

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 20th PROTECTION SUB-COMMITTEE MEETING HELD AT ERPC, KOLKATA ON 19.06.2014 (THURSDAY) AT 11:00 HOURS

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

Member Secretary I/C welcomed all the participants. Thereafter, he requested SE (PS), ERPC to take up the agenda points in seriatim.

PART – A

ITEM NO. A.1: CONFIRMATION OF:

- 1) **Minutes of 19th Protection sub-Committee Meeting held on 16th May, 2014 at ERPC, Kolkata**
- 2) **Minutes of Special PCC for resolving protection related issues of JSEB and OPTCL System held on 9th May, 2014 at ERPC, Kolkata**

The minutes of 19th Protection Sub-Committee meeting held on 16.05.13 & Special PCC for resolving protection related issues of JSEB and OPTCL System held on 09.05.14 were circulated vide letter no. ERPC/SE (PS)/ PROTECTION/ 2014/ dated 04.06.14 & 05.06.14 respectively 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 19th Protection sub-Committee meeting and Special PCC meeting held on 09.05.14.

PART – B

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

The grid incidences reported during April & May, 2014 are as given below:

(The detailed report was highlighted by ERLDC/respective constituents.)

B.1.1: BIHAR System.

i. Disturbance at 132 kV Purnea (BSEB) S/S on 27/04/14, 01/05/14, 16/05/14.

Total power failure at Purnea (Bihar) S/s occurred on 24.03.14 and discussed in 19th PCC Meeting. BSPTCL and Powergrid ER-I were requested to attend discrepancies and deficiencies in and around Purnea S/s within a week and submit a status report. The above incidences are similar in nature.

As informed by BSPTCL vide mail dated 31.05.14, all relay settings of Purnea (BSEB) S/S were reviewed in a joint meeting with Powergrid held on 30.05.14.

Deliberation in the meeting

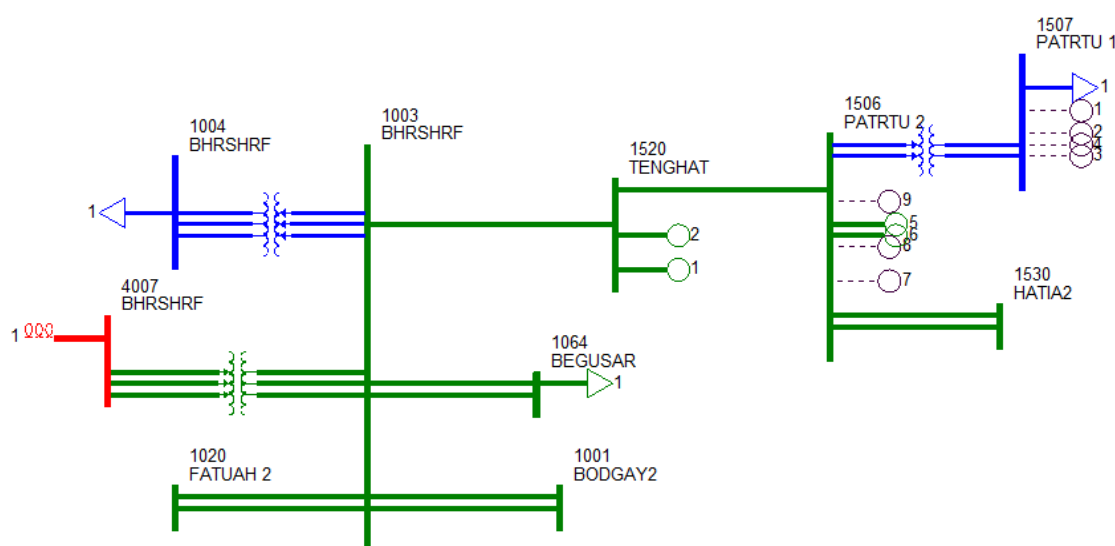
BSPHCL informed that they had observed pole discrepancy at Biharshariff end, so the charging attempt was made through bus coupler CB. Since the line remained faulty, as a result 400/220 kV ICTs and 220 kV D/C Biharshariff- Fatuah got tripped from Fatua end.

PCC advised BSPTCL, TVNL & JSEB to co-ordinate before charging the 220 kV Biharshariff-Tenughat line. Prior to charging such an important line, patrolling should be carried out jointly as decided in 27th TCC/ERPC meeting.

Further, BSPTCL was advised to check the operating time of all CBs at Biharshariff & Fatua along with Purnea S/s and submit a report to ERPC Secretariat.

B.1.2: JSEB System.

i. Disturbance at Tenughat/ Patratu/Hatia (JSEB) on 03/05/14 & 31/05/14.



Analysis: As per preliminary report both the days due to inclement weather conditions the 220 kV Tenughat-Patratu, 220 kV Patratu- Hatia and 132 kV Patratu- Hatia were tripped along with Tenughat and PTPS units.

JSEB may elaborate with relay indications obtained.

Deliberation in the meeting

The issue could not be discussed in detail as JSEB representative was not present in the meeting.

PCC advised ERPC Secretariat to take up the issue with JSEB for proper representation in the meeting and also to ask the detail report of the disturbances.

However, from the ERLDC report it appeared that there was problem in Patratu end. PCC advised for testing of Patratu end relays and circuit breakers and report.

B.1.3: OPTCL System

i. Tripping of all feeders from 220 kV Theruvali S/s on 25.04.14.

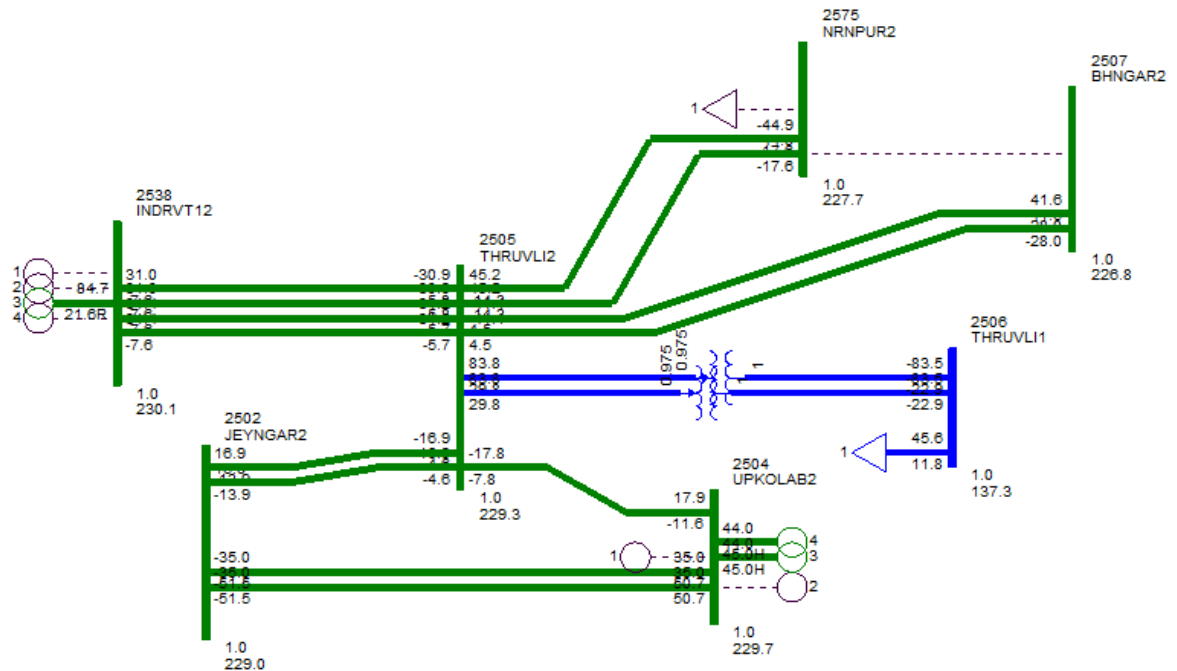
- 220 kV Theruvali- Narendrapur - I was tripped on 25/04/14 due to earth wire snapping

Minutes of 20th PCC meeting

which fell on R-Ph conductor at location No. 553.

- The main breaker of 220 kV Theruvali- Narendrapur - I was failed to trip at Theruvali end.
- As a result ICTs along with following feeders emanating from Theruvali S/s tripped.

- 1) 220/132 kV, 100 MVA Auto- I & II tripped at Theruvali (E/F)
- 2) 220 kV Theruvali – Narendrapur- I & II tripped at Narendrapur (E/F)
- 3) 220 kV Theruvali- Laxmipur- Jaynagar-I tripped from Theruvali end (E/F)
- 4) 220 kV Theruvali- Laxmipur- Jaynagar-II tripped from Laxmipur end (E/F)
- 5) 220 kV Theruvali- U. Indravati-I, III & IV tripped from U.Indravati end (E/F)
- 6) 220 kV Theruvali- U. Indravati-II tripped from Theruvali end (E/F)
- 7) 220 kV Theruvali- U. Kolab tripped from Theruvali end (E/F)
- 8) 220 kV Theruvali- Bhanjanagar- I & II tripped from Theruvali end (E/F)



Analysis: As per the report there was fault in 220 kV Theruvali- Narendrapur – I line due to earth wire snapping which fell on R-Ph conductor. The main breaker of 220 kV Theruvali- Narendrapur - I at Theruvali end failed to clear the fault and as a result ICTs along with all feeders emanating from Theruvali S/s got tripped. Following points need to be addressed:

- i) Non-tripping of Breaker of 220 kV Theruvali – Narendrapur- I at Theruvali end.
- ii) OPTCL may give the latest status of replacement of defective CBs at Theruvali S/S.
- iii) Tripping of 220 kV feeders at Sl. No. 2, 4, 5 from remote end only.

OPTCL may please explain.

Deliberation in the meeting

OPTCL informed that, the distance relay of 220 kV Theruvali – Narendrapur- I at Theruvali end was kept out of service for replacement of numerical relays and master trip relay was in defective state. Hence the fault was not cleared from Theruvali end. As the fault persisted all other lines connected to Theruvali 220 kV substation were tripped from remote ends on non-directional over current & earth fault relays.

Some of the Earth fault relays are non-directional as a result few lines are tripped from Theruvali

- A.** Tripping of 220kV Budhipadar-Tarkera-I at Tarkera at 21:42hrs due to damage of R-Ø CT and Y-Ø LA at Tarkera end. The Budhipadar end CB did not trip and Budhipadar-Tarkera-II tripped from Budhipadar end on R-Ø, Z-II which needs to be explained.
- B.** At 21:43 Hrs, bus fault occurred at Budhipadar due to bursting of Y-Ø Main Bus-II post insulator of 220kV Budhipadar-Tarkera-I at Budhipadar. The bus differential protection at Budhipadar did not operate, due to which all the lines connected to Budhipadar tripped from remote end only. And due to loss of evacuation path units of IbTPS, Burla, Chipilima & other IPPs also got tripped. The following points need to be addressed:
- i) Non-tripping of Budhipadar end Breaker of 220kV Budhipadar-Tarkera-I line in first incident.
 - ii) Tripping of Budhipadar-Tarkera- II from Budhipadar end on R-Ø, Z-II in first incident.
 - iii) In second incident, the non-operation of bus-bar protection scheme at Budhipadar S/s.

OPTCL may please explain.

Deliberation in the meeting

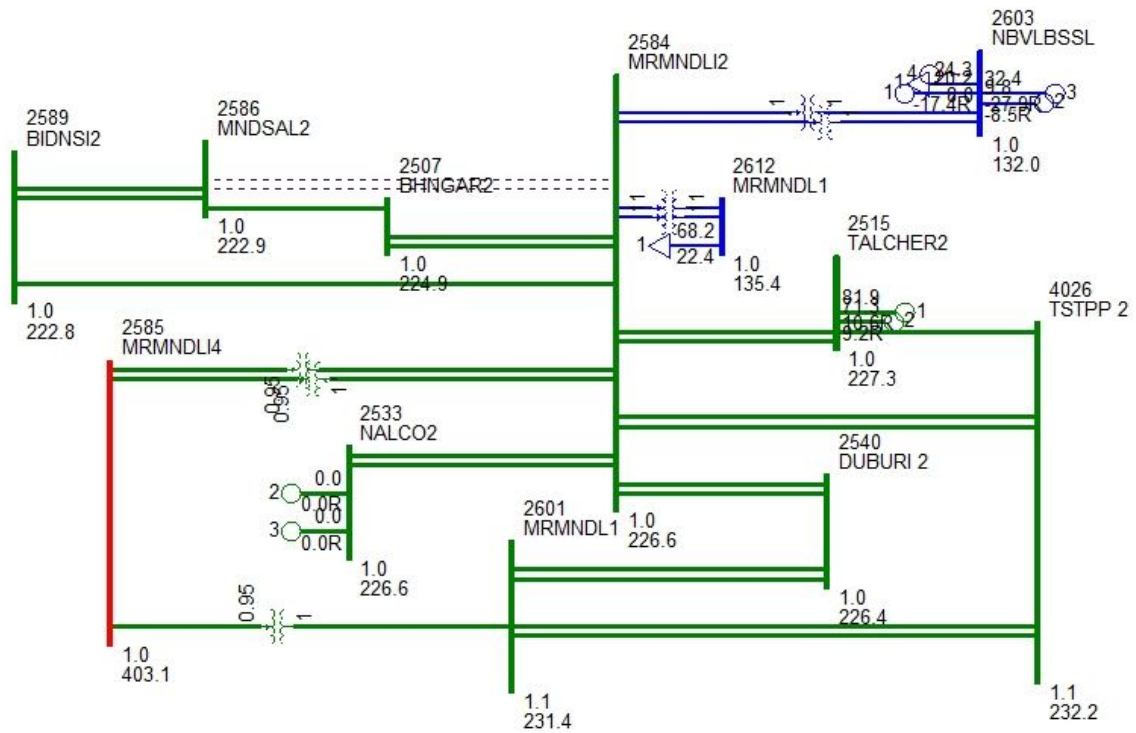
OPTCL explained with a presentation on above incidence that, 220kV Budhipadar-Tarkera – I feeder was in Transfer bus coupler (TBC) but breaker did not operate. This might have been due to defect in “Trip Transfer switch”. Further, no back up of protection was available in TBC feeder.

OPTCL informed that, provision for annunciation to indicate improper functioning of Trip Transfer switch is being arranged. Provision for back up protection of TBC is also being arranged.

RADSS (ABB make) Bus bar protection system of Budhipadar 220 kV S/s was in defective state. New Bus bar protection system already received and installation & commissioning is in process. Expected time of completion is six months.

iii. Disturbance at Meramundali S/s on 30.05.14.

- At 11:05 hrs on 30/05/14, 220kV Meramundali- Kaniha-II tripped at Meramundali end due to Y-Ph jumper snapping which felt on R-Ph conductor at location No. 2.
- 400/220 kV, ICT-II connected to Bus-II from 220 kV side and 220 kV Bus Coupler tripped and 220 kV Bus-II became dead.
- 220kV Meramundali- TTPS– I &II and Meramundali- Bhanjanagar-I tripped at Meramundali end.



Analysis: As per the report the 220kV Meramundali- Kaniha-II tripped at Meramundali end due to Y-Ph jumper snapping with earth wire which felt on R-Ph conductor. The 400/220 kV, ICT-II connected to Bus-II from 220 kV side tripped on O/C, E/F and 220kV Meramundali- TTPS might have tripped due to overloading. However, the following points need to be addressed:

- 1) The relay settings of O/C, E/F of ICT-II and 220 kV Meramundali- Bhanjanagar-I at Meramundali end needs to be checked.
- 2) Operation of 220 kV Bus-Coupler at Meramundali needs to be clarified.

OPTCL may please explain.

Deliberation in the meeting

OPTCL explained that, old Electro Mechanical relays for distance protection were installed in 220kV Meramundali- TTPS– I &II and the backup over current directional element was inoperative. OPTCL informed that old EM relays are being replaced with numerical relays. However, the tripping of 220 kV Meramundali- Bhanjanagar-I at Meramundali end is also being investigated.

PCC advised OPTCL to give a detailed report on above incidence along with action taken. OPTCL agreed.

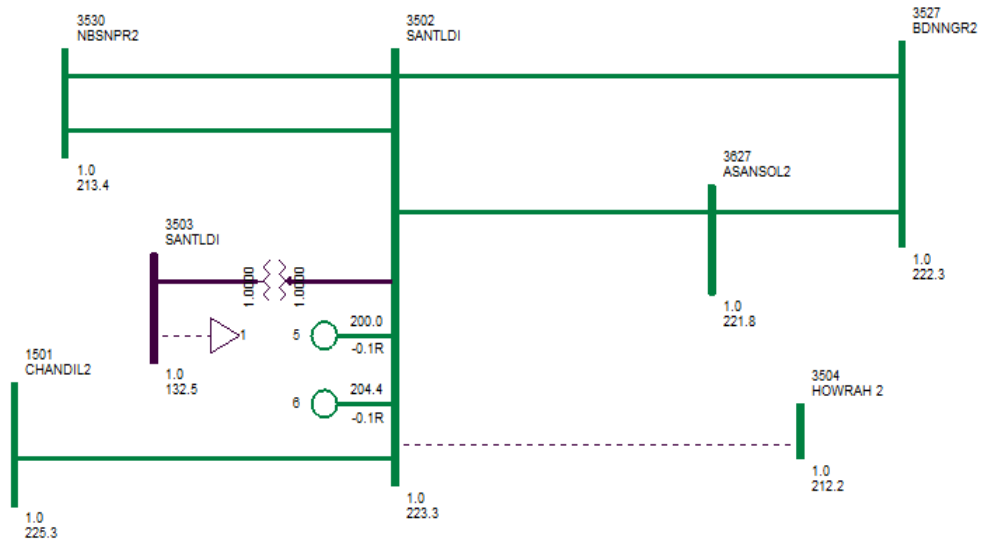
On query, OPTCL informed that replacement of 220 kV bus bar protection is in progress.

B.1.4: WBPDC System

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

- At 19:36hrs, 220kV STPS-Chandil tripped on 3-Ø, O/C from Chandil end only
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- While restoration was in progress, 220kV STPS-Asansol and 220kV STPS-Bidhannagar tripped from both the end at 19:42hrs & 19:45hrs respectively.
- Due to the above trippings, power supply failed at 220kV New Bishnupur S/s, 132kV Old Bishnupur S/s, 132kV Raghunathpur S/s, 132kV Hura S/s, 132kV Khatra S/s, 132kV Purulia S/s, 132kV Baghmundi S/s and STPS auxiliary power supply.



Analysis: 220kV STPS- Chandil had tripped on on 3-Ø, O/C from Chandil end. No tripping occurred at STPS end and this is suspected to be a case of relay mal-operation. After about six minutes later, E/F was detected in 220kV STPS-Asansol S/C at Zone-I from STPS end in a staggered manner with a time gap of around 3 minutes. Due to the above E/F, 220kV STPS-Asansol tripped at 19:42hrs from both ends (R-N fault & Fault seems to be close to STPS due to Zone-2 indication at Asansol). Subsequently, at 19:45hrs, 220kV STPS-Bidhannagar S/C also tripped on Y-B-Ø to ground fault.

Previously, 220kV Arambag-New Bishnupur-D/C was already kept under open condition to avoid over loading of Arambag ICTs and 220kV New Bishnupur s/s & adjacent 132kV S/s were kept on radial mode on STPS. Thus with the above trippings of all incoming feeders at STPS, total power supply failed at STPS along with disruption of power at 220kV New Bishnupur S/s, 132kV Old Bishnupur S/s, 132kV Raghunathpur S/s, 132kV Hura S/s, 132kV Khatra S/s, 132kV Purulia S/s and 132kV Baghmundi S/s. However, the following points need to be addressed:

- 1) Tripping of 220kV STPS-Bidhannagar as relay indication shows B-phase fault from STPS end while Y-B Ph faults at Bidhannagar end may also be explained.

This could not be discussed in 19th PCC as representative from WBPDCCL was not present.

WBPDCCL/WBSETCL may please explain on the above.

Deliberation in the meeting

Representative from WBPDCCL was not available for discussion.

B.1.5: NHPC System

i. Tripping of 400 kV Teesta-Binaguri- II on 04/05/14 & 24/05/14.

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Deliberation in the meeting

NHPC representative explained that Auto-reclosure operation from Teesta end of the line was not successful and the fault found to be of permanent nature. The line was restored after line patrolling.

B.1.6: NTPC System.

- i. Tripping of 132KV Kh (NTPC)-Sabour (BSPTCL) & 132 KV Kahalgaon (NTPC) - Kahalgaon (BSPTCL) lines on 07/05/14 & 10/05/14.**

Deliberation in the meeting

NTPC informed that initially 1 Ø –E Fault occurred in 132 KV Kh- Sabour line at approx 30 Km distance from NTPC end. In the process of back charging from sabour end of said line, 132 KV Kh- BSEB Kh line once again tripped indicating fault at the same location. However, these tripping details may please be confirmed from remote ends.

PCC advised BSPTCL for proper checking of distance relays for relay indications appeared at Sabour & Kahalgaon (BSPTCL) end to avoid such incidents in future.

- ii. Disturbance at FSTPP on 11/05/14, 12/05/14 & 14/05/14**

Deliberation in the meeting

On 11/05/14 at 18:55 Hrs Due to sudden out break of heavy storm 220KV Farakka-Lamatia line (Tower no.7) collapsed and line conductors fell over 400 kV Farakka-Durgapore line-I & II conductors near tower line crossing. As a result DGP –2 breakers 1952,2052 DGP-1 breakers 1752,1852 , Baharampur line breaker 1652 and Lalmatia line 400KV breakers 1152,1252 got opened on Line protection.

Again on 11/05/14, after clearance from ERLDC, Baharampur (Jeerat) line was charged from Baharampur end and synchronized at Farakka end through breaker 1652 at 20.15Hrs. Line loading was 400 MW. At 20:17 hrs Baharampur to DGP-1 tie breaker 1752 was closed inadvertently. As a result fault feeding occurred through Baharampur line to DGP-1 line and 400KV Bus –1 tripped on "High Impedance Differential Protn - B-PH" after which 4 Units of NTPC FSTPS (U#1, 2, 4, 6) also got tripped. Kahalgaon Line-2,4, Sarardighi, Malda-1 also got tripped.

B.1.7: MPL System.

- i. Tripping of both units of MPL on 01/10/2013**

MPL may elaborate.

Deliberation in the meeting

MPL informed that fault current of lower magnitude has been observed on that day which was not picked up by 400 kV MPL-Maithon D/C line distance relays. Subsequently, both units tripped due to significant neutral current observed from generator end.

Powergrid informed that no such incidence was reported at their end.

PCC felt that the tripping of generator protection details including its settings would require for Minutes of 20th PCC meeting

PART- C

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

(The status on the follow up actions is to be furnished by respective constituents)

ITEM NO. C.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 (BSPHCL) end and that of the 220KV Biharsharif – Tenughat line at Tenughat TPS 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), Tenughat TPS and Biharsharif (PG) required to be carried out by BSPHCL in consultation with PGCIL and Tenughat TPS 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.

In 19th PCC, 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.

BSPHCL may please give the present status.

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Deliberation in the meeting

The house was informed that new DPR is to be submitted to CEA as per the new format. New formats are already made available in ERPC website. BSPTCL advised to include the PLCC system also in DPR.

ITEM NO. C.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 informed that they are 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.

In 19th PCC, 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.

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. C.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.

WBSETCL may please intimate the present status.

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

In 19th PCC, 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. WBSETCL informed that the scheme will be completed by Aug, 2014.

WBSETCL may please update the present status.

Deliberation in the meeting

Representative from WBSETCL was not available for discussion.

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 + Z_a	1.0 Sec
4	Zone-4	Reverse	20%	1.2 Sec

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

In 19th PCC, all the constituents were requested 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.

It was informed that the above protection philosophy is being implemented for Protection Co-ordination of JSEB and OPTCL systems with its neighbouring utilities.

Members may update.

Deliberation in the meeting

Members noted.

ITEM NO. C.4: Members may update the following:

C.5.1: *In 19th PCC after deliberation on Tripping of 220kV lines from Fatuah(BSEB) and Patna(PG) on 20/03/14, BSPTCL was advised to check the protection settings of 220 kV Fatuah-Sipara line relays and report.*

Deliberation in the meeting

BSPTCL was advised to send a report within 15 days.

C.5.2: *In 19th PCC after elaborate deliberation on Total power failure at 132/33 kV Purnea (BSPHCL) on 24.03.14, 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 Minutes of 20th PCC meeting

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.

Subsequently, BSPTCL vide mail dated 31.05.14 has submitted the minutes of joint meeting with Powergrid regarding relay settings of Purnea GSS held on 30.05.14.

BSPTCL may update.

Deliberation in the meeting

Issue is already discussed under Item B.1.1.

C.5.3: In 19th PCC after deliberation on **Trippings of 220 kV lines at 220 kV Chandil S/s on 22.04.14**, JSEB was advised 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.

Deliberation in the meeting

Representative from JSEB was not available for discussion.

C.5.4: In 19th PCC after deliberation on **Trippings of 220 kV lines from Hatia S/s on 24.03.14 & Disturbance in Adityapur area of JSEB on 17/03/14**, JSEB was advised to thoroughly check the relay settings and coordination of relays at 132kV and 220kV S/s for satisfactory performance and report the findings to ERPC Secretariat within 15 days.

JSEB may update.

Deliberation in the meeting

Representative from JSEB is not available for discussion.

C.5.5: In 19th PCC after deliberation on **Disturbance at Meramundali S/S (OPTCL) on 06/02/14**, OPTCL was requested 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.

Deliberation in the meeting

OPTCL submitted the requisite information in the meeting.

C.5.6: In 19th PCC after deliberation on **Tripping of all lines at 220 kV Theruvali S/s on 07.02.14 & 17.02.14**, it was informed that defective CBs are being replaced by new CBs at Theruvali.

OPTCL may update.

Deliberation in the meeting

OPTCL submitted the latest status on CBs at Theruvali in the meeting.

ITEM NO. C.5: ANY OTHER ITEM.

Meeting ended with vote of thanks to the chair.

20th
Participants in 15th PCC Meeting

Venue: ERPC Conference Room

Time: 11:00 hrs

Date: 19.06.14 (Thursday)

Sl No	Name	Designation	Organization	Contact Number	Email	Signature
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14	N. Mandal	AGM(E)	Gati	8016082299	niladri.mandal@erpc.mn	N. Mandal
15	PK PANDA	AGM (EL)	OPTCL	9438907360	ele.pkpanda@erpc.mn	P.K. Panda
16	L. NAYAK	DGM (EL)	OPTCL	9438907801	ele.lanayak@erpc.mn	L. Nayak
17	Rambaboo Singh	EEE/CRTL	BSPTCL	7763817723	esecrit1@yahoo.com	Rambaboo Singh
18	Rajendra	A.E.E. (GND)	TVNL	9470383346	r.f.ttps@erpc.mn	Rajendra
19	G. Rao	ARE	ERPC	9547891353	eseb-ica@erpc.mn	G. Rao
20	D. K. Banerji	EE	ERPC	9883617236	eeep.eopc@erpc.mn	D. K. Banerji

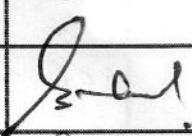
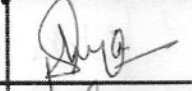

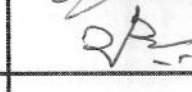
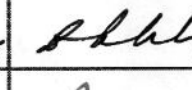
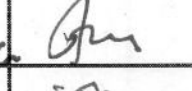
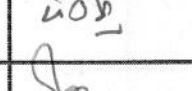

"Coming together is a beginning, staying together is progress, and working together is success." —Henry Ford

20th
Participants in 19th PCC Meeting

Venue: ERPC Conference Room

Time: 11:00 hrs

Date: 19.06.14 (Thursday)

Sl No	Name	Designation	Organization	Contact Number	Email	Signature
21	B. SARKHEL	SECPS	ERPL	9438065724		
22	S. K. SETHI	SE				
23	Munesh Kr	AEE				
24	S. R. SINGH	DGMLOS	POWERGRID ER-II	9434740009		
25	A. mulaherji	Head (CRMD / Test Eng)	MPL	0923400 1689	amulaherji @tatapower.com	
26	Akash Bajpai	L.E	MPL	92047578 04	akash.bajpai @tatapower.co	
27	Rohit Kumar	Sr. Engr	POWERGRID, ER-I	9431815714	rohitrajdan @gmail.com	
28	J. BANERJEE	SE(C)	ERPC			
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