGA - 400KV
❖ NPCIL Kaiga advised to review the DR Time Synchronization Issue at KAIGA - 400KV			
12	230KV-HYUNDAI-SRIPERUMBADUR_TN-1	05-07-2026 10:34	SRIPERUMBADUR_TN - 230KV
TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information			
❖ Main.1 Micom P443 is sync with GPS but Main.2 D60 has an issue. The same was addressed to OEM (M/s. GE).			
❖ OEM replied that GPS settings are intact but relay records are time lagging. No remedial measure suggested by OEM. Reminder mail sent on 31.07.2026			
13	230KV-HYUNDAI-SRIPERUMBADUR_TN-1	05-07-2026 10:34	HYUNDAI - 230KV
TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information			
❖ No relay & breaker arrangement available at Hyundai end.			
14	SRIPERUMBADUR_TN - 230KV	05-07-2026 10:34	SRIPERUMBADUR_TN - 230KV

TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information

- ❖ High Impedance static BBP relay _ LBB protection is configured in feeder relay
- ❖ TANTRANSCO advised to review the DR Time Synchronization Issue at SRIPERUMBADUR_TN - 230KV

15	400KV/220KV DEVANAHALLI-ICT-3	05-07-2026 12:03	DEVANAHALLI - 400KV
❖ KPTCL advised to review the DR Time Synchronization Issue at DEVANAHALLI - 400KV			
16	POTHENCODE - 220KV	05-07-2026 17:00	POTHENCODE - 220KV
❖ KSEBL advised to review the DR Time Synchronization Issue at POTHENCODE - 220KV			
17	220KV-SRISAILAM_RIGHT_BANK-DINDI-1	05-07-2026 19:43	SRISAILAM_RIGHT_BANK - 220KV
❖ APGENCO advised to review the DR Time Synchronization Issue at SRISAILAM_RIGHT_BANK - 220KV			
18	400KV-KALABURAGI-YTPS-1	06-07-2026 06:52	YTPS - 400KV

KPCL Vide Mail dated 31.07.2026 has furnished the following information

- ❖ The issue was identified with the SNTP port of the Main-1 Distance Protection Relay (P442, Alstom make).
- ❖ Rectification work was carried out on the SNTP communication, and the GPS time synchronization has been restored successfully.
- ❖ The relay is now operating with proper GPS synchronization, and the issue has been resolved.

19	220KV-AMBEWADI-XELDEM-1	07-07-2026 09:50	AMBEWADI - 220KV
20	400KV-KALABURAGI-YTPS-1	07-07-2026 17:37	YTPS - 400KV

KPCL Vide Mail dated 31.07.2026 has furnished the following information

- ❖ The issue was identified with the SNTP port of the Main-1 Distance Protection Relay (P442, Alstom make).
- ❖ Rectification work was carried out on the SNTP communication, and the GPS time synchronization has been restored successfully.
- ❖ The relay is now operating with proper GPS synchronization, and the issue has been resolved.

21	KILPAUK - 230KV	08-07-2026 07:20	KILPAUK - 230KV
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TANTRANSCO Vide Mail dated 03.08.2026 has furnished the following information

❖ GPS receiver (NR make) issue has to be attended.			
22	400KV-KALABURAGI-YTPS-1	08-07-2026 17:24	YTPS - 400KV
KPCL Vide Mail dated 31.07.2026 has furnished the following information ❖ The issue was identified with the SNTP port of the Main-1 Distance Protection Relay (P442, Alstom make). ❖ Rectification work was carried out on the SNTP communication, and the GPS time synchronization has been restored successfully. ❖ The relay is now operating with proper GPS synchronization, and the issue has been resolved.			
23	400KV-NNTPP-PUDUCHERRY-1	10-07-2026 13:02	PUDUCHERRY - 400KV
PGCIL SR-2 Vide Mail dated 04.08.2026 has furnished the following information ❖ NA- NO trip/fault events at PUDUCHERRY end.			
24	400KV-SEIL_P2-NPS-1	13-07-2026 13:15	SEIL_P2 - 400KV
❖ SEIL advised to review the DR Time Synchronization Issue at SEIL_P2 - 400KV			
25	220KV-AMBEWADI-PONDA-2	14-07-2026 12:15	AMBEWADI - 220KV
26	400KV-LKPPL_STG2-VIJAYAWADA-1	15-07-2026 23:11	LKPPL_STG2 - 400KV
❖ LKPPL advised to review the DR Time Synchronization Issue at LKPPL_STG2 - 400KV			
27	400KV/220KV VEMAGIRI_AP-ICT-3	16-07-2026 11:55	VEMAGIRI_AP - 400KV
APTRANSCO Vide Mail dated 05.08.2026 has furnished the following information ❖ DR Time synchronization at 400kV SS, Vemagiri is in order.			
28	400KV-RTPS-BTPS-1	18-07-2026 20:00	BTPS - 400KV
KPCL Vide Mail dated 31.07.2026 has furnished the following information ❖ Fault: Z1 Distance protection, Iy: 6.414kA ❖ For 400kV BTPS-RTPS line, the installed M1 relay (P442- Model: P442311B1M0360J) does not have GPS time sync port. ❖ At present the time sync is carried out manually twice in a week. The Relay time setting is matched with GPS as of now. The Replacement of			

Card / relay is in progress.			
❖ Further M2 relay (D60) of the same line is synchronised with GPS time.			
29	220KV-KADAKOLA-KANIYAMPETTA	18-07-2026 23:04	KADAKOLA - 220KV
❖ KPTCL advised to review the DR Time Synchronization Issue at KADAKOLA - 220KV			
30	220KV-SRISAILAM_RIGHT_BANK-DINDI-1	19-07-2026 10:50	SRISAILAM_RIGHT_BANK - 220KV