

EASTERN REGIONAL POWER COMMITTEE

14, GOLF CLUB ROAD, TOLLYGUNGE
KOLKATA-700033

MINUTES OF 51ST OCC MEETING HELD AT ERPC, KOLKATA ON 24.06.10

List of participant is at Annexure-I.

Sh. A. K. Rampal, Member Secretary, ERPC chaired the meeting. He welcomed all the participants to this 51st OCC meeting. He recalled the discussion of 14th ERPC meeting, wherein it was given to understand that Eastern Region would continue to face coal shortage scenario. Under this circumstance, he suggested that coal from in-efficient station could be diverted to more efficient station. E.g. coal stock at Patratu TPS could be diverted to NTPC stations and additional generation gained by utilizing coal in efficient units could be shared between two involved parties on 50:50 basis. In this regard, JSEB has already been approached and NTPC was requested to mull over the issue.

He also recollected the discussion in the 14th ERPC meeting on responsibilities assigned to ERPC by new "Indian Electricity Grid Code (IEGC)" effective from 03.05.10. Relevant portion was also circulated among the members. He informed that a special meeting would be held in this regard and he requested them to come prepare with a mechanism to implement various provisions of IEGC.

With the permission of the house, he placed following agenda for discussion by members:

ITEM NO. 0: ACKNOWLEDMENT OF CONTRIBUTIONS MADE BY SH P.C. KUMBHAJ, GM, NTPC AND SH S. PRASAD, AGM, POWERGRID IN VARIOUS OCC MEETINGS

Sh. P. C. Kumbhaj, GM, NTPC and Sh. S. Prasad, AGM, Powergrid would be superannuating on 30th June 2010.

Members placed on record the excellent contribution made by them towards solving various operational problems of the Eastern Region.

MS, ERPC requested Sh. A. K. Bandyopadhyaya, Superintending Engineer (Operation), ERPC to take up the agenda items. Sh. A. K. Bandyopadhyaya took up the items one by one.

ITEM NO. 1: CONFIRMATION OF MINUTES OF 50th OCC MEETING OF ERPC HELD ON 12.05.2010

The minutes were circulated vide letter no. ERPC/SE(OPRN)/OPERATION/2010/954-996 dated 17.05.2010 to all the constituents and no observation was received.

Members may confirm the minutes.

Deliberation in the meeting

Members confirmed.

ITEM NO. 2: DECISIONS OF EARLIER OCC MEETINGS

2.1 MOCK BLACKSTART EXERCISES IN EASTERN REGION

In line with decision taken in earlier OCC forum, black start exercise of Teesta HEP was carried on 22.04.10. In the 50th OCC meeting, OCC reiterated the need to put all black start facilities in trial run operation. ERLDC also furnished list of hydro generating stations with black start facility. Other hydro generating stations in Eastern Region were requested to confirm their status of black start facility by May 2010 to ERLDC. OHPC was also requested to explore the option of utilizing Meenakshi HEP as start up power for black start of Balimela and Upper Kolab HEP.

Relevant portion (section 5.8 (b & c)) of IEGC in this regard is reproduced below:

“..Mock trial runs of the procedure (recovery procedure) for different subsystems shall be carried out by the Users/CTU/STU at least once every six months under intimation to the RLDC. Diesel Generator sets for black start would be tested on weekly basis and test report shall be sent to RLDC on quarterly basis.

List of generating stations with black start facility, inter-State/interregional ties, synchronizing points and essential loads to be restored on priority, shall be prepared and be available with NLDC, RLDC and SLDC.”

ERLDC has proposed that testing of DG sets be carried out on every Wednesday.

In light of above,

- *OHPC may share its view on utilizing Meenakshi HEP as start up power for Balimela and Upper Kolab.*
- *ERLDC may like to supplement the status of black start facilities of generation stations in ER.*
- *Members may draw a tentative schedule for trial operation of black start facilities of other generating stations.*
- *Members may finalize the programme for testing of Diesel generator Sets in the power station.*

Deliberation in the meeting

List of generating stations with black start facilities were displayed by ERLDC (Annexure-II). OHPC pointed out that Burla HEP does not have black start facility as micro hydel for start-up power is not working. All generating stations were requested to intimate the updated information given in Annexure-II to ERLDC by 15th July 2010.

OHPC informed that the matter of utilizing Meenakshi HEP as start-up power for Balimela and Upper Kolab would be discussed in their internal meeting and assured the house that outcome of the said meeting would be passed on to

ERPC/ERLDC by 15th July 2010 for further deliberation in the next OCC meeting. OHPC/OPTCL was requested to furnish the network diagram of Balimela, Upper Kolab and Meenakshi HEP so that a switching arrangement could be suggested by ERLDC for carrying out black start exercise.

It was decided that mock black start exercise of Indravati and Rengali HEP would be carried out during end of July'10 if OHPC is ready. It was also agreed that mock exercises in respect of Subarnarekha HEP (JSEB) and Maithon HEP (DVC) would be carried out during July'10. For other stations, schedule of mock exercise would be discussed after this monsoon.

It was agreed that test trail run of all DG sets should be carried out weekly, i.e. every Wednesday at 3 p.m. and the outcome should be shared (with ERLDC) on monthly basis. The outcome for the preceding month shall be placed before the OCC.

2.2: NON RECEIPT OF REVISION REQUEST FROM CONSTITUENTS BY ERLDC RESULTING INTO DELAYED REVISION OF SCHEDULE

On 03.05.10 WBSETCL faced severe load crash in their system and S.C.E/SLDC/Howrah sent a request at 0334 hrs to SCE/ERLDC/Kolkata to forego 200 MW West Bengal share from Farakka w.e.f. block 19 to 28. But the same has not been made effective by revising schedule from ERLDC end. Night shift personnel denied the receipt of such FAX request from SLDC end.

In this regard, one more incident of communication gap was reported by WBSETCL, where intimation from ERLDC was not received by constituents. Quantum of West Bengal share of TALA power was revised from 34.4 MW to 153 MW giving effect from block no. 1 to 48 on 03.05.10. There was no intimation regarding this revision until release of revision no. 3 T.O.O. 0745 hrs on 03.05.10 of ERLDC resulting to injection of such a higher quantum of power in the grid at high frequency.

Similar problem was raised by FSTPP, NTPC during 49th OCC meeting held on 19.04.10. In the meeting, delay in revision of DC for FSTPP on 11.03.10 due to late receipt of revision message by ERLDC was discussed. Representative of Farakka requested ERLDC to devise a standby mechanism for sending their requests to ERLDC. Various options like email, dedicated FAX, hotline connection with voice recorder were discussed.

The issue was again discussed in the 50th OCC meeting and it was decided that instances cited above would be bilaterally discussed between NTPC & ERLDC and separately between WBSETCL & ERLDC and their outcome would be placed before the next OCC meeting.

In pursuance of above, NTPC, WBSETCL and ERLDC may share the outcome of their discussions.

Deliberation in the meeting

It was noted that the above meetings did not take place. Therefore it was agreed by the concerned parties to meet before 2nd July 2010.

2.3: DEMONSTRATION OF WEB-BASED OPEN ACCESS SOFTWARE BY ERLDC

In line with decision taken in 49th OCC meeting, a workshop was arranged at ERPC Conference room on 29th April'10 for demonstration of the web based open access software to facilitate electronic submission of open access application, processing and electronic communication of open access approval. The software has already been developed by ERLDC and is under testing.

The issue was again discussed in 50th OCC meeting and members felt that one more workshop would help constituents to acquaint themselves with ERLDC software.

In line with decisions taken in last meeting, Members may

- *Share their feedback on the software.*
- *Discuss timeframe for implementing the software.*
- *Finalize the date for one more workshop on the software, if required.*

Deliberation in the meeting

No feedback on the software was reported upon. ERLDC intimated that the entire software package is working satisfactorily. However, it was noted that Jharkhand was not utilizing the software. Jharkhand was requested to have interaction with ERLDC for utilizing this software.

It was decided that in addition to present method, web-based open access software can also be used (as an alternative) for submitting application with ERLDC for grant of open access. In case of any difficulties, utilities may approach ERLDC.

2.4 CONSTITUTION OF A COMMITTEE TO LOOK INTO ISSUES PERTAINING TO GENERATION FROM TALCHER STPS STAGE I & II

In the 12th ERPC meeting held on 04.12.09, constituent members had expressed their apprehensions that Talcher STPS stage II was allocated more coal than stage-I and stage I coal was diverted by NTPC to stage-II with an intent to earn higher revenue. To remove their doubts, it was decided that a Committee will be constituted comprising of Director (Commercial), GRIDCO, Member Secretary, ERPC, Executive Director (TSTPS), NTPC and one officer of Talcher STPS.

As a follow up, ERPC constituted the Committee vide its letter dated 01.01.10. The matter was also discussed in 47th OCC meeting. The first meeting of the committee was held on 4th March 2010.

ERPC Secretariat collected information on coal linkages from CEA and CIL and the same was forwarded to NTPC for preparation of the report. It is understood that the report is being finalized.

NTPC may share the latest status.

Deliberation in the meeting

NTPC was requested to ensure the formal circulation of the draft report to all

committee members (i.e. GRIDCO & ERPC) before 10th July 2010.

ITEM NO. 3: MAXIMUM FLOW THROUGH 400 kV NEW PURNEA-BINAGURI SECTION --- ERLDC

Due to high hydro availability in the monsoon season , total generation in Chukha HEP, Tala HEP, Teesta HEP, Rangit HEP, Rammam power station, Jaldhaka power station and Kurichu HEP are going to increase substantially. Further NER is likely to inject excess power in the monsoon season. Simultaneous high generation of ER hydro stations and injection from NER will lead to high flow in 400 kV New Purnia-Binaguri section.

However, 400 kV Purnea-Binaguri-II is out due to tower collapse w.e.f. 13.04.10. Presently, the corridor has 400 kV Purnia-Binaguri-I strung with single moose conductor in ERS portion and 400 kV Purnia-Binaguri-III & IV strung with double moose conductor.

Powergrid and Powerlink may confirm maximum load-ability of the above lines under new configuration.

Deliberation in the meeting

ERLDC shared its concern about this corridor, which has 1900 MW capacity (under present condition) whereas power to be evacuated is around 2300 MW. Therefore, the grid would be subjected to certain degree of risk. ERLDC informed that they are in planning stage to develop some contingency plans (e.g. TCSC bypass, splitting of Binaguri Bus) and will share the same in due course.

ERLDC requested all constituents to cooperate and ensure compliance with ERLDC advice during (any) emergency. Utilities agreed.

ITEM NO. 4: DECLARING OF PEAK HOURS FOR SCHEDULING PURPOSES UNDER FUEL SHORTAGE CONDITIONS --- ERLDC

For purposes of scheduling under fuel shortage conditions prior declaration of peak hours needs to be done on a month ahead basis. Considering advancement of Sunset timings, it is proposed that peak Hours for the month of July'10 may be considered from 1800 hrs to 2100 hrs.

Members may confirm.

Deliberation in the meeting

Members confirmed.

ITEM NO. 5: OPERATIONAL PLANNING

(A) ANTICIPATED POWER SUPPLY POSITION FOR THE MONTH OF JULY'10

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the months of July'10 were prepared by ERPC

Secretariat on the basis of finalized LGBR for 2010, keeping in view that the units are available for generation and expected load growth etc. The details are placed for discussion.

Members may confirm.

Deliberation in the meeting

Observation was received from DVC, Orissa, DPL, CESC and Sikkim. Modified anticipated power supply position for the month of July'10 is given at Annexure-III.

(B) ASSESSMENT OF INTER AND INTRA-REGIONAL TRANSFER CAPABILITIES

ERLDC is posting TTC/ATC and TRM values for peak as well as off-peak condition at ERLDC website for each inter-regional corridor together with projected power supply position and generation availability. This is being done every month for next three months and further reviewed before the commencement of each month.

The issue was discussed in 50th OCC meeting and it was decided that a system would be in place, wherein constituent states would submit the requisite information (e.g. hourly estimated availability, hourly demand to be met, elements under outage and critical line loading limit etc.) for correctly assessing inter state TTC/ATC to ERLDC by 8th of every month and then within 3 days ERLDC would come out with the assessment of TTC/ATC/TRM values for next quarter and the values of the same will be placed in OCC meetings.

TTC/ATC/TRM values for the month of August'10 are given at Annexure-IV.

Members may please note.

Deliberation in the meeting

ERLDC explained the issue. In order to ensure better co-ordination with SLDCs regarding computation of TTC, ATC etc., ERLDC suggested explaining the issues to SLDCs. In this regard, they invited nomination (2 from each SLDC, 3 from NTPC and 2 from PGCIL) to a reliability group to discuss all issues relating to computation of TTC/ATC etc. It was decided that concerned parties would submit their nomination before 30th June'10.

It was also decided that ERLDC would first interact with the above reliability group in a properly convened meeting on 5th July 2010 to impart better understanding on congestion order, concept of ATC & TTC with threadbare discussion and case studies. After this first interaction this reliability group will act as standing group and ERLDC will interact with this group while finalizing the ATC & TTC figures.

(C) PROLONGED OUTAGE OF POWER SYSTEM ELEMENTS IN ER

Name	Date of Outage	Reason
DPL#7 (300 MW)	30/05/10	Auxiliary supply failed

CTPS#7(250 MW)	24/04/10	C & I problem
Tenughat#1(210MW)	20/05/10	Less demand requisitioned by JSEB
400 kV Malda-Purnea D/C	24/07/09	Tower collapse at Loc.71
400 kV Tala - Binaguri - II	29/05/10	XLPE Cable problem at TALA
400 kV Binaguri-Purnea-II	13/04/10	Tower Collapse
220 kV Purnea-Dalkhola D/c	13/04/10	Tower Collapse
400 kV Sagardighi - Subhashgram	06/06/10	Tower collapse
220 kV Pusauli - Sahupuri	07/05/10	Tower Collapse
220 kV Ara - Khagol - II	30/05/10	Tower Collapse
220 kV Patratu - Bodhagaya I,II & III	2005	Tower Collapse and conductor theft
132 kV Dehri - Dumraon D/C	07/05/10	Tower Collapse
132 kV Biharsariff/Rajgir - Barhi D/C	07/05/10	Tower Collapse
132 kV Deheri - Karmanasa - I (Kudra - Karmanasa section)	07/05/10	Tower Collapse
50 MVAR Line Reactor of 400KV KhSTPP-Maithon- II at Maithon end	August,2009	----
Circuit Breaker in 400 kV bus reactor bay at Jeerat S/s	10.04.10	CB failure

Concerned constituents may share the latest status on outage of above elements.

Deliberation in the meeting

Updated status is given below:

Name	Date of Outage	Reason	Restoration Status
DPL#7 (300 MW)	30/05/10	Auxiliary supply failed	Likely to be restored by August'10
CTPS#7(250 MW)	24/04/10	C & I problem	Minor damage in LP rotor and taken to Haridwar, BHEL. Likely to be restored by August'10
Tenughat#1(210MW)	20/05/10	Less demand requisitioned by JSEB	Unit synchronised on 24.06.10
400 kV Malda-Purnea D/C	24/07/09	Tower collapse at Loc.71	Likely to be restored by November'10
400 kV Tala - Binaguri - II	29/05/10	XLPE Cable problem at TALA	Referred the matter to manufacturer
400 kV Binaguri-Purnea-II	13/04/10	Tower Collapse	Likely to be restored by August'10
220 kV Purnea-Dalkhola D/c	13/04/10	Tower Collapse	Likely to be restored by July'10
400 kV Sagardighi - Subhashgram	06/06/10	Tower collapse	Likely to be restored by June'10

220 kV Pusauli - Sahupuri	07/05/10	Four towers at location no 172, 173, 174 & 202 collapsed.	Dismantling of tower members completed. Agency is fixed, but same agency is right not engaged in restoration of 220 kV Biharshariff-Bodhgaya line. After completion of the line, restoration of present line would be taken up.
220 kV Biharshariff - Bodhgaya D/C	07/05/10	37 towers collapsed	Three agencies engaged for restoration of the line. Foundation of damaged towers completed. Erection of only one/two towers left as on 23.06.10. Stringing work is also side by side in process. This line is likely to be completed within a week.
220 kV Ara - Khagol - II	30/05/10	Tower Collapse	Three towers in Sone river crossing damaged at location no 46, 47 & 48. Circuit -I of this line is restored by PGCIL on 10.06.10
132 kV Dehri - Dumraon D/C	07/05/10	3 Tower Collapse	Restoration will be taken up shortly. Arrangement of tower members and manpower is in process. Likely to be restored within 15/20 days.
132 kV Biharshariff/Rajgir - Barhi D/C	07/05/10	26 Tower Collapse	Dismantling of tower member completed. Agency is fixed but the same agency is engaged in 220 kV Biharshariff-Bodhgaya, which is likely to be completed within a week. After completion of the work, the restoration of the line would be taken up.
132 kV Deheri - Karmanasa - I (Kudra - Karmanasa section)	07/05/10	4 Tower Collapse	Dismantling of tower member completed. Agency is fixed but the same agency is engaged in 220 kV Biharshariff-Bodhgaya, which is likely to be completed within a week. After completion of the work, the restoration of the line would be taken up.
50 MVAR Line Reactor of 400KV KhSTPP-Maithon- II at Maithon end	August,2009	----	Likely to be restored by June'11
Circuit Breaker in 400 kV bus reactor bay at Jeerat S/s	10.04.10	CB failure	Likely to be restored by June'10

(D) SHUTDOWN PROPOSAL OF TRANSMISSION LINES AND GENERATING UNITS FOR THE MONTH OF JULY' 10.

Shutdown proposals of the generating stations for the month of July' 2010 as agreed during preparation of LGBR for the year 2010-11 are placed for discussion. Shutdown proposals of transmission elements as received are also given in the annexure.

Deviations, if required, may please be intimated along with reasons and Members may please discuss.

Deliberation in the meeting

TVNL, DVC and WBPDCCL were requested to furnish the reason for deviating from original schedule of maintenance.

Approved programme of maintenance for the month of July'10 is given at Annexure-V.

(E) EXTENDED PLANNED MAINTENANCE OF THERMAL UNITS IN EASTERN REGION FOR THE YEAR 2009-10

CEA has pointed out that following units have taken considerably long time than the recommended time by Srinivasan/Kukde Committee:

Station	Unit no	Capacity (MW)	Date of outage	Date of return	No of days	Type of planned maintenance
DPL TPS	3	70	16.10.09	07.12.09	53	AOH
Tenughat TPS	2	210	05.11.09	08.05.10	175	COH
Chandrapura TPS, DVC	3	130	13.11.09	17.03.10	125	COH

Further, Patrattu TPS Unit no. 7, which was first taken for capital maintenance (major maintenance work of boiler and turbine) for 37 days from 25th May 09 to 2nd July 09 was again taken from capital maintenance from 25th March 2010 onwards.

DPL, DVC and JSEB may comment.

Deliberation in the meeting

DPL, DVC, TVNL and JSEB were requested to intimate the reasons behind these inordinate delays.

ITEM NO. 6: COMPLIANCE WITH PROVISIONS OF IEGC --- ERLDC

6.1 NON RECEIPT OF GRID INCIDENT REPORTS

As per clause no 5.9.6 of IEGC, all grid incident/event is to be reported in prescribed format. The details of information required to be furnished are also given in the clause no 5.9.6(c). The practice of furnishing information report is not being followed. In the absence of appropriate relay flag details etc, it is becoming very difficult to analyse the events and suggest remedial measures to prevent reoccurrence of such events. In this regard, GM, ERLDC vide letter dated 3rd June'10 requested all concerned to streamline the procedure of reporting grid incidents as mandated in IEGC.

Members may deliberate.

6.2 ANALOG TRIGGERING OF DISTURBANCE RECORDERS

At many Substations DR outputs from Numerical relays as well as disturbance recorders are not available/not functioning and are not time synchronized,

causing difficulty in analysing tripping events and disturbances. IEGC clause 4.6.3 mandates keeping all recording instruments time synchronized and in working condition and furnishing of the recorded data. However, as a back up to system wide disturbances and to record phenomenon like low frequency oscillation etc. various DR printouts can be made available by enabling the following analog triggers:

- a) Under-Frequency & Over-Frequency triggering (e.g. 50.50Hz and 49.00 Hz)
- b) Under-voltage & over-voltage triggering(e.g. 90% & 110%)
- c) Under and overcurrent.

However, such analog triggering would lead to recording of more number of events and as such downloading of the information to PC at intervals is essential. The relay suppliers can be asked to provide polling and scheduler software and these could be installed in PCs so that the events are downloaded after every few minutes. GM, ERLDC vide letter dated 03.06.10 requested all constituents for making necessary arrangements to provide DR output to SLDCs and RLDC on the same day.

Members may deliberate.

6.3 UNDER FREQUENCY RELAY OPERATION-STATUS

As per present UFR scheme of ER, following are the UF relay settings and load relief expected:

SYSTEM	STAGE-I(48.5 HZ INSTANTANEOUS)	STAGE-II(48.2 HZ INSTANTANEOUS)	STAGE-I(48.0 HZ INSTANTANEOUS)
BSEB	30 MW	36 MW	43 MW
JSEB	17 MW	12 MW	22 MW
DVC	56 MW	55 MW	76 MW
OPTCL	77 MW	77 MW	105 MW
WBPDCL(INCL CESC)	120 MW	120 MW	164 MW
TOTAL	300 MW	300 MW	410 MW

Since UFR operation is the ultimate defence mechanism to prevent grid disturbance, it is a must to keep all UFR always in service and functional. Further to get actual relief in terms of MW as mentioned in above said scheme during real time, it is felt necessary to connect at least double the load the mentioned in the scheme.

As per clause no 5.2(n) of IEGC, all constituents are to furnish the details of UFR operations as and when called upon to operate and monthly consolidated report on UFR operation for onward transmission to CERC and RPC.

In view of above, all SLDCS and Constituents may

- *Confirm the status of their UFR*
- *Agree to connect double the load as mentioned in the scheme*
- *Send report on UFR operations as and when called upon to operate and a monthly consolidated report.*

6.4 DEMAND MANAGEMENT MEASURES

As per 5.4.2(e) of Demand Management clause of IEGC, to maintain the system frequency within permissible band all constituents are identify following four categories of interruptible loads

1. loads for scheduled power cuts/loadshedding
2. loads for unscheduled load shedding
3. loads for UFR actuated shedding
4. loads for SPS(special protection scheme) actuated shedding

The clause also mentions that there will be no overlapping between different groups of loads to be shed as mentioned above. ER at present does not have any SPS actuated load shedding scheme.

All constituents are requested to furnish the details of first three categories of identified load as mentioned above.

6.5 NON-COMPLIANCE OF DIRECTIONS ISSUED BY SLDC:

Vide clause no 5.5.1.c (h) of IEGC, non-compliance of SLDC direction by SEB/Distribution licenses/bulk consumers to curtail overdrawal is to be reported to ERLDC for incorporating the same in weekly report to be prepared and published by ERLDC.

All SLDCs are to inform ERLDC the instances of non -compliance of SLDC directions by SEB/Distribution licenses/bulk consumers to curtail overdrawal, within two days of the incident.

SLDCs may agree.

Deliberation in the meeting (for item no. 6.1 to 6.5)

ERLDC briefly impressed upon the importance of above items.

All agreed that a one-day meeting should be dedicated to discuss IEGC issues. It was decided to hold this meeting a day before next OCC, which is likely to be held within 3 weeks time. It was also decided to take up responsibilities assigned by the new IEGC to ERPC in that special meeting.

WBSETCL suggested that upcoming generation/transmission projects could also be regularly discussed in OCC meeting. It was agreed to discuss this proposal in that meeting.

ITEM NO. 7: OPERATION OF AUTO RECLOSE FACILITIES ON TRANSMISSION LINES-- ERLDC

During May 2010 number of lines tripped due to adverse weather conditions resulting in minor grid incidences. While analyzing such incidences, it is observed that not a single case of operation of Single Phase Auto Reclosure was reported though the same is provided on 400 kV lines.

In order to analyse the failure to auto reclose, the following details may be

furnished:-

- a. Line length
- b. Availability of line reactor (with or without NGR), Reactor Capacity & NGR capacity.
- c. Auto reclose dead time.
- d. DRs of the events in which auto reclose failed.

In this regard, GM, ERLDC vide letter dated 03.06.10 requested all constituents to ensure proper functioning of auto reclose feature.

Members may deliberate. Further, Tala HEP may share the status of single phase auto reclose at Tala end.

Deliberation in the meeting

ERLDC informed that operation of auto-reclose system was not up to satisfactory level. He urged constituents to take remedial steps to ensure higher level of auto-reclose operation during transient faults. He also requested constituents to submit the above mentioned information by 14.07.10.

ITEM NO. 8: FURNISHING OF QUARTERLY REPORT TO MOCK DRILLS TO REVIEW THE PREPAREDNESS FOR CRISIS/DISASTER SITUATION IN POWER SECTOR

Secretary (Security), Govt of India emphasized the need for quarterly monitoring of the preparedness of various utilities (including private sector player) for dealing the crisis situation. Accordingly, ERPC vide FAX message dated 23.04.10 circulated the format for submitting the report on mock drill for crisis management plan in power sector for the quarter ending March'10. However, reports have been received from Talcher, NTPC and Teesta, NHPC.

All power stations, transmission licensees are requested to conduct mock drills and submit the quarterly information in desired format to CEA/ERPC.

Deliberation in the meeting

Format for submitting the information was circulated in the meeting. All concerned were requested to submit the desired information to CEA with a copy to ERPC on quarterly basis.

ITEM NO. 9: REVIEW OF GRID PERFORMANCE DURING MAY, 2010

Frequency, hydro reservoir levels, important events, grid disturbances etc are given at **Annexure-VI(a)**.

ERLDC may kindly present the salient features of grid touching upon the disturbances during May 2010.

Deliberation in the meeting

*ERLDC made a presentation on salient features of ER grid performance during the month (**Annexure-VI(b)**). While discussing grid disturbances, ERLDC pointed out relay mal-operation was the main reason for disturbances in most of the*

cases.

ITEM NO. 10: ANY OTHER ISSUES

a) Issue raised by ERPC Secretariat:

EVACUATION OF TENUGHAT POWER STATION

Tenughat Power Station (2x210 MW) is reportedly operating at low PLF due to constraints in power evacuation system (i.e. 220 kV Tenughat-Biharshariff and 220 kV Tenughat-Patratu lines). These lines are being maintained by JSEB and BSEB for the respective portions lying in their respective states. For ownership of these lines, litigation is underway between BSEB and JSEB.

It is more appropriate to entrust the maintenance of these lines (to be got done) to TVNL for an efficient co-ordination between maintenance contractor and TVNL. It will also give flexibility to TVNL for getting these lines maintained from JSEB, BSEB, Powergrid or any other competitive party. This arrangement will not affect the liability of the consumer.

BSEB and JSEB spontaneously agreed to the Member Secretary's suggestion and these two lines were declared "in-principle" as Associated Transmission System (ATS) of the Tenughat Power Station.

BSEB and JSEB will discuss this part further in their respective organisation for taking a formal decision in the next OCC meeting and ensuing TCC/ERPC meeting.

b) Issue raised by Sikkim:

Sikkim pointed out that in case of fault either in Rangit-Siliguri line or Rangit-Gangtok line, both the lines get out and thus affect the generation of Rangit PS and power supply to Sikkim. In such cases, Sikkim requested ERLDC to examine the proposal of running Rangit Station with Sikkim load. ERLDC agreed to do so.

The meeting ended with thanks to the Chair.

ANTICIPATED POWER SUPPLY POSITION OF ER DURING JULY'10 (REVISED)

SL.NO	PARTICULARS	Peak demand (MW)	Energy (MU)
1	BIHAR		
	i) NET MAX DEMAND	2000	1060
	ii) NET POWER AVAILABILITY- Own Source	149	70
	- Central Sector	1407	1000
	iii) SURPLUS(+)/DEFICIT(-)	-444	10
2	JHARKHAND		
	i) NET MAX DEMAND	1010	550
	ii) NET POWER AVAILABILITY- Own Source	631	315
	- Central Sector	470	283
	iii) SURPLUS(+)/DEFICIT(-)	91	48
3	DVC		
	i) NET MAX DEMAND (OWN)	2175	1350
	ii) NET POWER AVAILABILITY- Own Source	2000	1060
	- Central Sector	172	123
	Long term Bi-lateral(200 MW MP+230(DTL)	430	320
	iii) SURPLUS(+)/DEFICIT(-)	-433	-487
4	ORISSA		
	i) NET MAX DEMAND	3500	2050
	ii) NET POWER AVAILABILITY- Own Source	2440	1340
	- Central Sector	905	647
	iii) SURPLUS(+)/DEFICIT(-)	-155	-63
5	WEST BENGAL		
5.1	WBSEDCL		
	i) NET MAX DEMAND (OWN)	3980	2120
	ii) CESC's DRAWAL	430	108
	iii) TOTAL WBSEDCL's DEMAND	4410	2227
	iv) NET POWER AVAILABILITY- Own Source	3208	1816
	- Import from DPL	69	128
	- Central Sector	1099	772
	v) SURPLUS(+)/DEFICIT(-)	-34	489
5.2	DPL		
	i) NET MAX DEMAND	318	201
	ii) NET POWER AVAILABILITY	248	210
	iii) SURPLUS(+)/DEFICIT(-)	-70	10
5.3	CESC		
	i) NET MAX DEMAND	1630	927
	ii) NET POWER AVAILABILITY - OWN SOURCE	1100	788
	FROM WBSEDCL	530	165
	iii) TOTAL AVAILABILITY	1630	953
	iv) SURPLUS(+)/DEFICIT(-)	0	26
6	WEST BENGAL (WBSEDCL+DPL+CESC) (excluding DVC's supply to WBSEDCL's command area)		
	i) NET MAX DEMAND	5928	3247
	ii) NET POWER AVAILABILITY- Own Source	4556	2814
	- Central Sector	1099	772
	iii) SURPLUS(+)/DEFICIT(-)	-274	340
7	SIKKIM		
	i) NET MAX DEMAND	95	35
	ii) NET POWER AVAILABILITY- Own Source	12	3
	- Central Sector	137	96
	iii) SURPLUS(+)/DEFICIT(-)	54	63
8	EASTERN REGION At 1.03 AS DIVERSITY FACTOR		
	i) NET MAX DEMAND	14698	8292
	Long term Bi-lateral(200 MW MP+230(DTL)	430	320
	ii) NET TOTAL POWER AVAILABILITY OF ER (INCLUDING C/S ALLOCATION)	13977	8524
	iii) PEAK SURPLUS(+)/DEFICIT(-) OF ER (ii)-(i)	-1151	-88

POWER GRID CORPORATION OF INDIA LIMITED
EASTERN REGIONAL LOAD DESPATCH CENTER
ATC of Eastern Region for the month of Aug, 2010

Rev.1

Export Capability

Corridor	Time Period	Total Transfer Capability	Reliability Margin	Scheduling Limit	Long Term Open Access	Available Transfer Capability for STOA
ER - NR	00:00 – 17:00	4300	300	4000	1331	2669
	23:00 – 24:00					
	17:00 – 23:00					
ER - WR	00:00 – 17:00	1700	300	1400	589	811
	23:00 – 24:00					
	17:00 – 23:00					
ER - SR	00:00 – 17:00	1550	50	1500	-66	1566
	23:00 – 24:00					
	17:00 – 23:00					
ER - NER	00:00 – 17:00	1000	100	900	227	673
	23:00 – 24:00					
	17:00 – 23:00					

Import Capability

Corridor	Time Period	Total Transfer Capability	Reliability Margin	Scheduling Limit	Long Term Open Access	Available Transfer Capability for STOA
NR - ER	00:00 – 17:00	300	200	100	0	100
	23:00 – 24:00					
	17:00 – 23:00					
WR - ER	00:00 – 17:00	900	300	600	0	600
	23:00 – 24:00					
	17:00 – 23:00					
SR - ER	00:00 – 17:00	1100	50	1050	66	984
	23:00 – 24:00					
	17:00 – 23:00					
NER - ER	00:00 – 17:00	450	100	350	0	350
	23:00 – 24:00					
	17:00 – 23:00					

Assumptions:-

Note :

400KV Malda-Purnea one ckt will be available during the month.

SR-ER TTC revised upwards considering short term applications received from WBSEB and Orissa till 31/05/2010 vis-à-vis their long term contracts.

- 1 (n-1) contingency of Farakka-Kahalgaon line has been considered for arriving at ER-NR TTC for peak and off-peak.
- 2 (n-1) contingency of Binaguri-Bongaigaon has been considered for arriving at ER-NER TTC for off-peak and peak.
- 3 (n-1) contingency of Purnea-Muzaffarpur line has been considered for arriving at NER-ER TTC for peak and off-peak.
- 4 (n-1) contingency of Rourkela-Raigarh line has been considered for arriving at ER-WR TTC for peak and off-peak.
- 5 (n-1) Contingency of Farakka-Kahalgaon line has been considered for arriving at WR-ER TTC for off peak and (n-1) Contingency of Kahalgaon-Biharshariff for peak hours.
- 6 (n-1) Contingency of Farakka-Kahalgaon line has been considered for arriving at SR-ER TTC for off-peak and n-1 contingency of Talcher-Rourkela line has been considered for peak.
- 7 Export TTC of SR is determined by the margin available in HVDC links and there is no constraint within ER grid for off peak and peak.
- 8 Export and Import TTC mentioned are not simultaneous capacity and depends on the flows on the other links
- # Capacity of Talcher-Kolar link has been considered as 2500MW and exbus availability from TSTPP-II has been estimated to be 1860MW.

NTPC availability considered for Aug-10

FSTPP	1489
KHSTPP-I	570
KHSTPP-II	1402
TSTPP-I	935
TSTPP-II	1860

1 Planned outage of KhSTPP-U#1(210MW) have been considered during Aug 10 as per LGBR.

2 **Long-term export from DVC**

MP 200MW

NR 150MW

3 **Variation of hydro generation considered during peak and off-peak**

Station	Peak	Off-peak
Teesta	510	510
Rangit	60	60
Chukha	336	336
Tala	1020	1020
Kurichu	30	30
Burla	200	200
Chiplima	20	20
Balimela	300	100
Rengali	200	200
U. Kolab	200	100
Indravati	600	300
Subarnarekha	120	80
Maithon	20	0
Panchet	20	0
PPSP	675	0
Rammam	50	50
TCF	30	30

ANNEXURE- V**Final Programme of Maintenance Of Transmission Lines And Generating Units for
JULY'10****(A) GENERATING UNITS :**

Utility	Station	Unit	Capacity (MW)	Outage Period	Reason
DVC	DTPS	Unit No 3	140	12.07.2010 to 25.08.2010	Annual Overhauling
	MTPS	Unit No 1	210	20.07.2010 to 28.08.2010	Capital Overhauling
WBPDC	BTPS	Unit No 1	60	01.07.2010 to 30.07.2010	Boiler overhauling
	KTPP	Unit No 1	210	20.07.2010 to 30.08.2010	Boiler+ Turbine overhauling
	BKTPP	Unit No 3	210	23.07.2010 to 31.08.2010	Boiler+Turbine overhauling
	Sagardighi	Unit No. 1	300	06.07.2010 to 21.07.2010	Boiler certification
DPL	DPPS	Unit No. 6	110	01.07.2010 to 30.09.2010	Rewinding of generator
NTPC	TTPS	Unit No 5	110	26.07.2010 to 14.08.2010	Boiler Overhaul
		Unit No 6	110	24.06.2010 to 11.07.2010	Boiler Overhaul
OPGC	IB TPS	Unit No 2	210	20.08.2010 to 31.09.2010	Annual Overhaul
NTPC	FSTPP	Unit No 1	200	1 st week of July '10 for 33 days	Boiler + Chemical Cleaning

(B) TRANSMISSION ELEMENTS:

Organization	Name of the Element	From		To		Remarks
		Date	Time hrs	Date	Time hrs	
Farakka, NTPC						
	400 kV Farakka-Jeerat line	14.07.10	ODB	14.07.10	ODB	Relay testing
Kahalgaon, NTPC						
	400 kV Kahalgaon-Biharshariff line 1	07.07.10	ODB	07.07.10	ODB	Preventive Maintenance & testing
	132 kV Kahalgaon-Kahalgaon line	17.07.10	ODB	17.07.10	ODB	
	132 kV Kahalgaon-Sabour line	24.07.10	ODB	24.07.10	ODB	
	400 kV Kahalgaon-Patna line	28.07.10	ODB	28.07.10	ODB	
PGCIL						
	220 kV Tenughat-Biharshariff line of JSEB ***	10.07.10	ODB 0600	12.07.10	ODB 1800	Stringing of 400 kV Koderma-Biharshariff line
	Both Rangit-Siliguri & Rangit-Gangtok circuits of 132 kV Rangit-Siliguri-Gangtok D/C line	29.06.10	ODB 0700	29.06.10	ODB	For right sagging of over tensioned Earth wire in span 24-25

132 kV Rangit-Siliguri ckt of Rangit-Siliguri-Gangtok D/C line	30.06.10	ODB 0700	01.07.10	ODB	For right sagging of over tensioned conductors in span 24-25
132 kV Rangit-Gangtok ckt of Rangit-Siliguri-Gangtok D/C line	02.07.10	ODB 0700	03.07.10	ODB	-do-
63 MVAR bus reactor-II at Binaguri S/s	25.06.10	OCB	10.08.10	OCB	Shifting & installation in Tala circuit-IV
50 MVAR bus reactor at Maithon S/s	25.06.10	OCB	20.08.10	OCB	Bus reactor bay will be used as Majia-II line bay and new CB will be installed for existing BR to be used as switchable LR in Mejia-II
400 kV New Siliguri-Tala circuit#4	25.06.10	ODB 0900	25.06.10	ODB 1700	Completion of fire wall between 315 MVA ICT-II and 63 MVAR reactor at Binaguri S/s
Bay of 400 kV Maithon-Kahalgaon-I	05.07.10	OCB	27.07.10	OCB	Erection of bay equipment and breaking of tie to install equipment of Maithon RB ckt-I
220 kV New Jalpaiguri-Binaguri ckt-I	04.07.10	ODB 0600	04.07.10	ODB 1500	Annual Maintenance
220 kV New Jalpaiguri-Binaguri ckt-II	05.07.10	ODB 0600	05.07.10	ODB 1500	Annual Maintenance

*** To be taken after concurrence from Tenughat
OCB: On Continuous basis, ODB: On Daily Basis

Note: All shutdowns are cleared on tentative basis and concurrence from ERLDC needs to be taken before availing actual shutdown

REVIEW OF GRID PERFORMANCE DURING MAY'10**A) FREQUENCY:**

The frequency profile of ER for last couple of months is tabulated below:

Month	% of time frequency remained between					
	<49.2 Hz	49.2-49.5 Hz	49.5-50.0 Hz	50.0-50.3 Hz	> 50.3 Hz	49.2-50.3 Hz
May'10	1.95	14.09	30.77	49.56	3.63	80.33
April'10	38.26	39.76	21.09	0.83	0.06	61.68

Maximum and minimum frequency observed during the month was as under:

Maximum Frequency			Minimum Frequency		
Frequency (Hz)	Date	Time (Hrs)	Frequency (Hz)	Date	Time (Hrs)
50.87	28/05/10	08:21	48.83	18/05/10	15:29

B) VOLTAGE PROFILE OF IMPORTANT 400 KV SUB-STATIONS IN EASTERN REGION

Name of the 400 kV sub-station	Maximum Voltage (kV)	Minimum Voltage (kV)
JEERAT	417	383
ARAMBAGH	411	386

Powergrid may supplement the voltage profiles in other 400 kV S/s in ER.

D) UFR OPERATION IN ER

As system frequency remained above 48.5 Hz, no UFR operation took place in ER grid during the month.

E) WATER LEVEL IN MAJOR HYDRO RESERVOIRS IN THE EASTERN REGION

Name of the Reservoirs	MDDL (m)	FRL (m)	Level in mtrs.	
			31.05.10	31.05.09
Balimela	438.91	462.08	442.78	439.43
Hirakud	179.83	192.02	183.25	182.28
Indravati	625.00	641.84	628.23	625.62
Rengali	109.72	123.44	111.90	110.10
Upper Kolab	843.78	857.78	846.15	844.87

F) COAL STOCK IN VARIOUS TPSs OF EASTERN REGION AS ON 31.05.10

Out of 23 TPS in ER

- 2 stations were "Super-critical" (less than 4 days coal stock)

- 9 stations were “Critical” (less than 7 days coal stock)

G) IMPORTANT EVENTS

- 220/132 kV Bolangir new substation was commissioned with one number of 100 MVA auto-transformer and loaded on 07.05.10. One circuit of 220 kV Katapali (Burla)-Bolangir D/C line was charged on 28.04.10 at 21:50 hrs. The second circuit was charged at 132 kV and connected to Bolangir S/s.
- 400 kV Parulia (PGCIL)-Bidhannagar (WBSETCL) tie line charged and commissioned at 1530 hrs on 02.06.10.

H) GRID DISTURBANCES

I. Disturbance in BSEB system on 7/5/10 at 10:00 Hrs

Due to severe cyclonic weather, tower of following lines in BSEB system collapsed which also resulted in load reduction by around 700 MW in BSEB system

1. 220 KV Bodhgaya-Biharshariff D/C
2. 220 KV Bodhgaya-Dehri D/C
3. 220 KV Dehri-Pusauli S/C
4. 220 KV Sahupuri-Pusauli S/C
5. 132 KV Dehri-Karmanasa-I(Kudra-Karmanasa section)
6. 132 KV Dehri-Dumraon D/C
7. 132 KV Gaya-Jakkanpur D/C
8. 132 KV Gaya-Bodhgaya-I&II
9. 132 KV Gaya-Bodhgaya-III&IV
10. 132 KV Biharshariff/Rajgir-Barhi D/C

At present, following lines are under outage.....

- 1) 220 KV Bodhgaya-Biharshariff D/C
- 2) 220 KV Pusauli-Sahupuri S/C
- 3) 132 KV Dehri-Dumraon D/C
- 4) 132 KV Biharshariff/Rajgir-Barhi D/C
- 5) 132 KV Dehri-Karmanasa-I(Kudra-Karmanasa section)

BSEB to furnish programme of restoration of the abovesaid lines

II. Disturbance in DVC system on 07/05/10 at 10:44 Hrs

Due to wrong isolator operation of Generator transformer of CTPS#7, the unit started operating on motoring mode which caused severe voltage dip at adjoining stations and led to tripping of Bokaro'B'# 2 & 3 and CTPS#1,2 & 3. All 220KV lines connected to Bokaro'B' and CTPS also tripped. DVC suffered approximately 590 MW generation loss along with equivalent amount of load loss. All lines restored by 12:25 hrs. CTPS units restored by 17:15 Hrs .Bokaro'B'#2 suffered tube leakage and unit#3 restored at 16:53 Hrs.

DVC to give details of tripping and copy of DR print outs.

III. Disturbance in DVC system on 14/05/10 at 14:40,17:22 and 17:45 Hrs

At 14:40 Hrs of 14/05/10, Bokaro'B'unit-I,II & III tripped due to tripping of 220 KV CTPS- Bokaro'B' D/C , Jamshedpur-Jindal 220 KV S/C and 132 KV CTPS- BTPS D/C resulting in isolation of Bokaro'B'' station and subsequent tripping of all units. It was reported that weather was stormy and rainy. Essential power restored within one hour. Units restored on next day i.e 15/05/10.

On the Saturday again at 17:22 Hrs , all running units of Mejia(I-V) tripped due to fire in 35 MVA Transformer no-2 resulting in Bus fault in 220 KV Main bus -I of Mejia power station which also resulted in tripping of number of lines. Lines restored by 19:26 Hrs. All units except unit #5 restored on 15/05/10. The reason of tripping of lines connected to Bus II, Bus III and Bus IV needs investigation.

Again at 17:10 hrs Waria#3 was manually tripped due to tripping of station service transformer when 33 KV lines tripped resulting in loss of auxiliary service. At 17:45 Hrs Waria#4 also tripped due to ATR#2 Differential protection operation due to ingress of water at 6.6 KV tertiary duct and aux. supply was lost. Waria#3 synchronised at 19:20 Hrs and unit#4 at 00:40 Hrs of 15/05/10.

Thus DVC lost 10 units within a span of 3 hrs and total generation came down to 250 MW from around 1700 MW. The reasons for nontripping of 220 Kv Bokaro - Chandrapura at CTPS end and non clearance of fault by 220 Kv Bokaro - Jamshedpur needs to be investigated. The reasons for non operation of back up protection of generators also needs to be looked in to.

DVC is to give details of the incident alongwith EL/DR and other recorder print out for further analysis.

IV. Collapse of NER,BHUTAN and North Bengal system on 15/05/10 at 12:13 Hrs

At 12:05 Hrs it was observed that 400 KV N.SLG-Purnia I & IV were not carrying any power. At 12:13 Hrs 220 KV Dalkhola-Siliguri D/C and Siliguri-Binaguri D/C tripped resulting in isolation of NER, TALA HEP,CHPC,Teesta HPS and North Bengal load. It was reported that heavy power swing was observed in the 220 KV corridor CTPS system. At 12:45 Hrs finally all lines from Binaguri tripped and total isolated system collapsed when synchronisation of Purnea Bus I and Bus II was attempted. At 13:18 Hrs 400 KV Purnia-Binaguri-I charged and power

extended to TALA HEP, CHPC, Teesta HPS, Rangit HPS and load restoration started. NER was extended supply through Birpara-Salakati 220 KV ckt I. NER was finally synchronised at 15:14 Hrs.

POWERGRID is to give reason for isolation at Purnea and other trippings along with details of relay indication, DR/EL print out and other relevant document.

V. Disturbance in DVC system on 20/05/10 at 01:40 Hrs

At 01:40 hrs of 20/05/10, due to delayed operation of relay in 220KV Mejia-Kalyaneswari S/C at Kalyaneswari end for a line fault, all running units of Mejia (unit1-5) tripped due to low voltage. Also, all 220 KV lines connected to Mejia and 132 KV Waria-Chandrapura section tripped resulting in splitting of DVC system into two parts. Subsequently 220 KV Joda-Jindal-Jamshedpur S/C tripped at 01:41 Hrs resulting in tripping of all running units of Bokaro'B'(unit#1&3) and CTPS(unit#1-3). Lines were restored by 05:00 Hrs and units started getting synchronised subsequently.

From the above it appears that delayed tripping of 220KV Mejia-kalyaneswari S/C at Kalyaneswari end and Subsequent 220 KV tripping of Joda-JSPL-Jamshedpur S/C resulted in near total collapse of DVC system. DVC is requested to explain the incident alongwith relay indication, DR/EL print out.

VI Disturbance in OPTCL system on 27/05/10 at 18:29 Hrs

At 18:29 Hrs 220 KV TTPS -TSTPP S/C and 132 KV TTPS-Duburi D/C tripped. At 18:57 Hrs, 400 KV Meramundali-Mendhasal S/C, 220 KV Meramundali-Bhanjanagar D/C, 315 MVA ICT-1 and 220 KV ATR-I&II of Meramundali tripped resulting in isolation and subsequent tripping of all units of TTPS(#1-6). Weather reported to be stormy. All lines and transformer restored by 21:30 Hrs except 132 KV Kamakhyanagar-OPCL S/C which was out due to falling of tree. TTPS#4 restored at 22:40 Hrs. Other units restored on 28/05/10 except unit#3. The following needs investigation :-

1. Reasons for nontripping of Meramundali - Mendhasal at Meramundali end.
2. Reasons for nontripping of 220 KV Meramundali - Bhanjanagar I & II at Bhanjanagar end and reasons for non operation of distance relays on the lines.

OPTCL to explain the incident with relay details and DR /EL print out.

VII Disturbance in JSEB system on 30/05/10 at 14:32 Hrs

Due to heavy storm and rain, all lines and ICT connected to 220 KV Hatia S/stn tripped. During that time, 132 KV PTPS-Hatia D/C were under shut down. This led to PTPS and TVNL to remain synchronised with rest of the grid through 220 KV Tenughat-Biharshariff S/C, which subsequently tripped at 14:45 Hrs leading to total outage of PTPS and TVNL power station. Lines restored by 15:40 Hrs and unit synchronised subsequently. **JSEB to explain the incidence with relay details and other supporting documents.**

VIII Disturbance in JSEB system on 04/06/10 at 19:32 Hrs

Due to bursting of 220 KV CT of 315 MVA, 400 KV ICT-II of Jamshedpur at JSEB end, both 400 KV ICTs at Jamshedpur tripped as one no CT of 315 MVA, 400 KV ICT-I of Jamshedpur was also damaged resulted in tripping of 220 KV Ramchandrapur-Chandil and Ramchandra -Joda S/C causing total power failure in Ramchandrapur and Adityapur area. After isolation of faulty section, 220 KV Ramchandrapur-Chandil closed at 03:30 Hrs of 05/06/10. ICT-I finally restored at 02:28 Hrs of 07/06/10 and ICT-II AT03:32 Hrs of 08/06/10.

IX Disturbance in JSEB system on 05/06/10 at 08:25 Hrs

At 08:25 Hrs 220 KV PTPS-Hatia-D/C, PTPS-Tenughat S/C and 220/132 KV , 150 MVA ICT-I of PTPS tripped. Also 220 /132 KV ICT-I&II of Hatia tripped. Running unit of PTPS(#1 & 7, gen-110 MW) tripped and load of Ranchi (170 MW) disrupted All lines and ICT restored by 09:15 Hrs. PTPS#1 synchronised at 09:55 Hrs. **JSEB to inform the reason of tripping along with relay indication and other details**

X Disturbance in OPTCL system on 05/06/10 at 16:22 Hrs

Due to failure of Y-phase LA of 220 KV U.kolab-Jaynagar-II at U.Kolab end all lines connected to Jaynagar tripped. 400 KV ICT-II of Jeypore also tripped. Gen loss was around 160 MW. All lines except 220 KV U.kolab-Jaynagar-II, 220 KV Jaynagar-Balimela-I (was under outage) &220 KV Jaynagar-Balimela-III restored by 18:06 Hrs. Due to number of mal operation / non operation of number of relays at Jayanagar and around Jayanagar, relay coordination is required to prevent reoccurrence of such disturbances.

OPTCL to inform the details of tripping along with relay indication and other details like DR/ER print out etc.