

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 19th PROTECTION SUB-COMMITTEE MEETING HELD AT ERPC, KOLKATA ON 16.05.2014 (FRIDAY) AT 11:00 HOURS

List of participants is enclosed at **Annexure-A**

Member Secretary I/C welcomed the participants. He expressed concern over the various tripping incidences that occurred in JSEB, DVC, OPTCL and BSPTCL over past few months. He desired in-depth analysis of such disturbances and remedial actions thereof. Thereafter, he requested SE (PS), ERPC to take up the agenda points in seriatim.

PART - A

ITEM NO. A.1: CONFIRMATION OF THE MINUTES OF 18th PROTECTION SUB-COMMITTEE MEETING

The minutes of 18th Protection Sub-Committee meeting held on 11.09.2013 were circulated vide letter no. ERPC/SE (PS)/ PROTECTION/ 2013/ dated 19.09.2013 and also made available at ERPC website.

No comments have been received from any constituent.

The minutes of the above meeting may be confirmed.

Deliberation in the meeting

Members confirmed the minutes of the 18th Protection sub-Committee meeting.

PART- B

FOLLOW-UP OF DECISIONS OF THE PREVIOUS PROTECTION SUB-COMMITTEE MEETING(S)

ITEM NO. B.1: Tripping of 220 kV Biharsharif-Fatua line from Biharshariff S/s on 21.04.13

- Issue was discussed in the Special meeting on 14.06.2013.
- It was reported that snapping of the Bottom conductor in between tower location No-103 & 104 of the 220KV Biharsharif - Fatuha Ckt.-II, resulted in total power failure at Biharsharif (BSPHCL) GSS. The line fault of 220KV Biharsharif - Fatuha Ckt.-II, operated the protection relays of all the 220KV incomer breaker of 315 MVA ICT-I, II & III at Biharsharif (BSPHC) end and that of the 220KV Biharsharif -Tenughat line at TenughatTPS end without tripping and isolating the faulty 220KV Biharsharif - Fatuha Ckt.-II itself at Biharsharif (BSPHCL) end.
- It was recommended that relay coordination of Fatuha, Biharsharif (BSPHCL), TenughatTPS and Biharsharif (PG) required to be carried out by BSPHCL in consultation with PGCIL and TenughatTPS and report.

During 16th PCC meeting, it was reported by BSPHCL that the Protection system at 220 kV Biharsharif substation had been checked and necessary rectification in wiring of relay control circuit has been carried out at Biharshariff S/s. The relay setting had also been checked.

However, there was no information on compliance of previous recommendations by BSPHCL in respect of Fatuah S/s.

PCC decided that a committee comprising representatives from ERPC and POWERGRID would visit the substations -Fatuah (BSPHCL), Biharshariff (BSPHCL), Biharshariff (PG) and Tenughat TPS (JSEB) to assess the present status of the protection system and improvements required, if any.

In 17th PCC, BSPHCL informed that, in coordination with Powergrid zone-2 time settings at Fatuah (BSPHCL), Biharshariff (BSPHCL), Biharshariff (PG) and Tenughat TPS (JSEB) have been reduced from 400 msec to 50 msec.

BSPHCL also informed that, PLCC facility not available at these sub-stations for carrier protection. PCC advised BSPHCL to install PLCC immediately.

In 18th PCC, BSPHCL informed that in coordination with Powergrid, zone-2 time settings at Biharshariff will be reduced to 200 ms till PLCC is made available for carrier protection.

BSPHCL may please give the present status.

Deliberation in the meeting

BSPHCL informed that proposals for installation of new PLCC have been included in DPR for Transmission Protection systems up-gradation and sent to CEA. New PLCC schemes will be installed as and when fund is allotted by the highest authority.

PCC apprehended that the allocation of fund may take more time and full amount may not be available. PCC advised BSPHCL to install the new PLCC system for the line on priority basis without waiting for PSDF/GOI fund.

ITEM NO. B.2: Tripping at 132kV MTPS-Motihari line at 11:58 on 04-08-2013.

- The issue was discussed in 17th PCC meeting,
- It was reported that jumper snapping occurred in 132kV MTPS-Motihari ckt at MTPS in BSPTCL system (as reported by BSPTCL) due to which 400/220kV, 315MVA ICT-I at Muzaffarpur (PG) tripped on actuation of Dir. O/C & E/F protection. 220kV Muzaffarpur (PG)-Hajipur-I also tripped at the same time. Since 315MVA ICT-II at Muzaffarpur (PG) was already under shutdown, tripping of ICT-I led to 235MW load loss in north Bihar area (including 25 MW export to Nepal).
- Powergrid informed that backup O/C relay operated correctly. BSPHCL suspecting problem in PLCC and rectification of the same is in progress.

In 18th PCC, BSHPCL informed that the above incident happened at Kanti end due to jumper snapping just after the isolator near Switchyard of Kanti Generating Station. It was also informed that all the relays at Kanti end as well as Motihari end of Kanti-Motihari line were very old and electromechanical type relays. Further, BSPHCL informed that the relay retrofitting at Motihari end is in progress.

PCC advised BSHPCL to take up the matter with Kanti Generating Station for replacement of their old relays with numerical relays and proper protection co-ordination may be done.

BSPHCL may update.

Deliberation in the meeting

BSPHCL informed that installation of numerical relay at 132 kV Kanti generating station and Motihari S/s are in progress and it will be completed by June, 2014.

ITEM NO. B.3: SYSTEM DISTURBANCES IN BIDHANNAGAR 220 KV SUB-STATION ON 12.05.13 AT 15:55 HRS

In the 16th PCC meeting, WBSETCL informed that it would take some more time to complete necessary rectification work at this sub-station so as to make both the 220 kV buses operational with arrangement for sectionalisation. The work is now expected to be completed by the end of December, 2013.

In 18th PCC, WBSETCL informed that work is going as per schedule and will be completed within December, 2013.

WBSETCL may please intimate the present status.

Deliberation in the meeting

WBSETCL informed that replacement of isolators is in progress and also informed that after these replacement 220 kV two main bus system will be made operational at Bidhannagar 220 kV S/s. WBSETCL informed that the scheme will be completed by Aug, 2014.

ITEM NO. B.4: SYSTEM DISTURBANCES IN JEERAT 400KV SUB-STATION OF WBSETCL AND SUBSEQUENT POWER FAILURE AT 220 KV KASBA & OTHER SUBSTATIONS ON 21.05.13 AT 14:28 HRS.

- In order to prevent massive cascading effects of tripping WBSETCL considered to provide implementation of Special Protection Scheme to reduce the overloading of lines from Kasba sub-station. Further, WBSETCL implemented load rejection scheme at Subhasgram & Kasba 220kV sub-station.
- In addition to the above , carrier signal sent with reverse blocking Zone-IV and blocking of Zone-I for 100 msec with carrier receipt from other end have been made through for 220kV Subhasgram - Subhasgram (PGCIL) line I & II.
- In the 16th PCC meeting, it was informed that a separate meeting between WBSETCL and Powergrid, ER-II was held on 06.07.2013 to discuss the blocking scheme for 220 kV Subhasgram (PG) - Subhasgram (WB) D/C line. Outcome of the meeting is as follows:
 - i) Only one PLCC link is available for both the circuits;
 - ii) In order to prevent overreaching of the Zone - 1 distance protection at POWERGRID end, four (4) nos. of permissive signals are required for blocking the Zone - 1 protection;
 - iii) Therefore, for faults in Zone - 2, no direct trip signal would be available to ensure instantaneous tripping from POWERGRID end;
 - iv) ERTS - II is already in process of revising the settings of distance protection for this line;
 - v) Necessary approval from Corporate Engineering, POWERGRID is expected;
 - vi) Implementation of the revised scheme can be taken up by 15.08.2013.

The line being only 800 Mtr. long, WBSETCL will implement current differential protection at a later date with OPGW as communication media between the ends-WBSETCL informed.

In 17th PCC meeting, WBSETCL informed that, they are ready for the implementation of blocking scheme for 220 kV Subhasgram (PG) - Subhasgram (WB) D/C line. However, Powergrid informed that, the scheme is yet to be approved from their corporate office and expected to be approved within a week.

In 18th PCC, Powergrid informed that their corporate has approved the scheme. However, in one of the present relays does not have option of Z-1 blocking, they are consulting with the manufacturer. PCC advised Powergrid to resolve the problem in consultation with WBSETCL.

Powergrid and WBSETCL agreed to implement the scheme by 30th September, 2013.

WBSETCL and Powergrid may please intimate the present status.

Deliberation in the meeting

WBSETCL and Powergrid informed that the agreed Z-1 blocking scheme of the lines at Subhasgram S/s has been implemented on 15th September, 2013. The performance of the scheme is satisfactory.

ITEM NO. B.5: IMPLEMENTATION OF REVISED UFRs BASED LOAD SHEDDING SCHEME (4 STAGES) IN THE CONSTITUENT SYSTEM

- In the 16th PCC meeting, it was informed that as per decision taken in the 2nd NPC meeting held on 16.07.2013, the total quantum of Under Frequency load shedding to be implemented in all four stages would be 3320 MW for Eastern Region. Accordingly, the total load quantum is divided among the constituents as per present proportionate which is as given below:

Control Area	Stage -I (49.2 Hz) (MW)	Stage -II (49.0 Hz) (MW)	Stage-III (48.8Hz) (MW)	Stage-IV(48.6Hz) (MW)	Total Relief by Control Area
Bihar	98	99	99	101	397
Jharkhand	61	62	61	62	246
DVC	134	135.5	136	137	542.5
Odisha	181.5	183.5	184	186	735
WB & CESC	345.5	350	350	354	1399.5
Total	820	830	830	840	3320

In 96th OCC, JSEB, and OPTCL informed that they have completed the implementation of scheme. So, the UFR based load relief scheme in the Eastern Region as per the quantum decided by NPC is implemented and in operation.

Members may note.

Deliberation in the meeting

Members noted.

ITEM NO. B.6: REVIEW OF ZONE-3 PHILOSOPHY

- In the 1st NPC meeting Powergrid informed that they had already reviewed and implemented revised Zone-3 settings for inter-state lines wherever required in the country in coordination with STUs and generators. However, for the intra-state transmission lines, various data including existing Zone-3 settings had not been received by them. All RPCs were requested to advise STUs to furnish all such data to Director (O), Powergrid within three weeks.

- In the 2nd NPC meeting held on 16th July 2013, Powergrid informed that except for a few constituents in ER, the requisite data from most of the ER constituents has been received. The list of the transmission lines of the constituents which require zone-3 settings data was circulated.
- Powergrid also requested CEA /ERPC to forward the such requisite data to the following address urgently:

AVS Ramesh, (Mob: 9560 890365), Manager (OS), Corporate Centre, POWERGRID, Gurgaon.

- NTPC has furnished the requisite data to ERPC.

In 18th PCC, DVC furnished the requisite information in the meeting. PCC requested other utilities to submit the relevant information to Powergrid.

Powergrid may please intimate the present status.

Deliberation in the meeting

PGCIL pointed out that the guidelines for setting of Distance Protection relays has already been published in CEA website and henceforth the same shall be followed by all the constituents.

However, PCC decided for transmission lines of 220kV and below level, the philosophy decided in Special Protection Committee meetings held on 12.11.13 and 28.01.14 may be followed for the time being which is also indicated in the next agenda item.

ITEM NO. B.7: PROTECTION PHILOSOPHY OF EASTERN REGION

In the Special meetings on “Protection Co-ordination of JSEB System and its neighbouring utilities” held on 12.11.13, 05.12.13 & 28.01.14 the protection philosophy for Eastern Region was agreed as given below:

Sl. No.	Zone	Direction	Protected Line Reach Settings	Time Settings
1	Zone-1	Forward	80%	Instantaneous
2	Zone-2	Forward	120%	300 milliseconds
	Zone-2 (for 220kV and below)	Forward	120 % of the protected line or 100% of the protected line + 50% of the adjacent shortest line (whichever is less)	300 milliseconds
3	Zone-3	Forward	100 % of the protected line + Za	1.0 Sec
4	Zone-4	Reverse	20%	1.2 Sec

Where, Za = Impedance of 100% of the adjacent longest line or 90 % of the Transformer impedance (whichever is less).

Members may note/deliberate.

Deliberation in the meeting

It was informed that a protection philosophy was evolved and agreed for Eastern Region in the Special PCC meetings held for Protection Co-ordination of JSEB System and its neighbouring utilities on 12.11.13, 05.12.13 & 28.01.14 and which is being implemented for Protection Co-ordination of JSEB and OPTCL systems with its neighbouring utilities.

PCC requested all the constituents to adopt the same philosophy for their inter as well as intra state lines for better protection co-ordination of their systems and Eastern Regional system as a whole. Implementation of this philosophy may also be extended for BSEB, DVC and West Bengal systems.

ITEM NO. B.8: Tripping of all 220kV lines from Chandil on 02/09/13

- ER-I has indicated Zone-5 operation which is corroborated by the furnished DR/EL reports. From the furnished EL it appears that Zone-5 pick up occurred at 49ms from the trigger time(B-phase pickup) and got reset at 102ms from the trigger time. ER-I may explain the details of Zone-5 settings and probable reasons for starting of the same as the transient fault was very near or within Ranchi S/S.

In 18th PCC, Powergrid informed that as per their DR print the the fault current was 1.4 kA and voltage was not abrupt (around 116 kV) due to which Zone-5 has picked up with startup.

PCC advised JSEB to submit the DR print to ERLDC/Powergrid for further analysis. Powergrid and JSEB agreed to analyze the same.

Powergrid apprehended for PLCC and auto-reclosure facilities on all the 220 kV lines in and around 400 kV Ranchi S/S in view of upcoming 765 kV system.

Powergrid may update.

Deliberation in the meeting

JSEB informed that auto reclosure facility is available of their distance relays but it has been disabled because of non-availability/non-functionality of PLCC. He also assured that the auto-reclosure features will be enabled after the restoration of PLCC. The status of PLCC is submitted to ERPC Secretariat.

PCC advised JSEB to restore the PLCC and auto-reclosure scheme at the earliest.

ITEM NO. B.9: REPORTING OF TRIPPING / DISTURBANCES

It has been observed that while some of the generating stations / SLDCs / STUs are sending trip reports as per the agreed format; others are not. Moreover, even if the report is sent as per format, most of the fields are left blank. For proper analysis of any disturbance, it is essential to submit the information complete in all respects.

A revised format for furnishing tripping details is prepared, wherein antecedent system conditions, protection system status etc. details have been included.

All regional entities of ER are requested to kindly furnish tripping information as per this revised format and ensure that all relevant fields are duly filled in.

In 18th PCC, ERLDC informed that the format for reporting the tripping information has been revised for better reporting purpose. ERLDC presented the revised format and explained (Format is made available at ERLDC website).

PCC requested all constituents to report the grid incidence to ERLDC in revised formats along with necessary DR/EL printout within 24 hours of the incidence. All constituents agreed.

Members may update.

Deliberation in the meeting

PCC requested all constituents to report it the grid incidences to ERLDC in revised formats along with necessary documents like DR/EL printout etc. within 24 hours of the incidence.

All constituents agreed.

PART - C

ITEM NO. C.1: ANALYSIS & DISCUSSION ON GRID INCIDENCES WHICH OCCURRED IN CTU / STU SYSTEMS DURING JANUARY TO APRIL, 2014.

The grid incidences reported during January to April, 2014 are as given below; the report of each incidence is circulated in the meeting. The detailed report may please be highlighted by ERLDC / respective constituents.

C.1.1: BIHAR System.

a) Tripping of 220kV lines from Fatuah(BSEB) and Patna(PG) on 20/03/14

Deliberation in the meeting

BSPTCL representative informed that fault existed in 220kV Fatuah-Sipara line. But it was not cleared by MICOM-P442 relay installed at Fatuah. Therefore, this fault was cleared from Patna (PG) in Zone-3 (1 sec) by the 220 kV Patna-Fatuah line distance protection relay.

BSPTCL representative could not confirm operation of distance protection at Sipara end. Members felt that BSPTCL should collect further details and appraise the house.

PCC advised BSPTCL to check the protection settings of 220 kV Fatuah-Sipara line relays and report.

b) Total power failure at 132/33 kV Purnea (BSPHCL) on 24.03.14.

Deliberation in the meeting

BSPHCL informed that, the fault existed in transmission line of 33 kV system beyond 132 kV Forbhesgunj S/s and it was not cleared from 33 kV protection system. As a consequence 132kV Purnea (PG)-Purnea (BSPHCL)-II tripped from Purnea (PG) on Directional E/F.

The tripping of 132kV Purnea (PG)-Purnea (BSPTCL)-I & III from BSPTCL end were not in order, as they detected fault in reverse direction. Powergrid informed that the CT polarity of 132kV Purnea (PG)-Purnea (BSPTCL)-I & III remained in reverse order at BSPTCL end. Members felt that, the 132kV Purnea (PG)-Purnea (BSPTCL)-I & III could have been tripped at Purnea (BSPTCL) end due to reversal of CT polarity. On query, it was further gathered that the operating time of O/C relays at BSPTCL end was 0.2 sec but at PGCIL end it is 0.1 sec.

After elaborate deliberation PCC felt that, 132 kV system should not be affected for a fault in 33kV system and it transpired that the time coordination of O/C and E/F relays in 33kV and 132 kV need to be corrected.

PCC advised Powergrid ER-I and BSPTCL to attend to the discrepancies and deficiencies in and around Purnea 220/132 kV S/s within a week and submit a status report on the findings to ERPC secretariat. Powergrid and BSPTCL agreed to the suggestion.

C.1.2: JSEB System.

a) Repeated trippings of lines at 220 kV Chandil S/s on 28.03.14, 29.03.14.

Deliberation in the meeting

In the Special PCC meeting held on 9-5-14, JSEB had already explained that on that day LBB protection was under commissioning at Chandil S/s. There was also some wiring problem in the Ramchandrapur relay panel of 220kV Chandil-Ramchandrapur line at Ramchandrapur S/s end. As proper care was not taken during the commissioning process, LBB got activated resulting in tripping of all lines from Chandil S/s. Similar incident was happened on 29/3/14.

b) Trippings of 220 kV lines at 220 kV Chandil S/s on 22.04.14

Deliberation in the meeting

After detailed deliberations, it emerged that 220kV bus-section isolator at Chandil was in closed condition during the incident. On occurrence of B-N fault in Chandil-Ranchi 220kV line at a distance of 71kM (LL=94kM) from Ranchi end, Chandil end CB failed to open. Thereafter, LBB protection got activated, but it failed to send the trip signal to all other CBs at Chandil. 220kV Chandil-Santaldih S/c line was abruptly tripped from Chandil end with an indication of 3-ph earth fault. It appeared the relay is seeing the fault in reverse zone.

JSEB representative informed that the CB of Ranchi line is being tested to ascertain the reasons for not opening during the fault. JSEB representative also informed that, as distance relay at Chandil of 220kV Chandil-Santaldih line seeing the fault in reverse zone, the protection CT polarity of the line has been changed; now it is in order.

PCC advised JSEB to attend to the following three main deficiencies at the earliest:

- *Measuring the operating time of all CBs at Chandil and rectifying / replacing the faulty CBs*
- *Checking the protection CT connection polarities of all lines emanating from Chandil S/s and taking necessary corrective actions*
- *Thorough checking of the LBB protection system recently installed at Chandil for satisfactory performance.*

PCC advised JSEB to prepare a report and submit to ERPC Secretariat within 15 days. JSEB agreed.

c) Trippings of 220 kV lines from Hatia S/s on 24.03.14.

Deliberation in the meeting

In the Special PCC meeting held on 9-5-14, JSEB explained that CT secondary circuit was not bypassed during testing of CTs with CT primary injection kit at Hatia S/s. As a result LBB protection accidentally got triggered. However, reason for subsequent operation of Chandil end O/C protection of 132kV Chandil-Hatia line and O/C protection at PTPS end of 132kV PTPS-Hatia-2 line could not be satisfactorily explained by JSEB representative.

Members requested to JSEB to thoroughly check the relay settings in order have proper coordination at 132kV and 220kV and report the findings to ERPC Secretariat within 15 days. JSEB agreed.

d) Disturbance in Adityapur area of JSEB on 17/03/14.

Deliberation in the meeting

JSEB representative informed that the fault had occurred when all electromagnetic relays were in the process of replacement by MICOM relays at Adityapur S/s. However, as the fault was originated in 33kV system, settings, coordination and functioning of relays at 33kV need to be checked. In this case also non-operation / delayed operation of 33kV protection system caused the fault to affect 132kV transmission system. Reasons for improper tripping of 220kV STPS-Chandil line and Ramchandrapur-Chandil lines are attributed to relay as well as CB problem at Chandil s/s.

PCC advised JSEB to check setting and coordination of relays at 132kV and 220kV S/s for satisfactory performance and report to ERPC within 15 days.

C.1.3: DVC System

a) Disturbance in Kallyneshwari on 12/03/14.

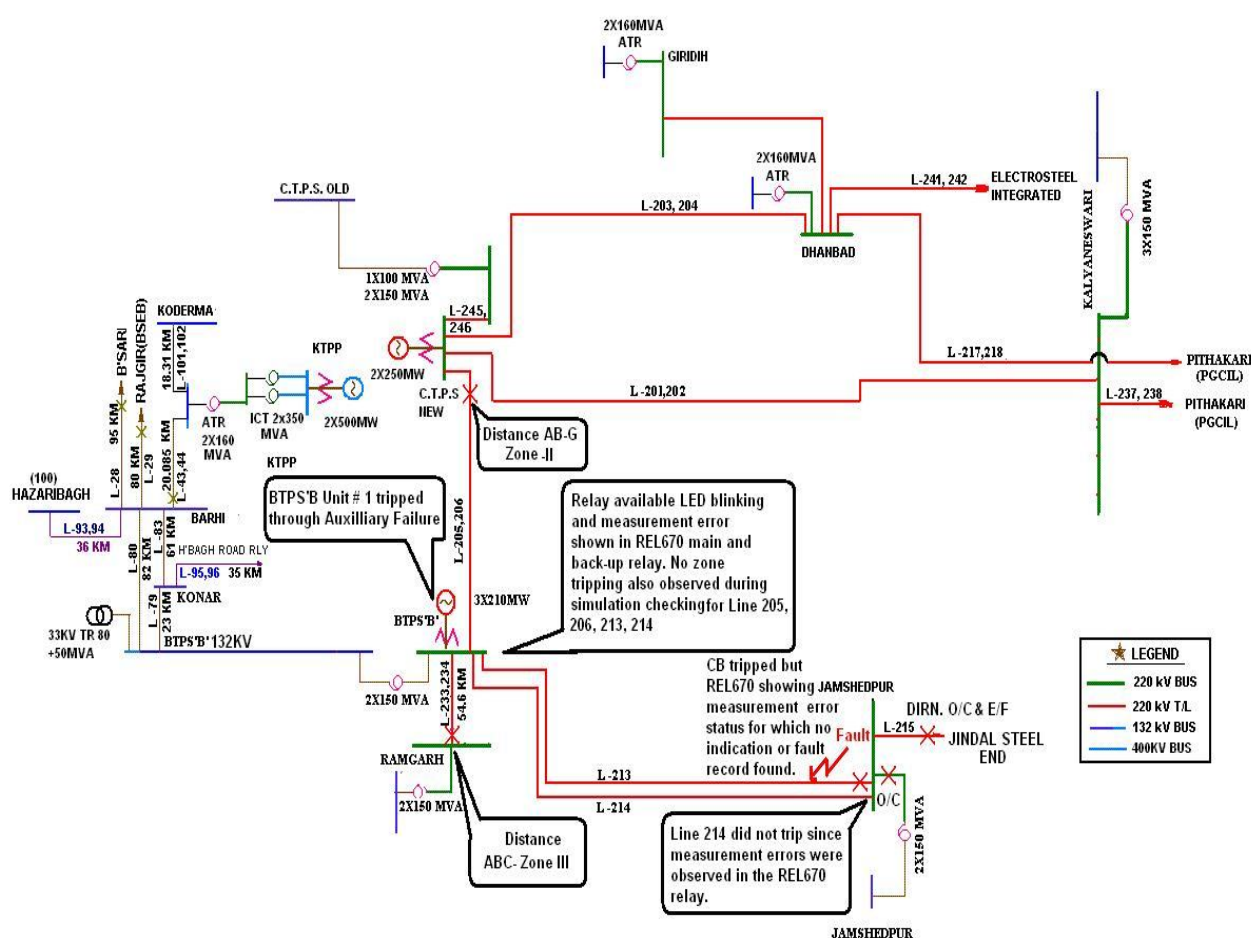
Deliberation in the meeting

DVC representative explained that each of the 3X150MVA, 220/132kV ATRs at Kalyaneswari were loaded up to 120- 130 MW. In the event of tripping of any one of these ATRs, the other two ATRs would trip immediately on O/C protection i.e. (n-1) contingency cannot be sustained. On 12/3/14,

due to bursting of Y-ph CT of 220kV Mejia-Kalyaneswari-III at Kalyaneswari S/s, bus fault occurred at 220kV Bus-II. Bus-bar protection operated and isolated 220kV Bus-II by disconnecting all lines and ATR 2 & 3 which were connected to Bus-II at that time. The ATR-1 naturally could not sustain the overload and tripped on O/C protection. Thus the 132kV system became dead.

Members expressed concern over heavy loading of all the ATRs in this critical Sub-station and enquired about DVC's action plan to overcome such inadequacy. DVC apprised that 220kV Dhanbad Sub-station is expected to be fully operational soon, after which some of the loads of Kalyaneswari S/s would be shifted to Dhanbad 220 kV S/s. However, as a long term solution, action is being taken by DVC to procure a fourth 220/132kV ATR for Kalyaneswari S/s.

b) Tripping of all 220 kV & 132 kV lines at 220/132 kV Bokaro S/s on 13.04.14.



SYSTEM DISTURBANCE AT BTSPS'B ON 13.04.14

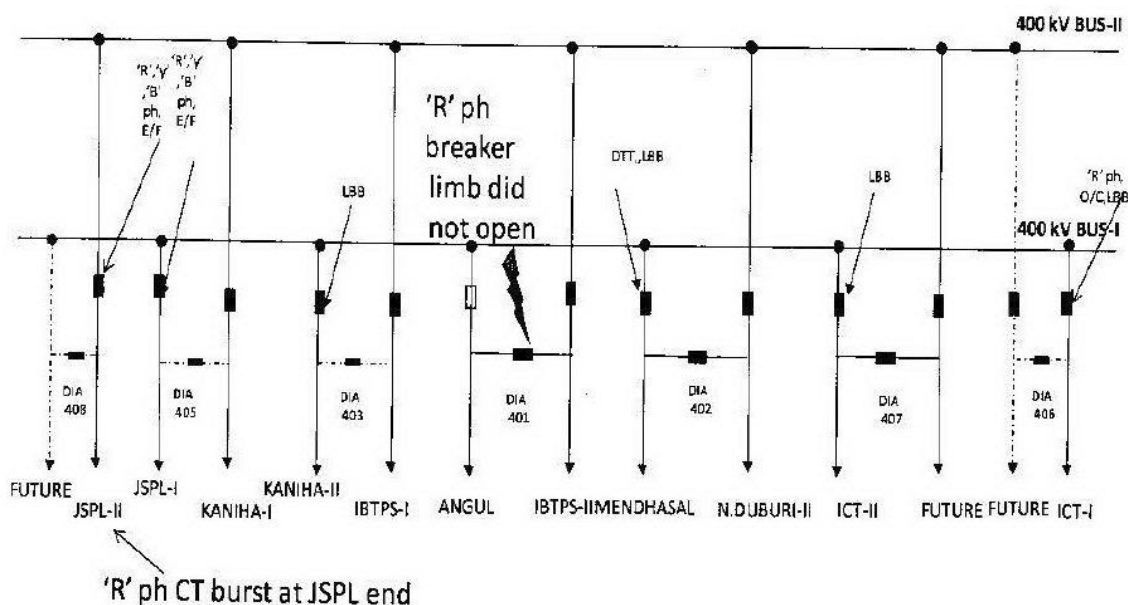
Deliberation in the meeting

DVC representative informed that, when fault occurred in 220kV Bokaro-Jamshedpur-I, all REL-670 relays installed in DVC system remained inoperative. Further investigation revealed that status LED of each relay was blinking, indicating fault in relay measurement circuit. As a result REL-670 relays at Bokaro-B and at Jamshedpur failed to pick up on occurrence of the fault. Ultimately from Jamshedpur side the fault got cleared by tripping of 220kV Jindal-Jamshedppur line from Jindal end. From Bokaro-B side the fault got cleared by opening of all 220kV lines connected to Bokaro (except Jamshedpur) from respective remote ends. As a result Bokaro bus became dead and the running units tripped.

DVC subsequently ascertained from the OEM of these relays, M/S ABB, that firmware of REL-670 relays required upgradation. At present, the same has been upgraded.

C.1.4: OPTCL System

a) Disturbance at Meramundali S/S (OPTCL) on 06/02/14.



Deliberation in the meeting

OPTCL representative mentioned that it was a mistake to attempt charging the 400kV Meramundali-JSPL line-2, which had tripped on 3-phase fault from Meramundali S/s. When an attempt was made to charge the line after it had tripped, fault had not yet cleared. But the CB at Meramundali got stuck. This in turn activated bus-bar protection at Meramundali, leading to tripping of all connected lines. OPTCL representative confirmed in the meeting that all the defective CBs have been replaced with healthy CBs and all the dias at Meramundali 400kV are now fully functional (having 3 nos CBs), except for dia 404.

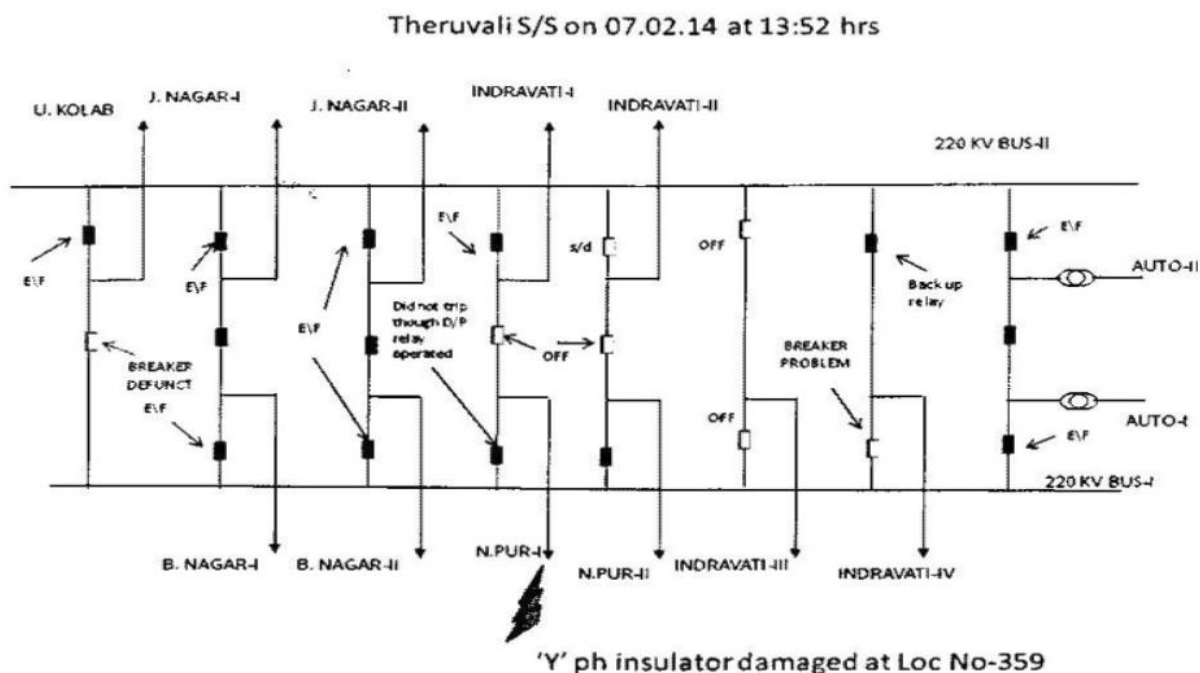
The house requested OPTCL to submit a detailed report on the corrective actions taken at Meramundali and also the present status at that Sub-station. OPTCL was further requested to submit details of the present Stage-I and Stage-II over-voltage protection settings (at both ends) of all lines connected to Meramundali 400kV.

b) Tripping of all lines at 220 kV Theruvali S/s on 07.02.14.

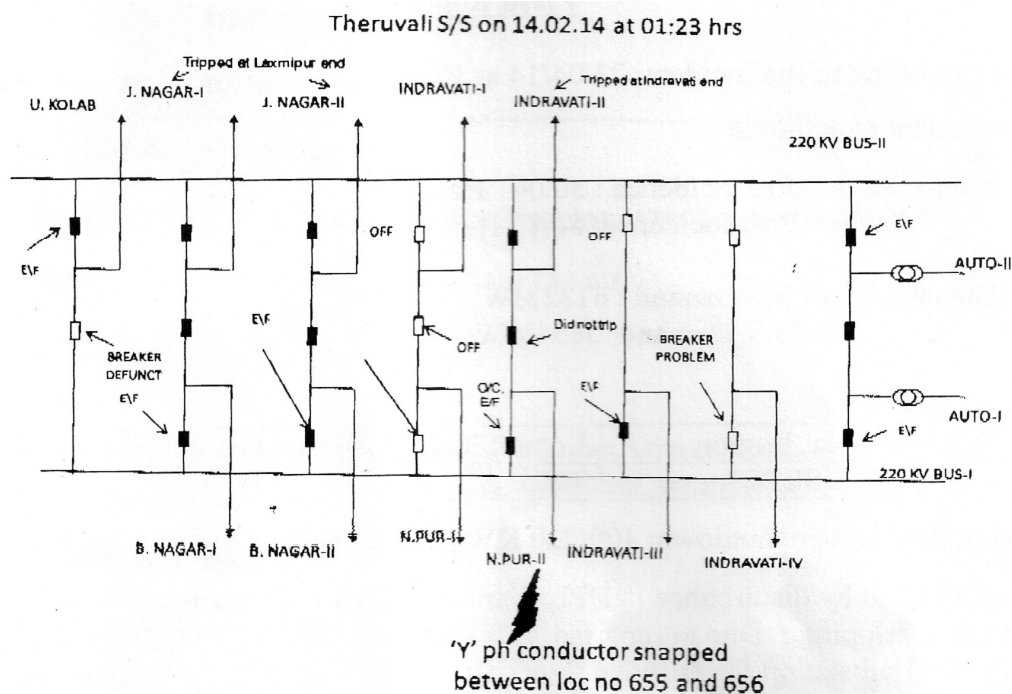
Deliberation in the meeting

The uncoordinated multiple tripping at Theruvali for a single fault in Theruvali-Narendrapur-1 line were attributed to relay maloperation as well as defective CBs at Theruvali. This was due to old backup relays and CBs. ERLDC pointed out that multiple tripping at Theruvali had occurred on 25/4/14 also.

OPTCL representative informed that all electromagnetic relays for distance, O/C and E/F protection at Theruvali have been replaced by numerical relays. The reverse reach problem has also been taken care of. Defective CBs are being replaced by new CBs at Theruvali.



c) Tripping of 220 kv Theruvali- Narendrapur- II on 14.02.14.



Deliberation in the meeting

OPTCL informed that, Y phase conductor of 220 kv Theruvali-Narendrapur line-II has snapped between loc. No.655 and 656 in ERS tower-6 and fell on B phase conductor and both phases came in contact with stay. The fault was cleared from both ends of 220 kv Theruvali-Narendrapur line-II.

However, the tie breaker did not operate at 220 kV Theruvali S/s as a result all 220 kV lines were tripped from Theruvali end.

C.1.5: WBSETCL/WBSEDCL System

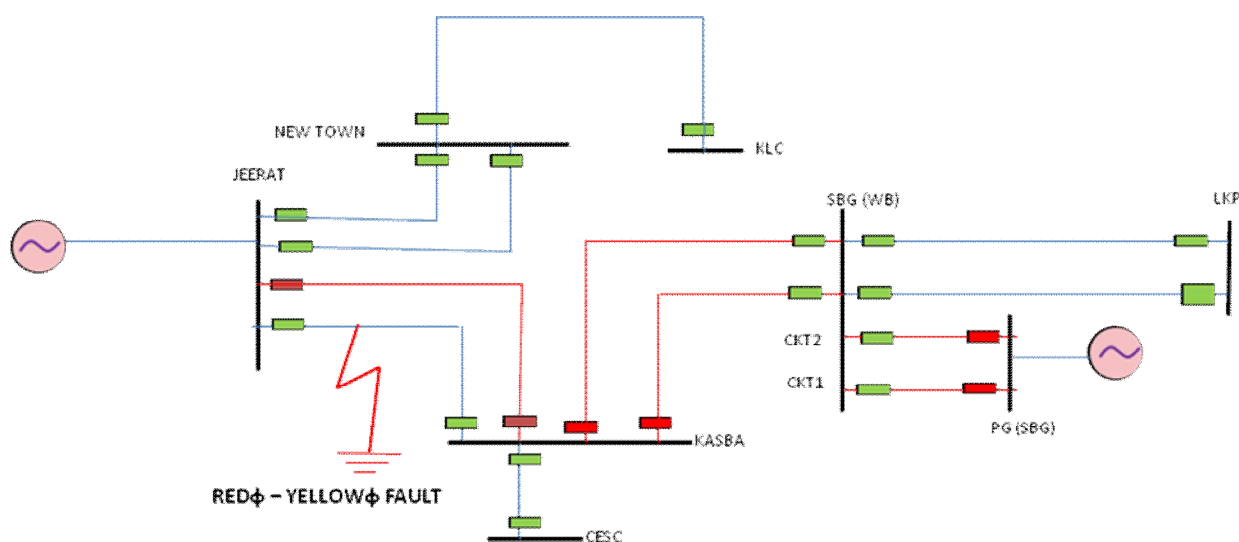
a) Tripping of lines at 220 kV Bidhannagar S/s on 23.04.14.

Deliberation in the meeting

WBSETCL representative explained that bursting of BPI at Bidhannagar end of 220kV Bidhannagar-Asansol line created a 220kV bus-fault at Bidhannagar. At this Sub-station all lines and ATRs are connected to Main Bus-I, as the 2nd bus remained inoperative since long. However, as bus-bar differential protection inoperative, all 220kV lines connected to Bidhannagar S/s tripped from their respective remote ends.

Members requested WBSETCL to expedite commissioning of the 2nd 220kV Main bus at Bidhannagar. In replay, WBSETCL informed that, replacement of isolators is in progress after that, two main bus with bus differential protection system will be implemented. WBSETCL informed that the scheme is expected by Aug, 2014.

b) Total outage of Kasba/Subhasgram (WBSETCL) and power failure south Bengal area on 25.03.14.



Deliberation in the meeting

WBSETCL has given a detailed presentation and explained that during the stormy weather series of faults were occurred in sequence. First, a permanent Y-phase to ground fault has occurred near Kasba in Jerrat-Kasba line and it was successfully cleared from both ends. After that, a transient B-phase to ground fault was occurred in 220 kV Kasba-Subashgram(WB) line and the auto reclosure is successfully reclosed the line. Thereafter, a Y phase fault and B phase faults in both circuits of

Subashgram(WB)-Subashgram(PG) are converted into three-phase fault as a result distance relays at Kasba end of 220 kV Kasba-Subashgram(WB) D/C lines are tripped on zone 3. Consequently, a R-Y phase fault was occurred in 220 kV Jeerat-Kasba line and the line at isolated by the line protection. Thus, there was complete power failure occurred at Kasba 220 kV S/s.

c) Tripping of 220 kV lines from STPS (WBPDC) on 04/04/14

Deliberation in the meeting

Representative from WBPDC is not available for discussion.

d) Tripping of 132 kV Melli-Chuzachen line on 14.04.14.

Deliberation in the meeting

Representative from Chuzachen HPS explained that during the incident, the weather in Sikkim was stormy with severe lightning discharges. Falling of bamboo in Chuzachen-Melli 132kV line led to tripping of this line on R-Y-N fault at 16:28 Hrs. Chuzachen thus continued to evacuate its generation through 132kV Chuzachen-Rangpo and Rangpo-Gangtok lines. The 400kV grid connectivity at Rangpo had not yet been commissioned then. Subsequently these 132kV lines also tripped on fault at 16:34 Hrs . This led to tripping of Chuzachen unit on over speed protection as no path for generation evacuation existed.

C.1.6: NTPC System.

- a) Tripping of 132KV Kahalgaon-sabour line at NTPC Kahalgaon end on 30.03.14.**
- b) Tripping of 400 KV Kahalgaon - Barh line#2 at NTPC Kahalgaon end on 02.04.14.**
- c) Tripping of 400 KV Kh- Biharsharif line#2 at NTPC Kahalgaon end on 03.04.14.**
- d) Tripping of 400 KV Kahalgaon- Farakka line#1 at NTPC Farakka end on 03.04.14.**

Deliberation in the meeting

NTPC representative explained the above tripping incidences. After deliberation it was felt that all the four trippings of Kahalgaon power stations are in order.

ITEM NO. C.2: ANY OTHER ITEM.

Meeting ended with vote of thanks to the chair.

Participants in 19th PCC Meeting

Venue: ERPC Conference Room

Time: 11:00 hrs

Date: 16.05.14 (Friday)

Sl No	Name	Designation	Organization	Contact Number	Email	Signature
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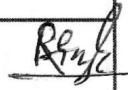
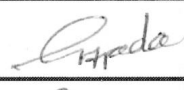
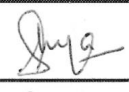
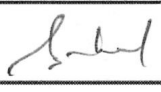
"Coming together is a beginning, staying together is progress, and working together is success." —Henry Ford

Participants in 19th PCC Meeting

Venue: ERPC Conference Room

Time: 11:00 hrs

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Sl No	Name	Designation	Organization	Contact Number	Email	Signature
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