

## **Eastern Regional Power Committee**

### **Salient Decisions taken in 110<sup>th</sup> OCC meeting held on 29.06.15**

1. OCC decided not to consider the incident of 18.06.15 as test synchronization for Ind-Barath and advised IBEUL to place formal proposal to ERLDC for test synchronization with all details along with specific authorization from CTU for using the LILO for injection of in-firm power.
2. OCC decided that GMR should implement SPS for station-wise relief of 200 MW in case of tripping/pole block of HVDC Talcher-Kolar, however in case of single unit generation GMR has to back down their generation till their technical minimum limit (i.e. 175 MW as declared by GMR).
3. OCC decided to start the 2<sup>nd</sup> Third Party Audit from 2<sup>nd</sup> week of July, 2015.
4. OCC decided to place the issue of non-commissioning of CPL bays at 400 / 220 KV Ranchi Namkum Substation before Standing Committee.
5. Mock Black Start exercise of U.Kolab, Rengali & Chuzachen HEP will be carried out during July, 2015.
6. Reactive capability tests of DSTPS (Unit#2), Koderma TPS (both units) and JITPL (both units) will be carried out in July, 2015.
7. MPL will change the GT tap position by one step on next opportunity shutdown.

## **Eastern Regional Power Committee**

### **Minutes of 110<sup>th</sup> OCC Meeting held on 29<sup>th</sup> June, 2015 at ERPC, Kolkata**

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

#### **Item no. A.1: Confirmation of minutes of 109<sup>th</sup> OCC meeting of ERPC held on 29.05.2015**

The minutes were uploaded in ERPC website and circulated vide letter dated 11.06.15 to all the constituents. No comments were received till date.

Members may confirm the minutes.

#### **Deliberation in the meeting**

*Members confirmed the minutes of 109<sup>th</sup> OCC Meeting.*

## **PART B**

#### **Item no. B.1: Appointment of Consultant to conduct the study/ Analysis to ensure Secure and Reliable Operation of National Grid**

MoP vide order dated 16.07.2014 constituted a Grid Study Committee under the chairmanship of Member (GO&D), CEA to facilitate the study/analysis by consultants to ensure secure and reliable operation of National Grid. The process of appointment of two consultants is under way.

In 30<sup>th</sup> TCC meeting, in line with the decision of 1st meeting of the Grid Study Committee held in CEA on 22.05.2015 under the Chairmanship of Member (GO&D), CEA, it was decided that Sh. M.R. Mohanty, Sr. GM, OPTCL, will act as the principal nodal officer for Eastern Region.

Further, 30<sup>th</sup> TCC/ERPC advised all utilities viz. TRANSCO (STU), GENCOs, DISCOMs & SLDC of States to nominate two nodal officers at the level of Chief Engineer/General Manager from each constituent under the principal nodal officer and communicate the same to secretariat within a week.

Nominations from all the utilities/States are still awaited.

All utilities/states are requested to send their nominations.

#### **Deliberation in the meeting**

*It was informed that OHPC has nominated their nodal officers.*

*OPTCL, WBSETCL also submitted their nominations for nodal officer.*

*OCC advised all other utilities/states to nominate two nodal officers at the level of Chief Engineer/General Manager.*

Further, CEA vide letter dated 16.06.15 informed that as per the decisions taken at the first meeting of the Grid Study Committee, each RPC has to prepare in consultation with respective RLDCs, a list of 25 critical substations each (220 kV and above) in the descending order of their criticality and forward the same to CEA and NLDC (POSOCO) for finalizing the 76 most critical substations out of those 115 critical substations for the purpose.

Members may discuss and finalize the list of 25 critical sub-station of ER.

### **Deliberation in the meeting**

*ERLDC placed the list of 25 critical substations of ER. List is enclosed at **Annexure-B.1**. NTPC informed that 220kV Rourkela may be included in the list.*

*WB requested to include 220kV EM Bypass S/s in the list. OCC felt that since 220kV EM bypass S/s was not audited in 1<sup>st</sup> Third Party Protection Audit, it will not be included in the list. The substation will be included in 2<sup>nd</sup> Third Party Protection Audit.*

*OCC decided to send the list of 26 critical substations including 220kV Rourkela S/s to CEA for further action at their end.*

### **Item no. B.2: Identification of nodal officers on signing of MOU between ESSO-IMD and POSOCO -- ERLDC**

A MOU was signed on 18<sup>th</sup> May, 2015 between Earth System Science Organization-Indian Meteorological Deptt(ESSO-IMD) for synergy in the management of Indian Power System and weather related impact. Subsequent to signing of the MOU the following course of action was decided:

- a) Identification of two nodal officers from both sides at each level viz. National/Regional/State: Accordingly the names of two nodal officers for each SLDC/CLD alongwith contact numbers and e\_mail addresses may be provided.
- b) List of officers to avail SMS facility from IMD for extreme weather conditions: Names and contact details may be provided.
- c) Identification of stations for which weather data is required:

A list of stations is to be provided along-with the required weather parameters. The Station names are to be supplemented with the nearby city name, district name and State name. Accordingly, ERLDC has already prepared a tentative list which is attached at **Annexure-B.2**.

SLDCs/CLD may kindly furnish the above required data and confirm or intimate any discrepancies regarding Annexure-B.2.

### **Deliberation in the meeting**

*House was informed that the requisite information is yet to be received from the constituents except Odisha. OCC advised all constituents to furnish the relevant information.*

### **Item no. B.3: High loading in 220kV Binaguri-Birpara D/C -- ERLDC**

It was observed that with increased injection at Birpara point from Bhutan system, 220kV Binaguri-Birpara D/C is getting loaded significantly and n-1 compliancy is not getting satisfied. The situation could further aggravate during peak monsoon when hydro availability increases in NER. It has been learnt that due to higher loading in 220kv CHPC-Malbase, Bhutan is keeping 220kv Birpara-Malbase open feeding Malbase load from Tala side and keeping the 220kV Bus coupler open. It needs to be noted that keeping Malbase load on Tala side and isolated from CHPC side would result in increased injection at Birpara point leading to higher line loadings. Initial studies have been carried out by ERLDC in this regard and the following are suggested:

- a) One option may be to carry out split Bus operation of 220kV CHPC Buses with two units of CHPC and 220kV CHPC-Malbase feeder on one Bus and the other feeders/units on the other segregated Bus (220kv Bus at Malbase may be kept under coupled condition with 220kv Malbase-Birpara open)
- b) A second option could be keeping both 220kV Malbase-Birpara and 400kV Tala-Malbase in open condition. Initial studies show that there is no over-loading of 220kV CHPC-Malbase under this condition. However, in case of any inadvertent overloading in 220kV CHPC-Malbase, HV side breaker of Malbase 400/220kV ICT may be opened to radialize Malbase load on CHPC. Subsequently, 400kV Tala-Malbase-Binaguri may be taken back into service.
- c) It may also be noted that in case of any high injection causing system constraints in India side, ERLDC may be compelled to curtail Dagachu generation being contracted under STOA mode and generation at Dagachu may be required to be reduced accordingly.

NLDC/ Bhutan may give further suggestions in this regard presenting their updated Bhutan network and studies carried out at their side.

Members may discuss.

### **Deliberation in the meeting**

*Bhutan representative informed that the split bus operation at Chukha may not be possible right now as they have to check the bus configuration. However, the second option of keeping both 220kV Malbase-Birpara and 400kV Tala-Malbase in open condition can be used while overloading.*

*Further, Bhutan was advised to carry out more augmentation in West Bhutan area for evacuation of full load generation of both units of Dagachhu HEP.*

### **Item no. B.4: Downward revision of DC by KhSTPP-II without assigning any reason after scheduling of URS to beneficiary -- ERLDC**

On 17/06/15 considering continuous over-drawal of West Bengal in the afternoon Hours, ERLDC took up the issue of allotment of URS from KhSTPP-II to West Bengal. Significant URS was available from KhSTPP-II and in the 57<sup>th</sup> Block (14:00Hrs) KhSTPP DC was 1414MW and schedule was 1176MW with available URS of 238MW. West Bengal requisitioned 150MW of URS from 14:00Hrs to 16:00Hrs and NTPC, Patna also confirmed the same for scheduling w.e.f 57<sup>th</sup> Time Block (14:00Hrs). However, suddenly at 13:51Hrs KhSTPP-II revised its DC downwards to 1260MW without assigning any reason. ERLDC immediately issued message to SCE, KhSTPP stating that the above amounted to mis-declaration of DC and the same also hampered availability of power to a deficient State. However, no reply has yet been received from KhSTPP-II in this regard. As per Cl.6.4.8 of IEGC, in cases of suspected gaming, RLDCs are empowered to seek explanation from the ISGS with necessary backup data.

NTPC/ERLDC may update.

### **Deliberation in the meeting**

*ERLDC informed that till date KhSTPP, NTPC has not given any reply on downward revision of DC.*

*KhSTPP, NTPC explained that due to some technical problem of Ash dike, the DC revision was made and the information could not be passed on to ERLDC in time due to changeover of shift.*

*OCC advised NTPC to communicate the reason to ERLDC at the earliest and also to take care of such communication problem.*

*Further, WBSETCL informed that on few occasions when requisitions were placed for URS power from Farakka STPS, NTPC allotted KhSTPP URS power instead, which is costly.*

*OCC requested NTPC to look into it. NTPC agreed.*

**Item no. B.5: Synchronisation of Unit #1 (350 MW) of Ind Barath Energy (UTKAL) Ltd. (IBEUL) with the Grid**

IBEUL vide mail dated 18.06.15 informed that unit #1 (350 MW) generator of IBEUL was synchronized with the Grid on 17.06.15 at 6.52 pm and it remains connected to the grid for 5 minutes with a maximum load of 9 MW.

ERLDC vide mail dated 18.06.2015 has raised observations that:

- a) No permission/concurrence was taken from ERLDC prior to such synchronization. This construes as a gross violation of the IEGC and CERC (Grant of connectivity, Long Term Access and Medium Term Open Access in Inter-State Transmission) Regulations (specifically C.5.6.2 (b) of IEGC and Cl.8(7) of Grant of connectivity regulations)
- b) The connectivity vide LILO is an interim arrangement only. Also, as per MOM of 103<sup>rd</sup> OCC the LILO is to be utilized for drawal of start up power only and not for injection of power. The dedicated ATS needs to be put in place before any injection of power.
- c) Before any synchronization to the Grid, CTU is also to be intimated in relation to completion of any mandatory commercial requirements before initiating such injection.

Subsequently, ERPC vide letter dated 22.06.15 has requested IBEUL to clarify their position in respect of the following:

- 1) Non-compliance of the provisions of IEGC/CERC Regulations;
- 2) Violation of the decisions of OCC forum;
- 3) Violation of the decisions of the meeting dated 21.02.14 with Powergrid;

IBEUL may explain. Members may discuss.

**Deliberation in the meeting**

*ERLDC informed that Ind-Bharat unit was synchronized with Grid without any code taken from ERLDC on two occasions -- on 12.06.2015 & on 18.06.15. This is a complete violation of IEGC and CERC regulation. OCC took it very seriously and advised IBEUL not to repeat such incidences in future.*

*In reply IBEUL denied synchronization of its unit on 12.06.15. However for incidents on 18.06.15 Ind Barath explained circumstances in detail that during electrical testings and checkings in the synchronization panel for phase sequence the unit got test synchronized for 5 minutes which was tripped immediately. IBEUL requested that it may be taken as test synchronization.*

*IBEUL further informed that their dedicated line 400 kV Ind-Bharath - Jharsuguda D/C line is in advanced stage and expected to be completed by August, 2015. In view of this, they requested to permit injection of power from IBEUL through LILO to complete their balance commissioning of plant until their dedicated line gets commissioned.*

*Plea for considering the incident of 18.06.15 as test synchronization was not accepted by OCC. It was explained that before declaring a unit as test synchronized there are certain formalities which need to be complied. Without these compliances a connection to grid in such sort of impulsive manner if considered as test synchronisation then that may create a precedent injurious to grid discipline.*

*Therefore IBEUL was advised to place formal proposal to ERLDC for test synchronization with all details along with specific authorization from CTU for using the LILO for injection of in-firm power.*

### **Commissioning of 400 kV Ind-Bharath to Jharsuguda D/C (dedicated line)**

In the 109<sup>th</sup> OCC, Ind-Bharath has communicated the status as follows:

- 110 towers out of total 125 towers have been completed.
- 3km stringing work is to be completed.
- Dedicated ATS to 765/400kV Sundergarh (PGCIL) S/Stn will be completed by July, 2015.

Ind-Bharath may update the status.

### **Deliberation in the meeting**

*Ind-Bharath informed that:*

- *119 towers out of total 125 towers have been completed; remaining 6 towers will be completed by Aug, 2015.*
- *Stringing work for 10 km out of 40km line is pending.*

### **Item no. B.6: Status of PLCC system installed in Eastern Region**

In line with 29<sup>th</sup> TCC decision, OCC entrusted powergrid to restore and maintain the PLCC system at both ends (its own end as well as the constituent end) of a line wherein the other ends are not being maintained by respective constituents for some reasons or others. The details of lines of similar nature was already circulated.

It was decided that the cost of restoration and maintenance of PLCC system at such (constituent) ends of the line will be borne by the respective constituents. In addition to this the constituents also agreed to extend all possible support to Powergrid in carrying out the above work.

In 30<sup>th</sup> TCC/ERPC, Powergrid agreed to restore the PLCC system at both ends (its own end as well as the constituent end) of a line wherein the other ends are not operational for some reasons or others as one time job.

TCC advised Powergrid to submit the survey report along with roadmap and requirement for restoration of PLCC system.

Powergrid agreed to submit the report by 29th June, 2015 in 110th OCC.

Powergrid may update the status.

### **Deliberation in the meeting**

*Powergrid informed that survey has been completed and the estimate is under preparation.*

*OCC advised Powergrid to place the complete survey report along with the estimate for restoration of PLCC.*

### **Item no. B.7: Status of UFRs healthiness installed in Eastern Region**

Certification for the month of May, 2015 is received only from WBSETCL only.

Members may update.

### **Deliberation in the meeting**

*DVC, Jharkhand, CESC, Bihar and OPTCL submitted the healthiness certification.*

#### **Item no. B.8: Healthiness of SPS existing in Eastern Region**

In 107<sup>th</sup> OCC, all constituents agreed to check the SPS system under their control area and submit the healthiness certificate on monthly basis.

In 109<sup>th</sup> OCC, Chuzachen HPS and Powergrid ER-II started giving the healthiness certificate of Chuzachen SPS and SPS for power export to Bangladesh respectively.

Powergrid- Odisha placed the stepwise procedures for checking the SPS for Talcher-Kolar HVDC bipole tripping.

OCC members approved the steps and placed before 30<sup>th</sup> TCC for further concurrence.

TCC /ERPC concurred.

Members may update.

### **Deliberation in the meeting**

*Powergrid ER-II informed that Bangladesh SPS is in healthy condition.*

*Powergrid- Odisha informed that HVDC Pole-1 was taken under shutdown on 23.06.15. While taking the shutdown the confirmation of SPS operation at NTPC/TSTPP, JITPL, Sterlite and GMR was received, hence the subject was live tested. Therefore, the operation of Talcher-Kolar SPS operation was checked and found OK on 23.06.15.*

*OCC advised all the concerned utilities to submit formal healthiness certificate for their respective parts in SPS.*

#### **B.8.1: Continuous receipt of generation backing down signal on shutdown of HVDC Talcher-Kolar Pole-I**

On 23/06/15 HVDC Talcher-Kolar Pole-I was taken under shut down for maintenance activities. To prevent any unwarranted backing down/tripping at JITPL/GMR/Sterlite, SPS was by-passed on a temporary basis at the respective generator ends, just prior to availing of the shutdown. However, after the shutdown was availed, the SPS could not be taken back into service as there was continuous receipt of backing down signal at the respective generator ends. Hence, the SPS had to be kept by-passed throughout the shutdown period even though Pole-II was in service. It was reported that the continuous backing down signal could not be disabled at HVDC, Talcher end.

Powergrid may provide further details regarding above along with the remedial measures.

Powergrid may update.

### **Deliberation in the meeting**

*Powergrid informed that they are planning to place a timer circuit to rectify the problem. It is under progress and will be resolved at the earliest.*

### **B.8.2: Sharing of generation relief during HVDC Talcher-Kolar pole tripping**

In 108<sup>th</sup> OCC, ERLDC informed that since JITPL unit#2 (600MW) was declared COD on 12<sup>th</sup> February, 2015 the generation relief on HVDC Talcher-Kolar pole tripping should be reviewed.

OCC decided that from now on-wards the generation relief during HVDC Talcher-Kolar pole tripping will be shared among GMR, Sterlite & JITPL as follows:

|          |       |
|----------|-------|
| GMR      | 200MW |
| Sterlite | 200MW |
| JITPL    | 200MW |

OCC advised all the three generators to revise the SPS settings accordingly.

In 109<sup>th</sup> OCC, Sterlite informed that the SPS for station wise relief of 200MW have been implemented. GMR informed that they have implemented unit wise relief of 200MW (i.e per unit 100MW). Information is yet to be received from JITPL.

OCC advised Sterlite, GMR & JITPL to implement the relief of 200MW from each station from the running units and advised to confirm through official communication to ERLDC and ERPC. OCC clarified that to offer relief of 200MW if situation needs stopping of the running unit/s, generators have to accept the same for safety of the grid.

OCC referred the issue to TCC.

In 30<sup>th</sup> TCC meeting, ERLDC informed that JITPL has given undertaking that they have implemented the SPS for generation relief of 200MW at their station.

GMR informed that they have two units of capacity 350 MW each and it is difficult to implement station wise relief of 200MW when single unit is running. In such scenario it has to trip the unit to provide the generation relief. GMR also requested for revision in schedule by ERLDC in the event of any loss of generation due to SPS operation.

After detail deliberation, TCC decided that GMR should provide station wise generation relief of 200MW. However, in case of single unit operation GMR may provide generation relief up to their technical minimum generation.

Regarding revision in schedule, TCC referred the issue to lower forum of ERPC for deliberation.

Members may update the latest status. GMR may elaborate its issue.

#### **Deliberation in the meeting**

*GMR informed that their unit capacity is 350 MW and unit-wise technical minimum limit is 175 MW. So, with single unit generation to provide 200 MW generation relief is difficult.*

*OCC decided that GMR should implement SPS for station-wise relief of 200 MW in case of tripping/pole block of HVDC Talcher-Kolar, however in case of single unit generation GMR has to back down their generation till their technical minimum limit (i.e. 175 MW as declared by GMR).*

*Regarding schedule revision during SPS operation, ERLDC informed that they had consulted with other regions and it was observed that in WR there is no such provision.*



### **B.8.3: Repeated Unsuccessful backing down at GMR and JITPL on tripping of one pole of HVDC Talcher-Kolar Pole-II Bipole.**

HVDC Talcher-Kolar Pole -1 tripped at 19:30hrs of 30/03/15 due to ESOF operation. However, there was no generation backing down at GMR and JITPL on SPS action and backing down occurred at Sterlite, Jharsuguda only.

In 108<sup>th</sup> OCC, ERLDC informed that only Sterlite generators have given the relief of around 230MW during HVDC pole-1 tripping at 19:30hrs of 30/03/15.

GMR informed that signal was not received from HVDC Talcher. OCC advised Powergrid to check healthiness of PLCC system of 400kV Talcher-Angul line and also the SPS system.

Powergrid agreed to check and submit the report.

In 109<sup>th</sup> OCC, Powergrid Odisha-projects informed that they will test the PLCC and SPS system in next opportunity shutdown.

Powergrid may update the status.

#### **Deliberation in the meeting**

*ERLDC informed that there was no relief from GMR and JITPL on the incidence of 26.06.2015 on HVDC pole tripping. However, Sterlite has given generation relief as per their allotted quantum.*

*JITPL informed that their generators had given the relief during SPS operation. OCC advised JITPL to communicate the details to ERLDC and ERPC.*

*OCC advised GMR to check the details and communicate to ERPC/ERLDC. GMR agreed.*

### **B.8.4: Generation loss due to spurious SPS signal received from Angul S/s. ---GMR**

GMR vide letter dated 15<sup>th</sup> May, 2015 informed that GMR has received spurious SPS signal on 1<sup>st</sup>, 8<sup>th</sup> and 15<sup>th</sup> May, 2015 from Angul end, due to which GMR had generation loss. JITPL has also received the SPS signal from Angul end on above mentioned dates. However, Sterlite has not received SPS signal on above-mentioned dates.

In 109<sup>th</sup> OCC, Powergrid Odisha-projects informed that they will test the PLCC and SPS system in next opportunity shutdown.

Members may discuss.

#### **Deliberation in the meeting**

*GMR informed that due to the problem of spurious signal one channel is still kept out of service and at present only one channel operation is there.*

*Powergrid informed that spurious signal were being generated due to problem in the channel of PLCC system and it was checked and found in healthy condition.*

*OCC advised PG-Odisha and GMR to check the healthiness of the second channel and put into service at the earliest.*

## **Item no. B.9: Handing over of O & M of 220 kV Farakka –Lalmatia transmission system**

The issue was placed In 30<sup>th</sup> TCC meeting wherein it was noted that-----

Joint survey of the line was supposed to be carried out on 10th June, 2015.

But although NTPC was ready to participate in the survey JUSNL informed that ECL was not cooperating for joint survey.

On enquiry it was clarified that JUSNL made repeated persuasion with ECL but no communication was received.

ERLDC informed that it is a very important line for meeting the demand in Jharkhand as well as for implementation of the Farakka islanding scheme. The line also helps in restoration of Jharkhand/Bihar during emergencies.

Keeping in view of importance of this line and for the benefit of JUSNL, TCC advised JUSNL to place official request to ECL from their highest authority and arrange for joint survey at the earliest.

TCC also advised JUSNL to file a petition before JSERC as per the provisions, if ECL does not turn up for handing over the line as per decision of meeting on 24.3.15 held at ranchi.

Further, TCC advised ERPC Secretariat to take up the issue with CEA and CERC, if JUSNL fails to take any appropriate action by 31<sup>st</sup> July, 2015.

TCC also advised NTPC to continue the O & M of 220 kV Farakka –Lalmatia transmission system till the line is handed over to JUSNL.

30<sup>th</sup> ERPC advised JUSNL to place a roadmap to ensure proper O&M of Farakka- Lalmatia Transmission system in line with the decision taken in the special meeting of 24.03.2015 within a week to ERPC.

JUSNL may place the roadmap for O&M of Farakka –Lalmatia transmission system.

### **Deliberation in the meeting**

*JUSNL informed that ECL is not cooperating for joint survey of the line so they are collecting legal documents related to this line to file petition before JSERC.*

## **Item no. B.10: Status of Islanding Schemes of Eastern Region**

### **B.10.1: Status of commissioned Islanding Schemes in Eastern Region**

At present, the following islanding schemes are in service:

1. CESC as a whole Islanding Scheme, CESC
2. BkTPS Islanding Scheme, WBPDC
2. Tata Power Islanding Scheme, Haldia
3. Chandrapura TPS Islanding Scheme, DVC

In 108<sup>th</sup> OCC meeting, respective constituents agreed to certify that the islanding schemes under their control area are in service on monthly basis.

Members may submit the certification for healthiness of the scheme for May, 2015.

### **Deliberation in the meeting**

*CESC certified that the islanding scheme is in service.*

WBPDC also informed that BkTPS Islanding Scheme is in service.

DVC informed that CTPS islanding scheme was put into service during June, 2015.

*OCC advised all the concerned utilities to submit formal healthiness certificate for their respective Islanding Schemes.*

#### **B.10.2: Operation of Tata Power Islanding Scheme**

It was reported that at around 19:41 hrs, power failure occurred at 220/132KV New Haldia s/stn due to tripping of 220KV KTPP-New Haldia #2 and 132kV Egra-BEL- Kharagpur ckt. Consequent to the above tripping, Tata Power Units ( #1,2,3 ) generating around 84MW ( injection to grid was around 72MW) suddenly met with about 300MW load of entire Haldia system isolated from the grid and it causes operation of UFRs i.r.o. Tata Power Islanding Scheme.

As per report, it appears that creation of island took place successfully and it survived for more than 10 seconds. Detailed report as submitted by Tata Power is enclosed at **Annexure-B.10.2**.

Tata Power/WBSETCL may elucidate.

### **Deliberation in the meeting**

*WBSETCL informed that the island was formed successfully but the generators tripped on over speed protection. However, WBSETCL agreed to discuss with Tata power for a thorough checking of the islanding scheme. House agreed to review the status again in its next meeting.*

#### **B.10.3: FSTPS Islanding Scheme, NTPC**

98<sup>th</sup> OCC recommended following:

- 1) Procurement of new PLCC panels for Lalmatia, Dumka and Farakka S/s
- 2) Procurement of two sets of 300 AH battery banks along with battery charger for Dumka and Lalmatia S/s as decided in 94<sup>th</sup> OCC.

In 30<sup>th</sup> TCC meeting, NTPC informed that all panels related to the islanding scheme have been commissioned and their part is ready for implementation.

JUSNL assured that the payment will be made by end of June, 2015. However, they insisted Powergrid to sign the formal agreement for implementation of the islanding scheme.

TCC advised JUSNL to release the payment first and the agreement may be finalised and signed subsequently.

In 30<sup>th</sup> TCC/ERPC Meetings, NTPC informed that their part is ready for implementation. Powergrid assured to start the work after receiving the payment of Rs. 53,10,526/- from JUSNL and also informed that the estimate may be revised or cost may go up in case of further delay of release of payment by JUSNL.

JUSNL assured the house of releasing the payment by 30.06.2015.

Powergrid/ JUSNL may update the status.

### **Deliberation in the meeting**

*JUSNL informed that the payment was cleared on 25.06.2015.*

*Powergrid informed that the payment has been received from JUSNL and JUSNL part will be implemented tentatively within 6 months.*

#### **B.10.4: Bandel Islanding Scheme, WBPDC**

In 23rd TCC technical feasibilities of new Islanding schemes on Bakreswar and Bandel TPS of WBPDC were placed and approved.

Thereafter, it was also decided that implementation of Bandel Islanding scheme will commence after Islanding Schemes for Bakreswar TPS will be in place.

Since, BKTPS islanding scheme is already in operation implementation of Bandel Islanding Scheme could be taken up.

In 30<sup>th</sup> TCC meeting, WBPDC informed that four numbers of old units (each of 60 MW) at Bandel TPS required to be renovated for implementation of islanding scheme. Unit#5 of Bandel TPS is having capacity of HP, LP bypass of 30% and it is under renovation. However, further detail deliberation is required for implementation of the scheme.

TCC advised secretariat to discuss the technical details of the scheme again in the lower forum of ERPC.

WBPDC may place their issues. Members may discuss.

#### **Deliberation in the meeting**

*WBPDC informed that their discussions with SLDC, WBSETCL are going on and details will be placed in next OCC meeting.*

#### **B.10.5: Chandrapura TPS Islanding Scheme, DVC**

In 30<sup>th</sup> TCC meeting, DVC informed that the scheme was put into service w.e.f. 15.06.2015 after successful trial run.

Members may note.

#### **Deliberation in the meeting**

*Members noted.*

#### **Item no. B.11: Installation of polymer insulators on New Transmission lines**

In the 30<sup>th</sup> ERPC Meeting held on 20.06.2015, Powergrid representative delivered a brief presentation highlighting the benefits of Polymer insulators vis-à-vis porcelain/anti-fog disc type insulators mainly on account of high number of trippings of transmission lines due to flashover of insulators.

Powergrid proposed the scheme for new transmission lines as well as the existing ones and at the same time assured that there would be no extra financial burden on the constituents for replacement of the insulators.

Powergrid was advised to submit a detailed roadmap for implementation of this scheme along with other requisite details.

Powergrid may update.

### **Deliberation in the meeting**

*Powergrid informed that procurement action has been initiated and within two three months it is expected to be completed. It was further informed that as advised by 30<sup>th</sup> ERPC the roadmap for replacement will be placed on ascertaining the exact position of availability of insulators.*

*OCC advised Powergrid to place the roadmap and tentative shutdown plan in next OCC meeting.*

## **Item no. B.12: Concerned members may update the latest status.**

### **B.12.1. Status of construction of 400 kV Sterlite-Jharsuguda D/C sections**

In 109<sup>th</sup> OCC, Sterlite informed that work order for construction of transmission line has been placed and three tower foundations have been completed in the month of May 2015. FRA compliance certificate from Collector under Forest Rights Act (FRA) is in progress.

A team of ERPC comprising members from ERPC, ERLDC and Powergrid was advised to make onsite visit on 9<sup>th</sup> June, 2015 for assessing the physical progress.

30<sup>th</sup> TCC felt that there is no considerable progress in construction work in last 4 months.

After detail deliberation, TCC felt that Sterlite is not serious about construction of the line & therefore TCC decided to discontinue the LILO on 1st July, 2015 as per ERPC decision.

During deliberation on the above agenda item in 30<sup>th</sup> ERPC Meeting on 20.06.15, members opined that discontinuance of LILO may not be a feasible solution as it may result in a loss of significant generation to the grid.

It was suggested that a team be formed at ERPC to assist Powergrid, Odisha to chalk out a detailed action plan and design suitable target as far as the construction of these lines are concerned followed by exercising stringent monitoring/assessment of monthly progress made by Sterlite.

Powergrid may place the draft action plan.

### **Deliberation in the meeting**

*Powergrid Odisha projects informed that the tentative action plan is under preparation and it will be placed before OCC shortly.*

*On receiving of the tentative action plan from Powergrid-Odisha, OCC advised secretariat, to convene a separate meeting for finalization of the targets.*

### **B.12.2. Status of 400 kV GMR- Angul D/C line.**

It was informed that Powergrid-HVDC vide a letter to GMR pointed out insufficient clearance of GMR line with Talcher-Meramundali line because of sag.

In 108<sup>th</sup> OCC, Powergrid reported that joint inspection was done and it was observed that tower falling distance was not maintained as per drawing. Powergrid informed that GMR representative was not signing the report henceforth the report was not submitted to ERPC.

OCC advised Powergrid to submit a report with its findings.

In 109<sup>th</sup> OCC, Powergrid Odisha-projects informed that the report has been forwarded to GMR. GMR informed that they have communicated the clarifications to Powergrid.

Powergrid Odisha-projects informed that issue has been sorted out.

OCC advised Powergrid to submit the report to ERPC and ERLDC. Powergrid agreed.

Report is yet to be submitted by Powergrid.

Powergrid may submit the report.

#### **Deliberation in the meeting**

*Powergrid submitted the report.*

#### **B.12.3. Status of construction of Chuzachen bay at Rangpo S/s.**

In 29<sup>th</sup> TCC Meeting, Sikkim informed that they will send the proposal to Powergrid for consultancy.

In 30<sup>th</sup> TCC meeting, Sikkim informed that MOU has been signed with Powergrid on 24th April, 2015 and the advance payment will be released by next week.

Powergrid informed that they will place the order after receipt of advance payment.

Sikkim may update.

#### **Deliberation in the meeting**

*Sikkim informed that payment has been approved by Government of Sikkim and the advance payment will be made to Powergrid by 15<sup>th</sup> July, 2015.*

#### **B.12.4. Non availability of important bays at FSTPP end**

In 109<sup>th</sup> OCC, NTPC informed that 400kV FSTPP-KhSTPP-IV Tie bay will be charged by 1<sup>st</sup> week of June, 2015.

NTPC may update.

#### **Deliberation in the meeting**

*NTPC informed that shutdown requisition has been placed.*

#### **B.12.5. 220 kV inter-connecting lines of OPTCL with 400/220 kV Bolangir (PG), Keonjhar & Pandiabil S/s**

PGCIL has already commissioned the 2x315MVA 400/220kV Bolangir S/s by LILoing of 400kV Meramandali-Jeypore S/C line and 400/220 kV Keonjhar S/s with an objective of supplying power from ER grid to its adjoining areas in Odisha.

In 30<sup>th</sup> TCC, OPTCL updated the completion schedule of inter-connecting system as follows:

| Sl. No.   | Name of the transmission line  | Completion schedule                 |
|-----------|--|-------------------------------------|
| <b>1.</b> | <b>2x315MVA 400/220kV Bolangir S/s</b>   |                                     |
| a.        | LILO of one circuit of Sadeipalli-Kesinga 220 kV D/C line at Bolangir S/S      | Dec, 2015 (Severe ROW problem)      |
| b.        | LILO of one circuit of Katapalli-Sadeipalli 220 kV D/C line at Bolangir S/S    | End of July, 2015                   |
| <b>2.</b> | <b>400/220 kV Keonjhar S/S</b>   |                                     |
| a.        | Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line                                 | Yet to be awarded                   |
| b.        | Keonjhar (PG)-Turumunga (OPTCL) 220 kV D/C line                                | Yet to be awarded                   |
| <b>3.</b> | <b>400/220kV Pandiabil Grid S/s</b>  |                                     |
| a.        | Pratapsasan(OPTCL)-Pandiabil (PG) 220 kV D/C line                              | It will take 1 year for completion. |
| b.        | LILO of one circuit of Atri-Puri (Samangara) 220 kV D/C line at Pandiabil (PG) | End of June, 2015.                  |

OPTCL may update.

#### **Deliberation in the meeting**

OPTCL updated that status of all the lines are same except Sl. No. 3.b for which the completion schedule will be July, 2015.

#### **B.12.6. 220 kV inter-connecting lines of BSPTCL with 2x200 MVA, 400/132 kV sub-stations at Lakhisarai & Banka**

In 30<sup>th</sup> TCC, BSPTCL informed that at present they are drawing power from 400/132 kV Lakhisarai S/s through LILO of 132 kV Lakhisarai (BSPTCL)-Jamui S/C at Lakhisarai(PG).

BSPTCL updated the completion schedule of inter-connecting system as follows:

| Sl. No.   | Name of the transmission line   | Completion schedule                                  |
|-----------|---|--|
| <b>1.</b> | <b>The 2x200 MVA, 400/132 kV Lakhisarai sub-station</b>   |  |
| a.        | 132 kV Lakhisarai (PG)-Lakhisarai (BSPTCL) D/C line   | End of June, 2015                                    |
| b.        | 132 kV Lakhisarai-Jamui (BSPTCL) D/C line   | End of June, 2015                                    |
| <b>2.</b> | <b>2x200 MVA, 400/132 kV Banka sub-station</b>  |  |
| a.        | LILO of 1 <sup>st</sup> circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG) | Completed  |
| b.        | LILO of 2 <sup>nd</sup> circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG) | Within 2-3 months                                    |
| c.        | 132 kV Banka (PG)-Sultanganj (BSPTCL) line-I  | Completed  |
| d.        | 132 kV Banka (PG)-Sultanganj (BSPTCL) line-II   | Powergrid will complete the bay work within 2 weeks. |

BSPTCL may update.

#### **Deliberation in the meeting**

BSPTCL updated the completion schedule of inter-connecting system as follows:

| Sl. No.   | Name of the transmission line   | Completion schedule                                 |
|-----------|---|---|
| <b>1.</b> | <b>The 2x200 MVA, 400/132 kV Lakhisarai sub-station</b>   |   |
| a.        | 132 kV Lakhisarai (PG)-Lakhisarai (BSPTCL) D/C line   | End of July, 2015                                   |
| b.        | 132 kV Lakhisarai-Jamui (BSPTCL) D/C line   | End of July, 2015                                   |
| <b>2.</b> | <b>2x200 MVA, 400/132 kV Banka sub-station</b>  |   |
| a.        | LILO of 1 <sup>st</sup> circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG) | Charged.  |
| b.        | LILO of 2 <sup>nd</sup> circuit of Banka (BSPTCL)-Sabour (BSPTCL) 132 kV D/C line at Banka (PG) | Mid Aug, 2015                                       |
| c.        | 132 kV Banka (PG)-Sultanganj (BSPTCL) line-I  | Completed   |
| d.        | 132 kV Banka (PG)-Sultanganj (BSPTCL) line-II   | Powergrid will complete the bay work by June, 2015. |

#### **B.12.7. Augmentation of Transformation Capacity in PGCIL Grid S/s at Muzaffarpur, Purnea, Sampatchak(Patna) & Sasaram-- BSPHCL**

In 109<sup>th</sup> OCC, Powergrid updated the status as follows,

- Augmentation of additional 500MVA, 400/220kV ICT at Muzaffarpur: The order was placed on 20<sup>th</sup> October, 2014 for augmentation of transformation capacity and it will take 18-24 months for completion.
- Replacement of 2x315MVA, 400/220kV ICTs at Sampatchak(Patna) & Sasaram by 2x500MVA ICTs: will be completed by January, 2016.
- Replacement of 400/220kV ICTs at Purnea by 2x500MVA ICTs: One ICT will be commissioned by July, 2015 and the other one will be completed by December, 2015.

Powergrid may update the status.

#### **Deliberation in the meeting**

*Powergrid informed that work is in progress as per the schedule.*

#### **B.12.8. Charging of 132 kV Dalkhola (WB)-Kishanganj(BSPTCL) S/C in radial mode**

In 107<sup>th</sup> OCC, WBSETCL informed that new SEM has been installed however, CT and PT connections are yet to be done.

OCC advised WBSETCL and Powergrid to coordinate and complete the work within a week.

In 108<sup>th</sup> OCC, WBSETCL informed that the line is ready for charging. OCC advised to charge the line in radial mode in coordination with BSPTCL.

In 109<sup>th</sup> OCC, WBSETCL and BSPTCL agreed to charge the line in radial mode from June, 2015.

WBSETCL/Powergrid may update the status.

#### **Deliberation in the meeting**

*BSPTCL informed that Kishanganj load demand is more than 30MW and the line will be charged as and when the demand is reduced to less than 30MW.*

*OCC advised to charge the line once on trial basis.*



## Item no. B.13: Third Party Protection Audit

### 1. Status of 1<sup>st</sup> Third Party Protection Audit:

The compliance status of 1st Third Party Protection Audit observations is as follows:

| Name of Constituents        | Total Observations | Complied | % of Compliance |
|-----------------------------|--------------------|----------|-----------------|
| Powergrid                   | 54                 | 37       | 68.52           |
| NTPC                        | 16                 | 12       | 75.00           |
| NHPC                        | 1                  | 1        | 100.00          |
| DVC                         | 39                 | 19       | 48.72           |
| WB                          | 68                 | 14       | 20.59           |
| Odisha                      | 59                 | 12       | 20.34           |
| JUSNL                       | 34                 | 11       | 32.35           |
| BSPTCL                      | 16                 | 4        | 25.00           |
| IPP (GMR, Sterlite and MPL) | 5                  | 5        | 100.00          |

The substation wise status of compliance are available at ERPC website (Observations include PLCC rectification/activation which needs a comprehensive plan).

Members may comply.

### Deliberation in the meeting

*Members noted for compliance.*

### 2. Schedule for 2<sup>nd</sup> Third Party Protection Audit:

In 109<sup>th</sup> OCC, it was decided to start the Protection Audit from June, 2015. In first cluster 400 kV Subhasgram and Jeerat S/S will be audited tentatively in last week of June, 2015.

The scheduled audit of June, 2015 could not be completed due to pre-occupation in 30<sup>th</sup> TCC/ERPC meeting held on 19/20<sup>th</sup> June, 2015, however, it will be carried out in the first week of July, 2015.

The audit plan is placed at **Annexure- B.13**.

Members may decide the schedule for July, 2015.

### Deliberation in the meeting

*OCC decided to start the audit from 2<sup>nd</sup> week of July, 2015.*

## Item no. B.14: Shutdown of 400 kV Rangpo-Binaguri D/C line for shifting of tower 40.--- Powergrid

Powergrid informed that the location 40 of above said line became highly vulnerable due to the ground cutting work for widening the road by state PWD. Proposal of Powergrid for shifting the tower on urgent basis in order to avoid the catastrophic failure was cleared by 108<sup>th</sup> OCC.

In 109<sup>th</sup> OCC, Powergrid informed that one circuit has been charged and other circuit will be charged by 1<sup>st</sup> June 2015.

Powergrid and NHPC may update.

### **Deliberation in the meeting**

*Powergrid informed that other circuit was also charged.*

#### **Item no. B.15: Breakdown maintenance of OPGW -- DVC**

DVC vide mail dated 15<sup>th</sup> April 2015 informed that they are experiencing infrequent OPGW breakdown. During breakdown, they face difficulty in finding a suitable vendor. This is equally applicable to other constituents of the ER.

DVC requested to make arrangement of a common vendor by CTU/ Powergrid for CTU network and state constituents so that the vendor finds good volume of work for being interested and such break down job can be shared by constituents on suitable terms and conditions.

In 108<sup>th</sup> OCC, Powergrid informed that they are planning AMC for central sector and agreed to include the constituents part in the same AMC after getting requisition.

OCC advised all constituents give the requisition to Powergrid.

In 109<sup>th</sup> OCC, Powergrid informed that only DVC has given the requisition.

OCC advised all other constituents to give the requisition within a week.

Subsequently, OPTCL vide letter dated 10.06.15 intimated that, OPTCL is now under the process of empanelment of rate contract holder firms for repair, maintenance, testing and commissioning of its own OPGW network. Hence, OPTCL requested to be excluded from the said AMC proposal of breakdown maintenance of OPGW proposed for central sector.

Members may update.

### **Deliberation in the meeting**

*DVC informed that provision for supply of material is exempted from AMC hence, the purpose is defeated. DVC requested OPTCL to share the vendor details. OPTCL agreed.*

#### **Item no. B.16: Allotment of 2 nos 132kv bays at 400/220/132kV Baripada (PG) S/s to OPTCL for 132kV Jaleswar line 1 & 2 -- OPTCL**

OPTCL vide letter dated 13<sup>th</sup> April 2015 requested for allotment of 2 nos 132kV bays at 400/220/132kV Baripada (PG) S/s to OPTCL for 132kV Jaleswar line 1 & 2.

In 108<sup>th</sup> OCC, Powergrid informed that they are in principle agreed to the proposal however these bays are allotted to JUSNL system and OPTCL should take consent from JUSNL. Powergrid informed that the same has been already communicated to OPTCL.

OCC advised JUSNL to look into it.

In 109<sup>th</sup> OCC, JUSNL informed that they are planning to use these bays.

OPTCL requested JUSNL to reconsider the issue of consent for utilization of these bays for Jaleswar ckt by OPTCL and the same will be surrendered whenever required by JUSNL.

JUSNL agreed to give their consent after taking approval from their management.

JUSNL and OPTCL may update the status.

### **Deliberation in the meeting**

*JUSNL informed that the issue is lying with their higher authority for approval.*

*OCC advised OPTCL to pursue the issue with higher authority of JUSNL.*

#### **Item no. B.17: Low Voltage at Sasaram (Pusauli) (PG)-- BSPTCL**

BSPTCL vide mail dated 2<sup>nd</sup> May 2015 informed that the voltage at Sasaram (PG) generally remains low, which is also evident from the tie line flow of 220 KV Pusauli- Dehri line compared to Gaya (PG)- Dehri line. Railways complain regularly as traction operation gets affected due to low voltage. Similar complaints are also received from HT Consumers besides general consumer. PGCIL may take corrective measures such as use of Capacitor Bank, change of tap position etc for early improvement of voltage at Sasaram (PG).

In 109<sup>th</sup> OCC, ERLDC agreed to study and revert back in next OCC meeting.

Members may discuss.

### **Deliberation in the meeting**

*ERLDC informed that changing transformer tap position at load end would be more effective than changing ICT tap at Powergrid end to control the low voltage at Sasaram.*

*OCC advised BSPTCL to expedite changing the transformer tap position at load end after assessment of their loads.*

#### **Item no. B.18: Commissioning of 04 nos. 400 KV Abhijeet (CPL) bays (02 no. main bay and 02 no. tie bay) at 400 / 220 KV Ranchi Namkum Substation-- Powergrid**

04 nos. 400 KV bays (02.nos. main bay and 02 nos. tie bay) at Ranchi, Namkum substation was allocated for construction to M/s Corporate Power Limited in 2008 for evacuation of power from their 1215 MW Coal based Thermal Power Plant being constructed in Latehar district of Jharkhand. The commissioning of the said bays had not been completed due to financial bankruptcy of M/s Corporate Power Ltd.

400 KV Ranchi- New Ranchi-I & II are connected in same dia of the bay allocated to M/s CPL (Single line diagram is enclosed) at Ranchi Namkum Substation. Due to non commissioning of CPL bays, Ranchi- I & II have been charged only through main bay at Ranchi, Namkum Substation. In case of any eventuality, there will be no back up for Ranchi- I & II lines. Hence commissioning of CPL bays at Ranchi Namkum substation is very much required in order to maintain the system reliability. The matter has also been raised in 29th PCC meeting held on 20.03.2015.

Therefore, it is proposed that the said CPL bays may be commissioned by POWERGRID and cost may be booked in any of the ongoing project of Eastern Region-I. The expected total financial implication for commissioning of said bays comes to approx Rs. 50 lakhs.

In 108<sup>th</sup> OCC, it was felt that since construction of these bays is a system requirement, Powergrid could be assigned to complete the work. However as there are other issues like ownership of assets etc Powergrid was advised to consult CPL and give the feedback.

In 109<sup>th</sup> OCC, Powergrid informed that no reply has yet been received from CPL.

OCC advised to place the issue before Standing Committee for further deliberation and guidance.

Powergrid may update.

### **Deliberation in the meeting**

*Powergrid informed that no communication has been received from CPL till date.*

*OCC decided to place the issue before Standing Committee.*

#### **Item no. B.19: Handing over of 400 kV LILO of Farakka-Subhasgram at SgTPP & 400 kV D/C SgTPP- Parulia line – WBDCL**

During deliberation in 30<sup>th</sup> TCC held on 19.06.15, Powergrid informed that

1. LILO portion will be maintained as per the agreement with WBDCL.
2. Regarding 400kV Sg TPP-Parulia D/C line, the AMC contract will be extended up to December, 2015 and in the meantime WBDCL has to plan for alternate arrangement for O&M of this line.

But TCC felt that since 400kV Sg TPP-Parulia D/C line is important element in view of power export to Bangladesh, the line should be maintained by CTU. TCC advised Powergrid to continue the O&M of this line as per the existing commercial arrangement till alternative arrangements are formalised.

Powergrid agreed to extend the maintenance contract for SgTPP-Paruliaby 400KV D/C line by another one year.

Further, TCC decided to place the issue again in next standing committee meeting of ER along with the issue of strengthening of transmission network for power export to Bangladesh.

ERPC concurred.

Members may note.

### **Deliberation in the meeting**

*Members noted.*

#### **Item no. B.20: Non-availability of Tie bay of 400kV Sagardighi-Bhadrampore-II**

On 08/05/15, B-phase Pole of 400kV Sagardighi-Subhasgram burst at Sagardighi end after around 4.5mins of opening of the line for taking the line reactor at Subhasgram end out of service. On bursting of the pole, Bus-II Bus bar protection operated. It was observed that 400kV Sagardighi-Bhadrampore-II tripped as it was connected to Bus-II only and the tie/main bay(of the other element in the same dia) had not yet been commissioned. 400kV Sagardighi-Bhadrampore-I however remained in service through Bus-I. In this context it needs to be noted that 400kV Sagardighi-Bhadrampore D/C is an important line for feeding power to Bangladesh and also enhances reliability in feeding South Bengal loads. Hence, it is essential that the tie bay and main bay(of the other element in the same dia) be commissioned at the earliest so that the line is connected to both Bus-I & II and there is no tripping of the line in case of outage/tripping of 400kV Bus-II. Presently, the main bay at Sagardighi end has been constructed and is also maintained by Powergrid. It was verbally intimated that WBDCL/WBSETCL is responsible for commissioning the tie/ main bay(of the other element in the same dia). The constituent responsible for commissioning the above bays need to be clarified and a clear schedule needs to be intimated regarding commissioning of the above bays for achieving full reliability.

In 109<sup>th</sup> OCC, WBPDCCL informed that all the bay equipments are available and the tie bay will be commissioned by end of June, 2015.

WBPDCCL may update.

#### **Deliberation in the meeting**

*WBPDCCL informed that the tie bay will be commissioned by end of July, 2015.*

#### **Item no. B.21: Future requirement of Special Energy Meters and DCDs ---Powergrid**

30<sup>th</sup> TCC approved and recommended to ERPC for approval of procurement of SEM meters as per list finalized in 109<sup>th</sup> OCC.

ERPC concurred the proposal

ERLDC/Powergrid may update.

#### **Deliberation in the meeting**

*Powergrid informed that the procurement process will be initiated by next month.  
Members noted.*

In 107<sup>th</sup> OCC, OPTCL informed that the following DCDs in their control area are not working properly and requested change the DCDs:

| SI No. | Make  | Serial No. |
|--------|-------|------------|
| 1.     | PSION | PGDCDCD161 |
| 2.     | L&T   | 11122068   |
| 3.     | L&T   | 11122071   |
| 4.     | L&T   | 11122076   |
| 5.     | L&T   | 07120455   |
| 6.     | L&T   | 07120465   |
| 7.     | L&T   | 11122083   |

In 108<sup>th</sup> OCC, OPTCL was advised to hand over the defective DCDs to Powergrid and Powergrid will give new DCDs.

Thereafter, OPTCL vide mail dated 4<sup>th</sup> May, 2015 informed that they are unable to download the energy data of the following lines

- 400KV Mendhasal(Gridco)-Baripada(PG) Line-1 not received because meter not responding at Mendhasal Grid S/s end.
- 220KV Joda(Gridco)-Ramchandrapur(JSEB) (Np-5937-A) not received because meter was hanged from 29/04/15 and not responding at Joda Grid S/s end.

In 109<sup>th</sup> OCC, OPTCL requested for replacement of seven nos. of existing DCDs.

OCC advised Powergrid to do the needful.

Powergrid and OPTCL may update.

#### **Deliberation in the meeting**

*Powergrid Odisha-projects informed that spare DCDs are now available and OCC advised to replace the defective DCDs. Powergrid Odisha-projects agreed.*

**Item no. B.22: Preparation of crisis management plan for Cyber Security in Power Sector in line with CERT-IN.**

The activity of the preparation of Crisis Management Plan for countering the cyber attacks and its implementation including the Mock Drills, audits etc. is being monitored by CEA regularly in line with crisis management plant of Ministry of Power. Power Utilities (including generation, transmission & distribution utilities) of eastern region are to furnish regularly the updated status to on the same to Chief Engineer, Distribution Planning & Development Division, CEA.

NTPC communicated their activity of the preparation of Crisis Management Plan for countering the cyber attacks vide letter dated 2<sup>nd</sup> August, 2013.

Members may note and comply.

**Deliberation in the meeting**

*Members noted.*

**Item no. B.23: Certification through BIS as per IS 18001:2007 to all generating/transmission units. (Item No. B9 of 84<sup>th</sup> OCC meeting)**

In 84<sup>th</sup> OCC meeting all constituents were requested to interact with BIS with intimation to ERPC and get certified as per CEA direction.

In 85<sup>th</sup> OCC NTPC informed that, NTPC-Farakka has been certified with IS 18001. Other constituents including OHPC requested to interact with BIS with intimation to ERPC and get certified as per CEA direction. The matter is getting reviewed by highest authorities with top priority.

In 88<sup>th</sup> OCC NTPC informed that, all NTPC stations in Eastern Region are certified with IS 18001. NHPC informed that, Teesta is also certified with IS 18001. After that, OHPC and CESC informed that their stations are certified with IS18001.

In 104<sup>th</sup> OCC, WBPDCCL informed that Bandel TPS is certified with IS 18001.

OPTCL vide letter No. TB-SO-MISC-9/2010/1914 dated 20.12.2014 had proposed to go for IS 18001:2007 certification as per direction of CEA.

Members may note and update the status.

**Deliberation in the meeting**

*Members noted.*

**Item no. B.24: Energy Generation data management from Renewable Energy Sources**

As per Electricity Act, 2003, CEA has been entrusted with the task of collecting electricity generation data. CEA is monitoring all the existing generating stations with capacity more than 25 MW (Conventional sources only). In recent years there has been appreciable growth in generation from Renewable Energy Sources (RES).

In view of above it was decided to monitor all the generating stations under RES connected to the grid and also to bring out month wise, state wise and sector wise report on RES generation in MU including peak generation from RES.

CEA already requested to nominate Nodal officers at the level of SLDC for the above purpose. However, only few states have responded.

Those SLDCs who have not yet nominated the nodal officers for Energy Generation Data management from RES are requested to furnish the details at following email/Fax:

Email: ceaopmwind@gmail.com with a copy to rishika.engineer@gmail.com and s.sewak@cea.nic.in

Nodal officers from CEA: Mrs. Rishika Sharan, Director, CEA, 011-26732663 and 26102263(Fax), Mobile: 9868021299, Mrs. Sarita Sewak, Dy. Director, 011-26732656

SLDCs may note and comply.

### **Deliberation in the meeting**

*Members noted.*

#### **Item no. B.25: Data of Peak Demand**

The peak demand met figure calculated by CEA is a part of the monthly Power Supply Position Report prepared by CEA, based on the data provided by five Regional Power committee (RPCs), who in turn collect the data from State / UTs and RLDCs. As per the present methodology being adopted for calculation of States /Regional peak demand met, the figure of peak demand met at any time in the month is taken as peak demand met for the month. For all India monthly peak demand met, the sum of five regional peaks met, which may occur at different points of time is taken.

The above methodology has been reviewed and it has been decided with the approval of Chairperson, CEA that Peak demand Met and Peak Demand in the country should be based on hourly all India demand data. The matter was taken up with POSOCO for getting the hourly data of peak demand met for each month in respect of all the regions in the country in the first week of following month and they have assured to furnish the same. To calculate the demand, data of hourly scheduled and unscheduled power-cuts / load shedding is also required, which is not available with POSOCO.

It is, therefore, requested that hourly figures of scheduled/ unscheduled power cuts/load shedding data may be collected from States / UTs and the same may be sent to CEA every month as per above schedule in the enclosed format, in spread sheet, so that hourly figures of peak demand can be calculated and incorporated in Power Supply Position report.

This data for a month may kindly be sent in the first week of each month, along with PSP data, starting from the data for the month of February, 2015. The format for sending the data of hourly scheduled and unscheduled power-cuts / load shedding has already been circulated.

In 108<sup>th</sup> OCC, only DVC submitted the data. OCC advised all constituents to submit the data on first week of every month. All constituents agreed.

In 109<sup>th</sup> OCC, It was informed that WB and DVC are submitting the data. OCC advised Bihar, JUSNL and Odisha to submit the relevant information.

OPTCL informed that there were no notified Power cuts/ load shedding in Odisha for April, 2015.

Data for the month of May, 2015 from all constituents are awaited except OPTCL.

BSPTCL, JUSNL, DVC and WBSETCL may submit the data.

### **Deliberation in the meeting**

*BSPTCL, JUSNL and DVC submitted the data.*

OCC advised WBSETCL and Sikkim to submit the relevant data.

Further, OCC advised all the concerned utilities (BSPTCL, JUSNL, OPTCL, WBSETCL & Sikkim) to send the data of hourly scheduled and unscheduled power-cuts / load shedding by mail to mserpc-power@nic.in latest by first week of each month.

#### **Item no. B.26: Restricted Governor Mode of Operation**

The latest status of units of ER under RGMO is available at ERPC website (<http://www.erp.gov.in/>) under Operation>Important data.

In 108<sup>th</sup> OCC, ERLDC informed that the RGMO/FGMO response of the generators needs monitoring on continuous basis.

OCC advised ERLDC to intimate the event of sudden drop in frequency to the generators and requested all generators to provide the RGMO/FGMO response data to ERLDC during the said incidents.

Members may update.

#### **Deliberation in the meeting**

ERLDC informed that there was a generation loss of 1100MW at 19:25hrs on 16<sup>th</sup> June, 2015 and subsequent response of most of the generators were not satisfactory. FRC calculation for Eastern Region is given at **Annexure- B.26**.

OCC advised all the generators to go through and place the response for this event in next OCC meeting.

All generators agreed.

#### **Item no. B.27: Pollution mapping for Eastern Region**

The Pollution Mapping work in ER was started with on-site measurement of ESDD and NSDD. The latest available status is as follows:

| Utility | Scope | Installed Locations | no. of locations where 1st set of Measurements Completed | Remarks                               |
|---------|-------|---------------------|--|---------------------------------------|
| JUSNL   | 67    | 27                  | 0  | Work is yet to be started.            |
| BSPTCL  | 59    | 52                  | 0  | Will be started within a week.        |
| WBSETCL | 73    | 70                  | 34   | Rest will be completed within a week. |
| OPTCL   | 164   | 102                 | 39   | Work is in progress.                  |
| Sikkim  | 12    | 9                   | 2  | No status available.                  |

PGCIL may update the status.

#### **Deliberation in the meeting**

Members updated the latest status as mentioned above. Powergrid informed that the 1<sup>st</sup> set of measurements should have been completed by 30<sup>th</sup> June, 2015 however very few measurements were received from the constituents.



OCC advised all constituents to complete the 1<sup>st</sup> set of measurements by 15<sup>th</sup> July, 2015 and send to Powergrid.

All constituents agreed.

OPTCL informed that their substations are widely dispersed and are facing problem in taking measurements with available test kits. OPTCL therefore requested Powergrid for arranging 10 more testing kits.

Powergrid informed that all the test kits were already dispatched to constituents and it is very difficult arranging additional kits at this juncture. However, Powergrid agreed to look into it.

## **Item no. B.28: Mock Black start exercises in Eastern Region – ERLDC**

### **i) The status of black start exercises**

The schedule of the proposed black-start exercises for F.Y 2015-16 is as follows:

| Sl no | Name of Hydro Station | Schedule                              | Tentative Date                   | Schedule                              | Tentative Date |
|-------|-----------------------|---------------------------------------|----------------------------------|---------------------------------------|----------------|
|       |                       | Test-I                                |                                  |                                       |                |
| 1     | U.Kolab               | Last week of May, 2015                | 1 <sup>st</sup> week of July, 15 | Last Week of January 2016             |                |
| 2     | Maithon               | 1 <sup>st</sup> week of June 2015     | Not possible                     | 1 <sup>st</sup> Week of October 2015  |                |
| 3     | Rengali               | 2 <sup>nd</sup> week of June 2015     | End of July, 15                  | Last week of November 2015            |                |
| 4     | U. Indravati          | 3 <sup>rd</sup> week of June 2015     | Aug, 15                          | 2 <sup>nd</sup> week of February 2016 |                |
| 5     | Subarnarekha          | 2 <sup>nd</sup> week of October 2015  |                                  | 1 <sup>st</sup> week of January 2016  |                |
| 6     | Balimela              | 1 <sup>st</sup> week of November 2015 |                                  | 1 <sup>st</sup> week of March 2016    |                |
| 7     | Teesta-V              | 2 <sup>nd</sup> week of November 2015 |                                  | Last week of February 2016            |                |
| 8     | Chuzachen             | 1 <sup>st</sup> week of May, 2015     |                                  | 2 <sup>nd</sup> week of January, 2016 |                |
| 9     | Sikidri               | Done on 9 <sup>th</sup> June, 2015    |                                  |                                       |                |
| 10    | Burla                 |                                       |                                  |                                       |                |

In 109<sup>th</sup> OCC, it was decided that black start exercise of Chuzachen HEP will be conducted in 1<sup>st</sup> week of July, 2015.

Members may update.

### **Deliberation in the meeting**

Members updated the tentative dates of black start exercise as mentioned in above table.

JUSNL informed that Black Start exercise for SRHP, Sikideri was successfully carried out on 09.06.2015.

*OPTCL informed that Black start restoration facility at Burla Hydro station has been restored and it may be included in the schedule.*

*ERLDC informed that black start exercise of Chuzachen HEP will be conducted in 1st week of July, 2015 with Melli load of Sikkim.*

*Sikkim agreed to cooperate on getting the confirmation of the exact date of black start exercise.*

## **ii) Testing of DG sets meant for Black start**

Test run report of DG sets for blackstart has been received only from Odisha hydro units. The test run reports of other machines may be sent to [erldc.cal@gmail.com](mailto:erldc.cal@gmail.com) and [erldcoutage@gmail.com](mailto:erldcoutage@gmail.com).

Constituents may kindly ensure compliance.

### **Deliberation in the meeting**

*Members noted.*

## **Item no. B.29: Restoration of SCADA data**

Updated latest status is circulated in the meeting. During deliberations in 99<sup>th</sup> OCC it was pointed out by most of the constituents that SCADA problem in many locations are due to behind the schedule progress of work on the part of CTU/PGCIL. OCC advised Powergrid/CTU to expedite and restore at least the priority RTUs by 31<sup>st</sup> July, 2014.

Updated status as updated in SCADA meeting which was held on 28<sup>th</sup> January, 2015 is circulated in the meeting.

Updated status is enclosed at Annexure-B.29.

CTU may update.

### **Deliberation in the meeting**

*Updated status is enclosed at **Annexure-B.29**. ERLDC informed that data are not being received from some critical substations.*

*OCC advised ERLDC to convene a SCADA meeting to resolve all SCADA related issues.*

## **Status of new ULDC scheme and up-gradation of ULDC scheme**

30<sup>th</sup> TCC/ERPC advised Powergrid to place the monthly MIS report for state-wise progress of new ULDC schemes to all the constituents.

Further, TCC advised to convene the PRM meeting on monthly basis and advised all the nodal officers of States for ULDC schemes to attend the PRM meeting on regular basis to resolve the issues.

Members may note.

### **Deliberation in the meeting**

*Members noted.*

**Item no. B.30: Reactive Power performance of Generators and GT tap position optimization**

Following is the list of generating station where substation voltage is beyond IEGC range for most of the times. Maximum and minimum voltage was observed (data taken from SCADA)

| Power Plant    | Max and Min Voltage observed for May 2015 (KV) | Date for monitoring (May 15) |
|----------------|--|------------------------------|
| Farakka STPS   | 422,406  | 6,11,12                      |
| Khalgaon STPS  | 419,403  | --                           |
| Talcher STPS   | 404,394  | --                           |
| Teesta         | 426,393  | --                           |
| Bakreshwar TPS | 410,385  | --                           |
| Kolaghat TPS   | 425,393  | 06,22                        |
| Sagardighi TPS | --   | --                           |
| MPL            | --   | --                           |
| Mejia-B        | 423,411  | 06,12                        |
| DSTPS          | 422,413  | 07,12                        |
| Adhunik TPS    | --   | --                           |
| Sterlite       | 420,412  | 17                           |

ERLDC may update.

**Deliberation in the meeting**

*ERLDC informed that the performance of most of the generators is satisfactory. The voltage data of Sagardighi TPS, MPL and Adhunik TPS are not available hence they could not check their performance.*

**a) Schedule for reactive capability tests**

From last many OCCs reactive capability testing of following units are pending:

- Adhunik TPS(both units)
- DSTPS(Unit#2 only pending)
- Mejia#7(only U#7 pending) & Koderma TPS(both units)
- JITPL(both units)
- Barh Unit#4

109<sup>th</sup> OCC advised ERLDC to place the schedule for testing in next OCC.

ERLDC may update.

**Deliberation in the meeting**

*DVC informed the tentative schedule of testing as follows:*

- DSTPS(Unit#2) -----July/Aug, 15*
- Koderma TPS(both units)----July, 15*
- JITPL (both units)----- July, 2015*

## b) Optimization of GT tap position at Adhunik, Mejia-B and DSTPS

In 97<sup>th</sup> OCC, members requested ERPC Secretariat to convene a special meeting for detail deliberation on tap changing proposal before next OCC.

Accordingly, a special meeting was convened on 27<sup>th</sup> June, 2014. During the meeting following tap position was agreed:

| Sl. No. | Utility      | Present GT tap position | Agreed tap position in the meeting |
|---------|--------------|-------------------------|------------------------------------|
| 1       | APNRL: GT-1  | 8                       | 9                                  |
|         | APNRL: GT-2  | 3                       | 4                                  |
| 2       | Mejia-B, DVC | 4                       | 5                                  |
| 3       | DSTPS, DVC   | 5                       | 6                                  |

Subsequently, DVC vide mail dated 3<sup>rd</sup> July, 2014 informed that GT tap position of MTPS units U#7&8 has been changed from Tap no. 4 to Tap no. 5.

In 101<sup>st</sup> OCC, ERLDC informed that MPL should also reduce the GT tap from tap position 5 to 6.

In 102<sup>nd</sup> OCC, APNRL informed that they have changed the GT tap position of both the GTs as per agreed settings.

DVC vide letter No.LD/25/ERPC/640 dated 03.01.2015 informed that the tap position of DSTPS GT #1 was changed from 5 to 6.

ERLDC assured that they will take care of the voltage problem during synchronization of their generator and advised to change the GT tap position.

In 109<sup>th</sup> OCC, MPL informed that they were having following constraints in raising the GT tap position from 5 to 6 i.e. reducing voltage from 420 kV to 409.5 kV.

1. MPL 400 kV bus average voltage is varying from 412 to 416 kV, sometime it goes up to 420 kV also. If we reduce voltage to 409.5 kV MPL generator has to always run in under excited condition.
2. During synchronization, MPL has to excite its generator more than its rated voltage (21 kV) as system voltage will be more than GT output voltage.
3. If MPL generating voltage will be more than 21 kV then unit auxiliary motor will be more voltage stressed. This will also lead to frequent tap changer operation of UAT.

In view of that request for providing the tap wise GT output voltage of other generating plant for better analysis in overcoming grid system overvoltage issue.

OCC advised ERLDC to provide the necessary details to MPL.

ERLDC and MPL may update the status.

### **Deliberation in the meeting**

*OCC opined that fixing uniform GT tap position for all the generators does not solve the high voltage problem and it will be decided on requirement of VAR absorption.*

*OCC advised MPL to change the GT tap position and depending on level of voltage further corrective actions such as increasing GT tap position at Mejia-B, DVC or any other generator will be initiated.*

*MPL agreed to change the GT tap position by one step on next opportunity shutdown.*

## **PART C:: OPERATIONAL PLANNING**

### **Item no. C.1: Shutdown proposal of transmission lines and generating units for the month of July' 15**

Members may also finalize the Shutdown proposals of the generating stations and transmission lines for the month of July' 15 is circulated in the meeting.

Members may confirm.

#### **Deliberation in the meeting**

*Approved maintenance programme of generators and transmission elements for the month of July, 2015 is at **Annexure-C.1**.*

### **Item no. C.2: Anticipated power supply position during July'15**

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of July'15 were prepared by ERPC Secretariat on the basis of Provisional LGBR for 2015-16, keeping in view that the units are available for generation and expected load growth etc. is circulated in the meeting.

Members may confirm.

#### **Deliberation in the meeting**

*Modified anticipated power supply position for the month of July, 2015 after incorporating constituents' observations is given at **Annexure-C.2**.*

### **Item no. C.3: Prolonged outage of power system elements in Eastern Region**

#### **(i) Generating units:**

| <b>Generating Station</b> | <b>UNIT NO</b> | <b>CAP(MW)</b> | <b>DATE</b> | <b>REASONS FOR OUTAGE</b> | <b>Date of restoration</b> |
|---------------------------|----------------|----------------|-------------|---------------------------|----------------------------|
| KAHALGAON                 | 1              | 210            | 01.06.15    | OVER HAULING              |                            |
| WARIA                     | 4              | 210            | 18.06.15    | COAL SHORTAGE             |                            |
| ADHUNIK                   | 1              | 270            | 28.05.15    | TUBE LEAKAGE              |                            |
| JITPL                     | 1              | 600            | 08.06.15    | PLANNED SHUT              |                            |
| BOKARO 'B'                | 1              | 210            | 19.06.15    | TUBE LEAKAGE              |                            |
| MEJIA                     | 4              | 210            | 10.05.15    | BOILER TUBE               |                            |
| MEJIA                     | 5              | 210            | 01.06.15    | OVER HAULING              |                            |
| BOKARO 'B'                | 3              | 210            | 26.04.15    | C & I PROBLEM             |                            |
| KODERMA                   | 2              | 500            | 11.06.15    | HPCF TRIPPED              |                            |
| KODERMA                   | 1              | 500            | 11.11.14    | ASH POND PROBLEM          |                            |
| KOLAGHAT                  | 2              | 210            | 01.06.15    | MAINTENANCE WORK          |                            |
| SAGARDIGHI                | 2              | 300            | 22.06.15    | TUBE LEAKAGE              |                            |
| BANDEL                    | 5              | 210            | 16.11.2013  | LONG MAINTENANCE          |                            |
| BAKRESWAR                 | 1              | 210            | 06.06.15    | HIGH FURNACE              |                            |

#### **(ii) Transmission elements**

| <b>Name of the Line/Element</b> | <b>Outage</b> | <b>Reason</b>                                   | <b>Date of restoration</b> |
|---------------------------------|---------------|---|----------------------------|
| 220 KV BUDIPADAR-RAIGARH        | 21.05.15      | CT BURST AT BUDIPADAR END                       |                            |
| 315 MVA ICT-I AT BIHARSHARIFF   | 08.06.15      | FIRE HAZARD                                     |                            |
| 400 KV BIHARSHARIFF-KODERMA D/C | 08.06.15      | HAND TRIPPED DUE TO FIRE HAZARD AT BIHARSHARIFF |                            |

|                      |          |  |  |
|----------------------|----------|--|--|
| 765 KV GAYA-FATEHPUR | 12.06.15 | TRIPPED ON R-Y FAULT/<br>REPORTED CROSS ARM<br>BENT IN TOWER NO. 334 |  |
|----------------------|----------|--|--|

Members may update.

### **Deliberation in the meeting**

*Members noted.*

### **Item no. C.4: Information regarding commissioning of new transmission element**

1. 765/400kV, 3\*500 MVA ICT-II at Angul was charged for the first time at 19:04hrs of 02/05/15.
2. 132kV Rangit-Sagbari (LILO of 132kV Rangit-Melli at Sagbari) was charged for the first time at 16:01hrs of 06/05/15. Subsequently, 132kV Sagbari-Melli (LILO of 132kV Rangit-Melli at Sagbari) was charged at 13:10hrs of 19/05/15.
3. 220kV Rangpo-New Melli-I and II bays at Rangpo were charged for the first time at 16:18hrs and 17:36hrs of 06/05/15 respectively. Subsequently, 220kV Rangpo-New Melli-I and II were charged for the first time on no load from Rangpo end at 14:52hrs and 15:02hrs of 19/05/15 respectively.
4. 400kV Barh-Gorakhpur-II was successfully charged for the first time at 16:58hrs of 31/05/15.
5. 132 kV Banka (PG)- Sultangunj Ckt-II charged & loaded on 28.05.2015.

Members may update.

### **Deliberation in the meeting**

*Members noted.*

### **Item no. C.5: Status of commissioning of generating station and transmission elements**

#### **New generating units:**

| S.No. | Power Plant         | Plant Size | Expected date |
|-------|---------------------|------------|---------------|
| 1     | Raghunathpur Unit#1 | 2x600MW    |               |

#### **New transmission elements:**

| SI No. | Name of Element  | Expected date |
|--------|--|---------------|
| 1      | 400kV Rajarhat-Purnea D/C (with LILO of one circuit each at Farakka and Gokarno) |               |
| 2      | Augmentation of 400kV Farakka-Malda D/C with HTLS conductor                      |               |
| 3      | 400kV Ind-Bharath-Jharsuguda D/C   |               |
| 4      | 400kV Talcher-Bramhapur-Gazuwaka D/C   |               |
| 5      | 400kv Talcher-Rourkella (2 <sup>nd</sup> D/C-Quad)                               |               |
| 6      | 400kV Sterlite-Jharsuguda D/C  |               |
| 7      | LILO of Baripada-Mendhasal D/C at New Duburi                                     |               |
| 8      | 765kv Anugul-Srikakulum D/C  |               |
| 9      | 400kV Sasaram-Daltonganj D/C & Daltonganj S/Stn                                  |               |
| 10     | 400 kV Ranchi-Raghunathpur D/C   |               |
| 11     | 400 kV Meramandali-Dubri D/C   |               |
| 12     | 400 kV IB-Meramandali D/C  |               |
| 13     | 220 kV TLDP-IV – NJP ckt-2   |               |
| 14     | 220 kV Bidhansai-Cuttack D/C   |               |
| 15     | 220 kV Girdih-Koderma D/C  |               |

Members may update.

### **Deliberation in the meeting**

*Members noted.*

## **PART D:: OTHER ISSUES**

### **Item no. D.1: UFR operation during the month of May'15**

System frequency touched a minimum of 49.55Hz in May'15 on 05/05/15 at 14:45Hrs. Accordingly, no report of operation of UFR has been received from any of the constituents.

Members may note.

### **Deliberation in the meeting**

*Members noted.*

### **Item no. D.2: Non-compliance of directions issued by SLDC**

Vide clause no 5.5.1.(c)(h) of IEGC, non-compliance of SLDC directions by SEB/Distribution licenses/bulk consumers to curtail overdrawal are 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 after the day of operation.

No report from any constituent has yet received. Hence ERLDC would be considering 'Nil' report for all constituents for May'15.

Members may note.

### **Deliberation in the meeting**

*Members noted.*

### **Item no. D.3: Grid incidences during the month of May, 2015**

| Sl No | Disturbance Place                  | Date & Time          | Generation loss (MW) | Load loss (MW) | Remark  | Category |
|-------|------------------------------------|----------------------|----------------------|----------------|---|----------|
| 1     | 400kV Sagardighi S/s               | 08/05/15 at 11:00hrs | 0                    | 0              | While opening of MCB (4032) and TCB (4033) of 400kV Sagardighi-Subhashgram line (to facilitate opening of line reactor at Subhashgram of the said line) at 10:56hrs, B-Ø pole of MCB of the said line burst out at Sagardighi end, due to which differential protection of Bus-II at Sagardighi end operated and all lines of Bus-II from Sagardighi tripped. | -        |
| 2     | OPTCL (South Odisha) & Jeypore S/s | 21/05/15 09:24 hrs   | 150                  | 250            | Multiple tripping occurred in South Odisha including ISTS system due to tripping of 400kV Jeypore-Bolangir S/c on operation of O/V St-I & II at Jeypore end.  | GD-1     |
| 3     | Budhipadar                         | 25/05/15 at 18:12hrs | 750                  | 350            | Total power failure occurred at 220kV Budhipadar S/s of OPTCL system due to bursting of B-Ø CT of 220kV Budhipadar-Raigarh line at Budhipadar end   | GD-1     |

|   |                 |                      |     |     |  |      |
|---|-----------------|----------------------|-----|-----|--|------|
| 4 | Budhipadar      | 23/05/15 at 11:08hrs | 700 | 400 | Multiple trippings occurred at Budhipadar S/s at different times due to which total power failure occurred at Budhipadar and adjacent 220kV and 132kV S/s.   | GD-1 |
| 5 | JSEB (Lalmatia) | 23/05/15 at 19:37hrs | 0   | 90  | Total power failure occurred at Lalmatia S/s of JSEB system due to bursting of Y-ØCT of 132kV Bus (NTPC Section) at Lalmatia. 132kV Kahalgaon (NTPC)-Lalmatia and 220kV FSTPP-Lalmatia tripped simultaneously from both the ends | GD-1 |
| 6 | Teesta-V        | 23/05/15 at 21:37hrs | 504 | 0   | 400kV Binaguri-Rangpo-I tripped on Y-N fault, 1.86KM from Rangpo end. As a consequence, Teesta Unit #1, #2 & #3 were tripped on due to operation of Turbine over Speed Protection.   | GD-1 |
| 7 | OPTCL (Tarkera) | 24/05/15 at 15:21hrs | 0   | 150 | While charging 220kV Tarkera-Budhipadar-I from Tarkera end, it tripped pulling out all other 220kV feeders connected to Tarkera S/S  | GD-1 |
| 8 | Teesta-V        | 25/05/15 at 18:28hrs | 504 | 0   | 400kV Teesta-Rangpo-I tripped on R-N fault, Z-1, 6KM from Teesta end. Simultaneously, Unit #1, #2 & #3 of Teesta tripped due to Operation of Emergency Shut down Relay   | -    |
| 9 | Birpara S/s     | 25/05/15 at 09:18hrs | 128 | 60  | Total power failure occurred at 220kV Birpara S/s due to bus fault occurred in 220kV Bus-I at Birpara.   | GD-1 |

Members may note.

### **Deliberation in the meeting**

*Members noted.*

### **Item no. D.4: Any other items.**

#### **1. Curtailment of approved schedule by NRLDC-- GMR**

GMR informed that due to Import Congestion in NR and subsequent Curtailment of approved Schedule by NRLDC, the implemented schedule being given to GKEL is leading to operational difficulties. The difficulties being faced by them since 18.06.2015 are:

1. Sudden variation in schedule by around 300 MW between two consecutive time blocks
2. The minimum schedule is less than the technical minimum load of the plant.

GMR requested to resolve the issue and review the reasons behind.

### **Deliberation in the meeting**

*ERLDC informed that GMR is selling power in Northern Region and the power is being scheduled by NRLDC. So, it is under the jurisdiction of NRLDC to explain or give detailed reasons.*

*Meeting ended with vote of thanks to the chair.*

\*\*\*\*\*



# Participants in the 110<sup>th</sup> OCC Meeting of ERPC

Annexure- A

Venue: ERPC Conference Room, Kolkata

Time: 11:00 hrs

Date: 29.06.2015 (Monday)

| Sl No | Name                       | Designation/<br>Organization  | Contact<br>Number | Email                                     | Signature          |
|-------|----------------------------|---|-------------------|---|--------------------|
| 1     | A.K. Bandyopadhyay         | MS/ERPC   | 9433068533        | mserpc-power<br>@nic.in                   | Bandyopadhyay      |
| 2     | U.K. Verma                 | GM/ERLDC  | 08902496220       | ujwal.kumar.verma<br>@gmail.com           | U.K. Verma         |
| 3     | P.P. BANDROPADHYAY         | DGM(SO)/ERLDC   | 7044083323        | porth_bandyopadhyay@yatooc<br>co.in       | P.P. Bandyopadhyay |
| 4     | P.S. Das                   | Asst GM (SO)/ERLDC  | 9433041837        | psdas-psd@yahoo.com                       | P.S. Das           |
| 5     | S. BANERJEE                | Asst. GM  | 9433041823        | surojitb@gmail.com                        | S. Banerjee        |
| 6     | S.K. Naik                  | Ch. Mgr/<br>P.G. O&S  | 9437962169        | sknaiknaik@gmail.com<br>oandm2k@gmail.com | S.K. Naik          |
| 7     | Rohit Kumar                | Sr. Engr<br>Powergrid ERPC  | 943195714         | oandm2k@gmail.com                         | Rohit Kumar        |
| 8     | B. Pan                     | CE (DVC) SDC  | 950324702         | brahmananda.pan<br>@dvc.gov.in            | B. Pan             |
| 9     | S. Nayak                   | Asst. GM (SO)   | 9437041581        | snayak@npx.co.in                          | S. Nayak           |
| 10    | ANIL KUMAR                 | DGM (OS) NTPC   | 9431215301        | anilkumar06@npx.co.in                     | Anil Kumar         |
| 11    | S.P. RATH                  | MANAGER (E)   | 8170005662        | rohit1975@<br>gmail.com                   | S.P. Rath          |
| 12    | HIRANMAY DE                | Sr. VP/PJC  | 9891383916        | hde@pteindia.co                           | Hiranmay De        |
| 13    | Hiray Dorjee<br>Bhutta     | E. E (SDC)  | 9647879822        | hiraydorjee44@<br>gmail.com               | Hiray Dorjee       |
| 14    | KRISHNA KUMAR<br>BHATTARAI | Asst. GM / TNP, DGR   |                   | krishna.k.bhattacharai@gmail              | Krishna Kumar      |
| 15    | Rinchen Wangdi             | Asst. GM, CHP, DGR  | 77777712          | rinchenpop@gmail.com                      | Rinchen Wangdi     |
| 16    | Samin Pandab               | Head-Opn.<br>MPH  | 9031000323        | spandab@tatapower.<br>com                 | Samin Pandab       |
| 17    | Manas Kumar Panda          | Head-Electrical/<br>Vedanta Limited<br>(Formerly State Bank of India) | 9937047045        | manas.kumar.panda@<br>vedanta.co.in       | Manas Kumar Panda  |
| 18    | T.R. Mahapatra             | Dy. Mgr/ERLDC   | 9433041873        |   | T.R. Mahapatra     |
| 19    | M.K. Thakur                | Dy. Mgr ERLDC   | 9432351832        |   | M.K. Thakur        |
| 20    | Jangchuk Dorji             | SO, DGR, KHP  | -                 | jdorji24@gmail.com                        | Jangchuk Dorji     |





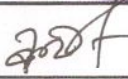
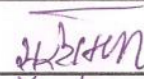


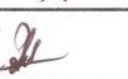
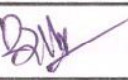
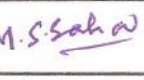

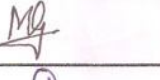

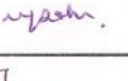
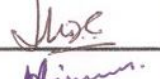
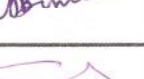
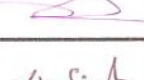
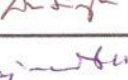
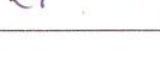


### Participants in the 110<sup>th</sup> OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata

Time: 11:00 hrs

Date: 29.06.2015 (Monday)

| Sl No | Name                 | Designation/<br>Organization | Contact<br>Number | Email                           | Signature   |
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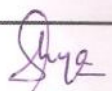
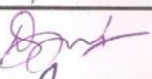
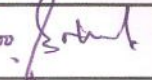
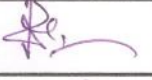

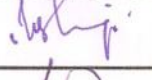


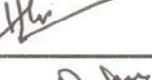

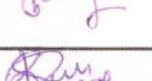
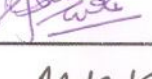
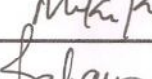
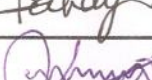
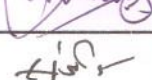
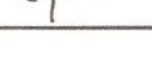


### Participants in the 110<sup>th</sup> OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata

Time: 11:00 hrs

Date: 29.06.2015 (Monday)

| Sl No | Name                    | Designation/<br>Organization | Contact<br>Number | Email                          | Signature   |
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| 57    |                         |                              |                   |                                |   |
| 58    |                         |                              |                   |                                |   |
| 59    |                         |                              |                   |                                |   |
| 60    |                         |                              |                   |                                |   |

**List of 25 critical S/Stns in Eastern Region**

In the absence of well- defined criteria for selecting the sub-stations, the list has been prepared considering various factors such as its role in inter-regional as well as international power transfer, priority / importance of the load catered by the substation, whether it facilitates evacuation of generation from power station etc. and present operational experience.

| SI No. | Sub-station Name   | Reason for selection  |
|--------|--------------------|---|
| 1      | Muzaffarpur 400kV  | Caters to 400MW peak load of Bihar; 400/220kV ICTs critically loaded. ER end S/Stn of 400kV MZF-GRK tie, through which NR draws huge power from ER.   |
| 2      | Binaguri 400kV     | Pooling point for Tala & Teesta generation. It is the S/Stn which ensures reliable interconnection of NER grid as well as Bhutan grid with ER. During dry season high power is imported by NER through 400kV Binaguri-Bong Q/C tie while during monsoon, the same S/Stn helps in evacuation of surplus power from NER and Bhutan towards ER.  |
| 3      | Jeypore 400kV      | Essential for passing on around 700MW power to SR through Jeypore-Gajuwaka 400kV D/C tie. It also ensures reliable interconnection of S. Odisha with the rest of the grid and facilitates evacuation of generation from Balimela & U. Kolab hydro stations of OHPC. During dry season short circuit level of the S/Stn becomes very low, leading to high fluctuations of voltage even for small changes in active and reactive power. |
| 4      | Meramundali        | Caters to bulk load of Odisha spreading across large geographical area. Corridor from Meramundali to Jeypore is essential for reliable power transfer and interconnection to S. Odisha as well as to SR. Meramundali is also the gateway for facilitating evacuation from JITPL and GMR IPPs  |
| 5      | Baharampur 400kV   | This substation is indispensable for ensuring reliable transfer of power to the tune of 500MW to the neighbouring country Bangladesh  |
| 6      | Subhasgram 400kV   | Caters to around 600-700MW load of Greater Kolkata and S. Bengal. Essential for evacuation of power from Hadia TPS. Low short-circuit level coupled with large variation of load supplied, causes around 40kV variation of 400kV voltage in a day.  |
| 7      | Jeerat 400kV       | Caters to around 600-700MW load of Greater Kolkata and S. Bengal. Low short-circuit level coupled with large variation of load supplied, causes around 40kV variation of 400kV voltage in a day.  |
| 8      | Mendhasal 400 kV   | Caters to bulk load of East Odisha. It is also the gateway for facilitating evacuation from JITPL and GMR IPPs  |
| 9      | Biharshariff 400kV | Caters to bulk load of Bihar and is essential for evacuation of power from KhSTPS Stg-I & II, Tenughat TPS as well as Koderma TPS. This substation also facilitates transfer of bulk power to NR through Biharshariff-Sasaram Q/C and Biharshariff-Balia D/C. During low hydro period, power flow from this substation to N. Purnea 400kV helps in preventing very high load in 400kV Farakka-Malda-Purnea D/C corridor.              |

## Annexure- B.1

| SI No. | Sub-station Name  | Reason for selection  |
|--------|-------------------|---|
| 10     | Patna 400kV       | Responsible for catering to around 400MW peak demand in and around the capital city of Bihar. This substation also plays a key role in transferring bulk power to NR from ER through 400kV Patna-Balia Q/C line.  |
| 11     | Sasaram 400kV     | This S/stn is located at ER end of the HVDC link between ER and NR. Depending on system conditions bulk power exchange between ER and NR takes place from this substation either through the HVDC or through the AC bypass link. Lines emanating from 220kV side of this S/Stn meet critical loads of UP as well as of Bihar.   |
| 12     | Gaya 765kV        | The substation caters to important loads of Bihar around Gaya and 765kV lines emanating from the S/Stn enhance the power transfer capability from ER to NR.   |
| 13     | Maithon 400kV     | Caters to bulk load of DVC command area and facilitates power evacuation from Maithon-RB, Mejia-B and KhSTPS. The substation also plays a key role in power transfer to Bihar and NR over 400kV Maithon-Gaya D/C line   |
| 14     | Jamshedpur 400kV  | Critical for meeting the power requirement of Jharkhand and reliable power evacuation from Adhunik and DSTPS. During low power availability in Odisha, 400kV Jamshedpur-Baripada D/C line helps in avoiding very high power flow through 400kV Rourkella-TSTPS D/C line   |
| 15     | Sterlite 400kV    | This power station is located at ER boundary of the 400kV tie line SEL-Raigarh between ER and WR. Power of the order of 400MW is transferred to WR and tripping of either SEL-Raigarh or SEL-Rourkella would cause major redistribution of power flow among other ER-WR ties. Availability of generation from SEL as well as the outgoing lines play a major role in deciding the ER-WR TTC quantum |
| 16     | Bidhannagar 400kV | This substation caters to bulk load of South Bengal and is essential for reliable evacuation of PPSP generation. Fault at 220kV will adversely affect evacuation of power from DPL as well as Waria TPS, besides causing loss of significant load.  |
| 17     | Malda 400kV       | This substation acts as the linkage between North and South Bengal systems. During low hydro period, lines emanating from this substation play a crucial role in transferring power from Southern to Northern part of W. Bengal as well as to NER.  |
| 18     | Kasba 220kV       | 220kV lines emanating from this S/stn meet critical loads of South & North 24 Parganas. Further, the entire CESC system catering to the demand of Kolkata, remains synchronized at Kasba 132kV.   |
| 19     | Budhipadar 220kV  | Critical for evacuation of IB TPS and Vedanta generation and is the ER end of 3 nos 220kV tie lines with WR.  |
| 20     | Jeynagar 220kV    | Critical for evacuation of generation to the tune of 700-800MW from Balimela and U. Kolab hydro stations. It also plays a major role in reliable power transfer to SR through HVDC Gajuwaka during high export condition.   |
| 21     | Theruvai 220kV    | It plays an important role in ensuring reliable power supply to South Odisha as well as facilitates evacuation of power from Indravati HPS.   |

## Annexure- B.1

| SI No. | Sub-station Name       | Reason for selection   |
|--------|------------------------|--|
| 22     | Kalyaneswari 220kV     | This substation caters to bulk load of DVC. Any critical contingency such as transformer fault or bus fault at this S/Stn leads to major load loss in DVC system, besides affecting power evacuation from Mejia-I TPS.   |
| 23     | New & Old Purnea 220kV | These substations together meet around 300-400MW load of Bihar, including the power supplied to Nepal.   |
| 24     | Siliguri 220kV         | 132kV lines emanating from this S/Stn are critical for meeting important loads of N. Bengal, ensuring synchronised interconnection of Sikkim and reliable evacuation of power from Rangit and Chujachen HPSS.  |
| 25     | Chandil 220kV          | Caters to core sector industrial loads of Jharkhand as well as several traction substations of SE Railway.   |
| 26     | Arambag 400kV          | <ul style="list-style-type: none"> <li>The S.S was primarily constructed to evacuate generation of PuruliaPSP(G)(4*225 MW) . While in pump mode PPSP draws from Bidhanagar S.S and in gen mode it injects in Arambag</li> <li>Arambag with 315*4 MVA , 400/220 kv ICTs and 160*3 MVA ,220/132/ kv ICTs primarily cater to the load of densely populated and industrial district of Hoogly ( Rishra/Tarkeswar,Singur), agarian districts of Burdwan (Raina S.S) , Bankura( N Bishnupur S.S ) , Domjur (Howrah) and West Mednipore (Mednipore S.S).</li> <li>In absence of units at Santaldih , entire district of Bankura is dependent on Arambag for power supply through 220 kv Arambag-N Bishnupur D/C line</li> </ul> |
| 27     | Rourkela 400kV         | This power station is located at ER boundary between ER & WR and plays a major role in power transfer to WR.   |

**Annexure- B.2**

| <b>Station Name</b> | <b>Near by City</b> | <b>District</b>   | <b>State</b> |
|---------------------|---------------------|-------------------|--------------|
| Gopalganj           | Gopalganj           | Gopalganj         | Bihar        |
| Hazipur             | Hazipur             | Vaishali          | Bihar        |
| Muzaffarpur         | Muzaffarpur         | Muzaffarpur       | Bihar        |
| Sitamari            | Sitamari            | Sitamari          | Bihar        |
| Darbhanga           | Darbhanga           | Darbhanga         | Bihar        |
| Begusarai           | Begusarai           | Begusarai         | Bihar        |
| Patna               | Patna               | Patna             | Bihar        |
| Biharsariff         | Biharsariff         | Nalanda           | Bihar        |
| sasaram             | sasaram             | Rohtas            | Bihar        |
| Arah                | Arah                | Bhojpur           | Bihar        |
| Bodhgaya            | Bodhgaya            | Gaya              | Bihar        |
| Barh                | Barh                | Patna             | Bihar        |
| Lakhisarai          | Lakhisarai          | Lakhisarai        | Bihar        |
| Sultanganj          | Sultanganj          | Bhagalpur         | Bihar        |
| Banka               | Banka               | Banka             | Bihar        |
| Kahalgaon           | Kahalgaon           | Bhagalpur         | Bihar        |
| Madhepura           | Madhepura           | Madhepura         | Bihar        |
| Purnea              | Purnea              | Purnea            | Bihar        |
| Supaul              | Supaul              | Supaul            | Bihar        |
| Kishanganj          | Kishanganj          | Kishanganj        | Bihar        |
| Deogarh             | Deogarh             | Deogarh           | Jharkhand    |
| Chaibasa            | Chaibasa            | West Singhbhum    | Jharkhand    |
| Dumka               | Dumka               | Dumka             | Jharkhand    |
| Dhanbad             | Dhanbad             | Dhanbad           | Jharkhand    |
| Garhwa              | Garhwa              | Garhwa            | Jharkhand    |
| Tenught             | Tenught             | Bokaro            | Jharkhand    |
| Ranchi              | Ranchi              | Ranchi            | Jharkhand    |
| Koderma             | Koderma             | Koderma           | Jharkhand    |
| Bokaro              | Bokaro              | Bokaro            | Jharkhand    |
| Jamshedpur          | Jamshedpur          | West Singhbhum    | Jharkhand    |
| Chandrapura         | Chandrapura         | Bokaro            | Jharkhand    |
| Maithon             | Dhanbad             | Dhanbad           | Jharkhand    |
| Lalmatia            | Lalmatia            | Goda              | Jharkhand    |
| Santaldih           | Purulia             | purulia           | West Bengal  |
| Asansole            | Asansole            | Burdwan           | West Bengal  |
| Durgapur            | Durgapur            | Burdwan           | West Bengal  |
| Bishnupur           | Bankura             | Bankura           | West Bengal  |
| Burdwan             | Burdwan             | Burdwan           | West Bengal  |
| Arambag             | Arambag             | Hoogly            | West Bengal  |
| Medinipur           | Medinipur           | Paschim Medinipur | West Bengal  |
| Kharagpur           | Kharagpur           | Paschim Medinipur | West Bengal  |
| Kolaghat            | Kolaghat            | Purba Medinipur   | West Bengal  |
| Howrah              | Howrah              | Howrah            | West Bengal  |
| Haldia              | Haldia              | Purba Medinipur   | West Bengal  |
| Kalyaneswari        | Asansole            | Burdwan           | West Bengal  |
| Bakreswar           | Siuri               | Burdwan           | West Bengal  |
| satgachia           | Burdwan             | Burdwan           | West Bengal  |
| Krishnanagar        | Krishnanagar        | Nadia             | West Bengal  |
| Gokerna             | Baharampur          | Murshidabad       | West Bengal  |
| Jerat               | Jerat               | Hoogly            | West Bengal  |

**Annexure- B.2**

| <b>Station Name</b> | <b>Near by City</b> | <b>District</b> | <b>State</b> |
|---------------------|---------------------|-----------------|--------------|
| Subhasgram          | Kolkata             | South 24 Pragna | West Bengal  |
| Kasaba              | Kolkata             | South 24 Pragna | West Bengal  |
| Budge-Budhe         | Kolkata             | South 24 Pragna | West Bengal  |
| Lakhikantapur       | Joka/kolkata        | South 24 Pragna | West Bengal  |
| Sagardighi          | Baharampur          | Murshidabad     | West Bengal  |
| Dalkhola            | Dalkhola            | Utar Dinajpur   | West Bengal  |
| Binaguri            | Binaguri            | Jalpaiguri      | West Bengal  |
| Lebong              | Darjeeling          | Darjeeling      | West Bengal  |
| Moinaguri           | Moinaguri           | Jalpaiguri      | West Bengal  |
| Birpara             | Birpara             | Alipurduar      | West Bengal  |
| Alipurduar          | Alipurduar          | Alipurduar      | West Bengal  |
| Rangit              | Rangit              | South District  | Sikkim       |
| Gangtok             | Gangtok             | East District   | Sikkim       |
| Melli               | Melli               | South District  | Sikkim       |
| Teesta              | Teesta              | East District   | Sikkim       |
| Balimela            | Malkangiri          | Malkangiri      | Odisha       |
| Jaypore             | Jaypore             | Koraput         | Odisha       |
| Uppeer Kolab        | Jaypore             | Koraput         | Odisha       |
| Bhanjanagar         | Bhanjanagar         | Ganjam          | Odisha       |
| Theruvelli          | Rayagada            | Rayagada        | Odisha       |
| Indravati           | Bhawanipatna        | kalahandi       | Odisha       |
| Bherampur           | Bherampur           | Ganjam          | Odisha       |
| Narendrapur         | Bherampur           | Ganjam          | Odisha       |
| Nayagarh            | Nayagarh            | Nayagarh        | Odisha       |
| Khurdha             | Khurdha             | Khurdha         | Odisha       |
| Bhubanswar          | Bhubanswar          | Khurdha         | Odisha       |
| Puri                | Puri                | Khurdha         | Odisha       |
| Cuttack             | Cuttack             | Cuttack         | Odisha       |
| Meramundali         | Meramundali         | Dhenkanal       | Odisha       |
| Dhenkanal           | Dhenkanal           | Dhenkanal       | Odisha       |
| Angul               | Angul               | Angul           | Odisha       |
| Talcher             | Talcher             | Angul           | Odisha       |
| Bolangir            | Bolangir            | Bolangir        | Odisha       |
| Katapali            | Malkangiri          | Malkangiri      | Odisha       |
| IBTPS               | Bhrajaraaj Nagar    | Jharsugua       | Odisha       |
| Jharsugua           | Jharsugua           | Jharsugua       | Odisha       |
| Sambalpur           | Sambalpur           | Sambalpur       | Odisha       |
| Budhipadar          | Jharsugua           | Jharsugua       | Odisha       |
| Rourkela            | Rourkela            | sundergarh      | Odisha       |
| Rajgangpur          | Rourkela            | sundergarh      | Odisha       |
| Rengali             | Rengali             | Angul           | Odisha       |
| Duburi              | Jajpur              | jajpur          | Odisha       |
| Bhadrak             | Bhadrak             | Bhadrak         | Odisha       |
| Balasore            | Balasore            | Balasore        | Odisha       |
| Baripada            | Baripada            | Mayurbhanja     | Odisha       |
| Joda                | Joda                | Kendujhar       | Odisha       |
| Paradeep            | Paradeep            | Jagatsinghpur   | Odisha       |



## **Initial Investigation Report of Haldia Islanding Operation**

**09-06-2015**

Prepared By: Sandeep Mukherjee & Subrata Mitra  
Approved by: Arnab Mukherjee

**OCCURRENCE:** Unit#1, 2 and 3 generating 21MW, 36MW and 26MW respectively while tripped at 19:42 hrs on over frequency protection due to tripping of 220KV New-Haldia- Kolaghat Circuit#2.

**Details of Alarms and annunciation at different locations:**

**At TATA POWER:** All the relay operations are normal.

| Islanding relay LED in Main-1 and 2 relays   | Unit#1  | Unit#2  | Unit#3  |
|--|---|---|---|
| <ul style="list-style-type: none"> <li>- Islanding relay optd.</li> <li>- DF/DT Optd.</li> <li>- Stg-2,3 optd.</li> <li>- PT fail</li> <li>- L/O:- 86Islanding -1 and 2</li> </ul> | <ul style="list-style-type: none"> <li>- O/F Stg-1 optd.</li> <li>- O/F Stg-2 optd.</li> <li>- U/F Stg-1 optd.</li> <li>- U/F Stg-2 optd.</li> <li>- L/O:- 86A1,86A2,86B1 and 86B2 optd.</li> </ul> | <ul style="list-style-type: none"> <li>- O/F Stg-1 optd.</li> <li>- O/F Stg-2 optd.</li> <li>- U/F Stg-1 optd.</li> <li>- U/F Stg-2 optd.</li> <li>- L/O:- 86A1,86A2,86B1 and 86B2 optd.</li> </ul> | <ul style="list-style-type: none"> <li>- O/F Stg-1 optd.</li> <li>- O/F Stg-2 optd.</li> <li>- U/F Stg-1 optd.</li> <li>- U/F Stg-2 optd.</li> <li>- L/O:- 86A1,86A2,86B1 and 86B2 optd.</li> </ul> |

**At WBSETCL- Chiranjibpur:** All the relay operations are normal.

| Islanding relay M#1 Alarms  | Islanding relay M#2 Alarms  |
|---|---|
| <ul style="list-style-type: none"> <li>- Islanding Optd.</li> <li>- DF/DT optd.</li> <li>- Stg-2,3 optd.</li> <li>- PT fail</li> <li>- L/O:- 86A1,86A2,86B1,86B2,86C1 and 86C2</li> </ul> | <ul style="list-style-type: none"> <li>- Islanding Optd.</li> <li>- DF/DT optd.</li> <li>- Stg-2,3 optd.</li> <li>- PT fail</li> <li>- L/O:- 86A1,86A2,86B1,86B2,86C1 and 86C2</li> </ul> |

Feeders tripped: Time of tripping of 33KV Hindustan Unilever and 33KV Wagon Factory is not known.

| Islanding Stage-1   | Islanding Stage-2   | Islanding Stage-3   | Other Feeders                                 |
|---|---|---|---|
| 132KV New Haldia Direct Ckt<br>132KV HPL Ckt<br>132KV Railway feeder-1<br>132KV Railway feeder-2<br>33KV Renuka sugars feeder | 33KV CPT-1 feeder<br>33KV IOC feeder<br>33KV Exide-1 feeder | 33KV Khudiram nagar<br>33KV Exide-2 feeder<br>33KV IOC pipeline feeder<br>33KV Glychem feeder | 33KV Hindustan Unilever<br>33KV Wagon Factory |

**At WBSETCL - NIZ:** DF/DT optd alarm was not observed at M2 relay as per Substation. All others are normal.

| Islanding relay M#1 Alarms  | Islanding relay M#2 Alarms   |
|---|--|
| <ul style="list-style-type: none"> <li>- Islanding Optd.</li> <li>- DF/DT optd.</li> <li>- Stg-2,3 optd.</li> <li>- PT fail</li> <li>- L/O:-<br/>86A1,86A2,86B1,86B2,86C1 and 86C2</li> </ul> | <ul style="list-style-type: none"> <li>- Islanding Optd.</li> <li>- Stg-2,3 optd.</li> <li>- PT fail</li> <li>- L/O:-<br/>86A1,86A2,86B1,86B2,86C1 and 86C2</li> </ul> |

Feeders tripped:

| Islanding Stage-1  | Islanding Stage-2           | Islanding Stage-3 |
|--|-----------------------------|-------------------|
| 132KV Tamluk Ckt-1<br>132KV Tamluk Ckt-2<br>132KV Rohit Ferro alloy<br>132KV Mitshubishi-1 | 33KV Enore Coke<br>33KV HEL | 33KV Basudevapur  |

### Observations:

- On 09-06-2015, 220KV New Haldia-Kolaghat Circuit#1 was kept out of service due to maintenance work by WBSETCL.
- 132KV Tamluk-Kolaghat Circuit#1 and 2 was kept out of service during the event as per instructions from SLDC-Howrah(Ref Annexure-1 for details).
- 132KV New Haldia substation was connected to Kharagpur via 132KV New Haldia-Egra line and 132KV Egra-BEL-Kharagpur line. (Ref Annexure-1 for details).
- As per Tata Power FDR records, 220KV New Haldia-Kolaghat Circuit#2 tripped at 19:41:01.438 hrs due to a transient fault.
- After 1.5s, 132KV Egra-BEL-Kharagpur line tripped on non directional overcurrent protection at Egra end due to increase in line loading.
- Due to this, the entire loads of the 132KV Egra, Contai, New Haldia, Chiranjibpur, NIZ and Tamluk substations was being fed by Tata Power for duration of 800ms prior to Islanding Stage-1 operation.

- During this 800ms, the system frequency dropped from 49.9Hz to a minimum of 45.817Hz.
- The tripping of interconnected lines at WBSETCL, Chiranjibpur and NIZ substations was observed after Islanding stage-1 operation as per the scheme.
- After Islanding stage-1 operation, the system frequency remained constant at a frequency of 45.817Hz for duration of 200ms due to which stage-2 load shedding operation was observed at Chiranjibpur and NIZ substations.
- After Islanding stage-2 operation, the system frequency started to increase from 45.8Hz to 46.186Hz for duration of 200ms. This frequency was lower than the islanding stage-3 setting of 47.6Hz and hence a Stage-3 load shedding was observed at Chiranjibpur and NIZ substations.
- The frequency increased from 46.032Hz to 51.584Hz within duration of 3.526sec.
- Unit#1, 2 and 3 continued to operate smoothly with a load of 44.86MW (load in the substations and Tata Power Auxiliary) for a duration of 8 secs.
- After 8 secs of islanding operation, the system frequency increased to 53.047 Hz from 50 Hz within 3.385 sec.
- All the Units tripped at 19:41:16.0 Hrs due to Generator Over frequency stage 2 operations- operating Class-B lockout.
- After turbine trip, the system frequency decreased to 47.26Hz within duration of 2.6s and under frequency stage-2 protection operation was observed in all the Units.
- The generator breaker tripping for all the units was observed after under frequency stage-2 operation operating the Class-A lockouts.

### **Control system response :**

- MaxDNA system of Unit 1, 2 and 3 received islanding command from Electrical system at 19:41:03.6 Hrs. Upon actuating of Islanding operation, following response of Unit 1, 2 and 3 were found,
  - Unit 1 behaviour:
    - Its "speed control mode" forced off at 19:41:05.366 HRS as per Islanding logic.
    - The unit 1 was running with 21 MW load in load control mode and maintained the same within 18 to 23 MW Load till tripping.
    - First load swing after 'stage 1' operation was 23 MW from previous 21 MW.

- The unit tripped at 19:41:16.1 Hrs due to 'Generator Over frequency stage 2' operations.

○ Unit 2 behaviour:

- Unit 2 went to 'Speed Control' mode at 19:41:05.903 hrs as per island logic.
- Load on the unit before islanding was 36 MW, after Islanding 'stage 1 operation', it got increased to 39 MW and was further maintaining within the band of 39 to 6 MW Load till tripping.
- First over speed break of duration 1 sec operated at 19:41:07.1 hrs. (RPM > 2950).
- Second over speed break (RPM>3100) of total 2 sec duration was operated at 19:41:09.1 hrs.
- Third over speed break of duration 1 sec operated at 19:41:15.1 Hrs. (RPM > 3100).
- The unit tripped at 19:41:16.0 Hrs due to Generator Over frequency stage 2 operations.

○ Unit 3 behaviour:

- Unit 3 was running with 26 MW load prior to islanding but its load raised further up to 40 MW (as recorded)during the incident.
- Load of the unit 3 became 15 MW at 19:41:04.04 Hrs and load reference also became 15 MW at 19:41:05.04 Hrs as per islanding logic.
- First over speed break of duration 0.5 sec operated at 19:41:08.4 hrs. (RPM > 5150).
- 2nd over speed break of duration 0.5 sec operated at 19:41:14.4 hrs. (RPM > 5200).
- The unit tripped at 19:41:16.1 Hrs due to Generator Over frequency stage 2 operations.

- All the three Units were sustained in Island condition for around 11 sec after initiation of Islanding operation.

## **Areas for further investigations/discussion of possible solutions**

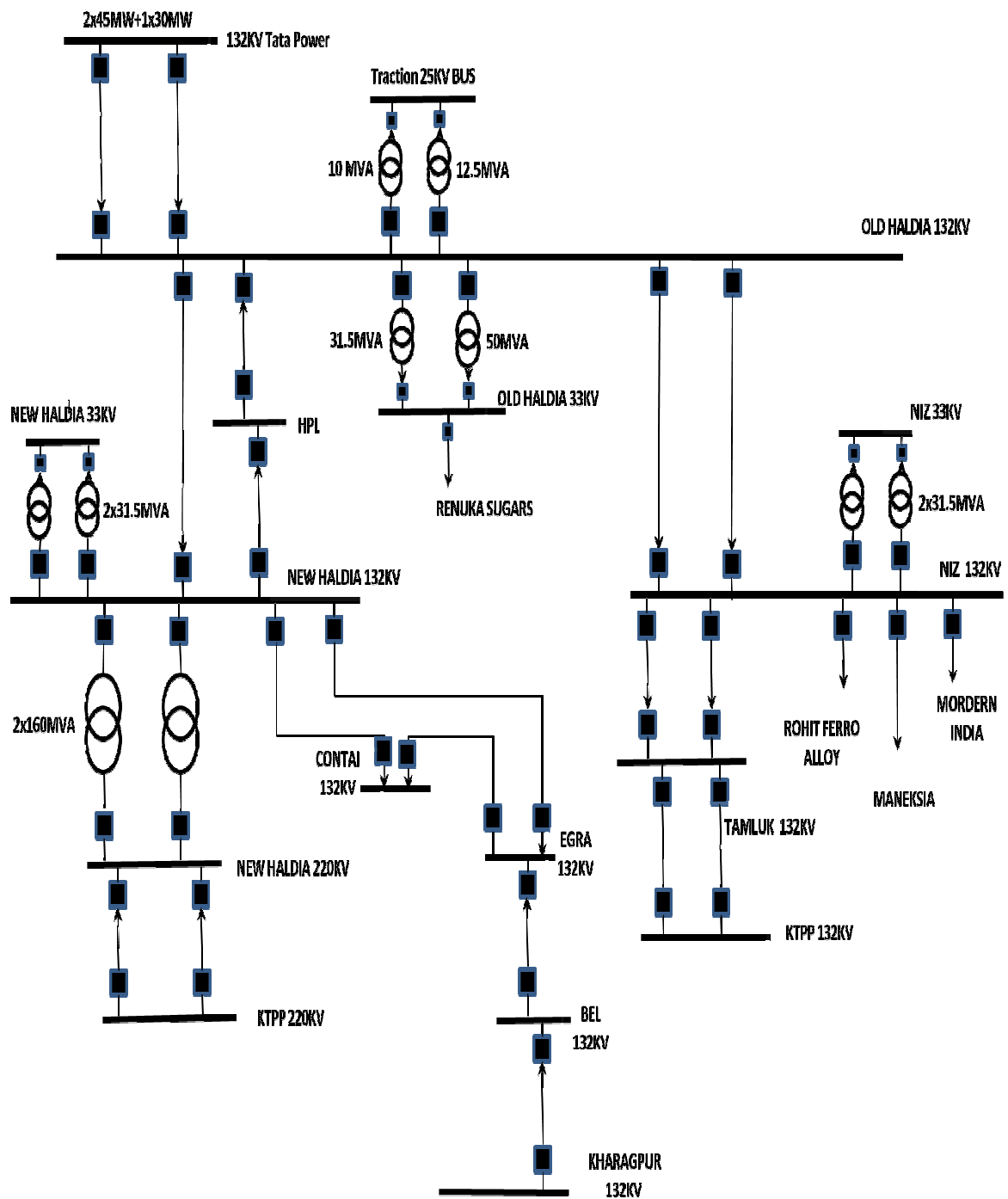
- Time of tripping of 33KV Hindustan Unilever and 33KV Wagon Factory at WBSETCL-Chiranjibpur is not known. These two feeders were contributing 5MW load as per substation data.
- The system frequency dropped from 49.9Hz to a minimum of 45.817Hz in 800ms. Here DF/DT is calculated as -5.1Hz/sec. Incorporation of DF/DT in initiation of Stage-1 Islanding may be reviewed.
- Possibility of increasing the existing over speed trip set points (52.5Hz) of units in consultation with OEM.
- Review of selection of feeders under Islanding Stage-2 and 3 from time to time based on changes in Generation and Load conditions.

### **Encl. Annexure:**

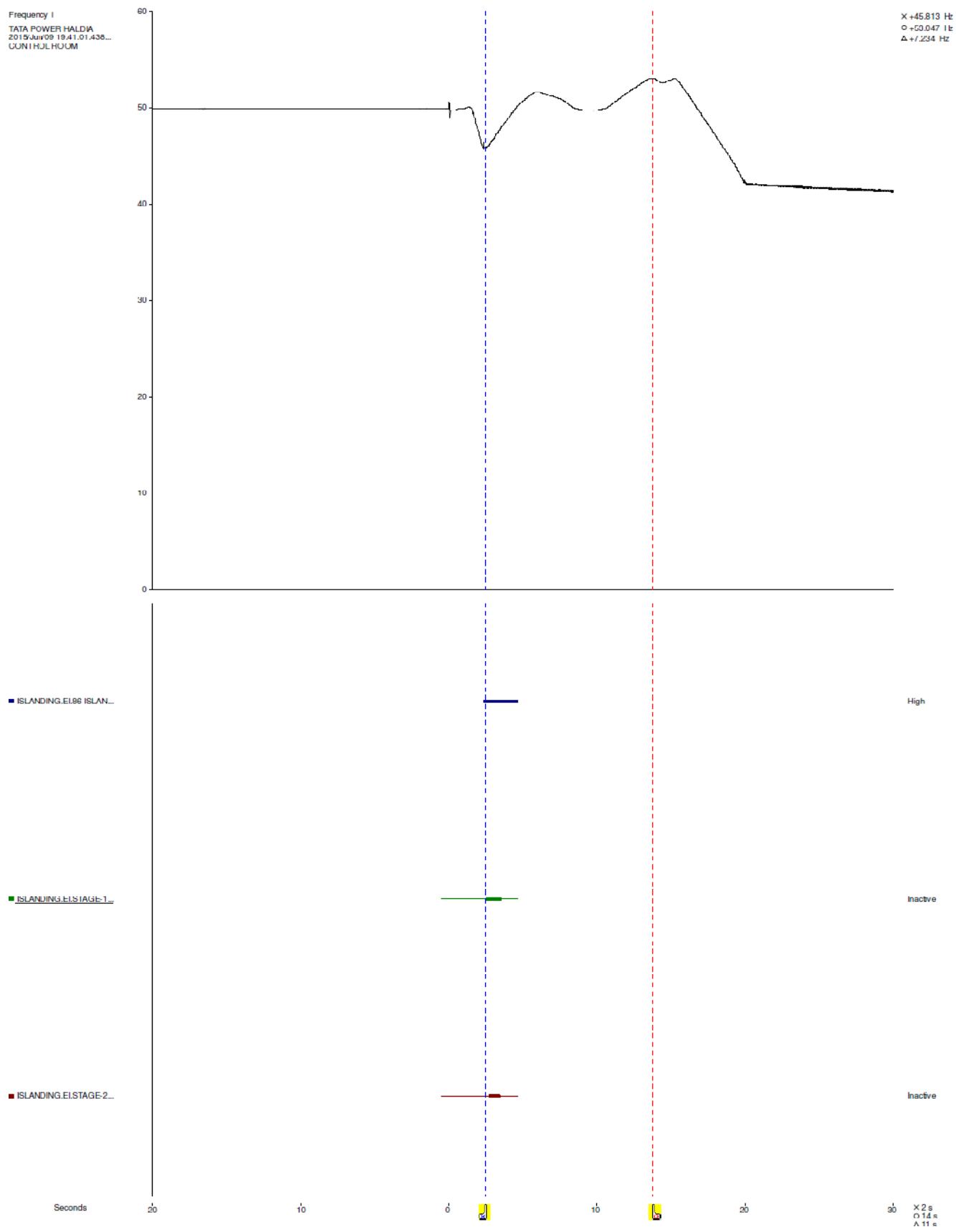
Annexure-1: SLD of 132KV Local Grid layout

Annexure-2: System frequency plot

## Annexure-1: SLD of 132KV Local Grid layout



# Annexure-2: System frequency plot





**Annexure- B.13**

**Third Party Protection Schedule**

|                    | Group-I       |                                       |  | Group-II      |  |   |
|--------------------|---------------|---------------------------------------|--|---------------|--|---|
| Itinerary of audit | Date of Audit | Substations                           | Lodging and Boarding   | Date of Audit | Substations                                | Lodging and Boarding  |
| Cluster-I          |               | Bidhannagar (WBSETCL) & Durgapur (PG) | Stay at DVC guest house  |               | Subhasgram (PG)                            | Transportation will be arranged by Powergrid  |
|                    |               | DSTPS(DVC) & Mejia (DVC)              | Transportation will be arranged by Powergrid   |               | Kolaghat (WBPDCCL) & Kharagpur (WBSETCL)   |   |
|                    |               |                                       |  |               | Jeerat (WBSETCL)                           |   |
|                    |               | Team member                           | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities                          |               | Team member                                | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities |
| Cluster-II         |               | Mendhasal (OPTCL)                     | Stay at Talcher, NTPC guest house  |               | Bakreswar (WBPDCCL) & Sagardighi (WBPDCCL) | Stay at Sagardighi Guest House, Transportation will be arranged by Powergrid  |
|                    |               | Talcher STPS (NTPC)                   | Transportation from Kolkata to Bhubaneswar & back will be arranged individual by organizations and rest of the transportations arrangement will be done by Powergrid |               | Farakka (NTPC) & Malda (PG)                | Stay at NTPC, Farakka Guest House, Transportation will be arranged by Powergrid   |
|                    |               | Angul & GMR                           |  |               |  |   |
|                    |               | Team member                           | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities                          |               | Team member                                | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities |

| Group-I       |   |   |   |
|---------------|---|---|---|
| Date of Audit | Substations   | Lodging and Boarding                                | Transport   |
|               | PPSP (WBSETCL) & Maithon (PG)   | Stay at Maithon PGCIL guest house                   | Transportation will be arranged by Powergrid  |
|               | Maithon RB (MPL) & Raghunathpur (DVC) (Audit only up to the commercially installed elements)  | Stay at Santladihi(WBPDCL) guest house              |   |
|               | Santladihi(WBPDCL) & Arambagh (WBSETCL)   | If required, stay at Santladihi(WBPDCL) guest house |   |
|               | Tisco(DVC)  | Stay at Jamshedpur, PGCIL guest house               | Audit team will reach Jamshedpur on their own transportation arrangement and rest of the transportation arrangement will be done by Powergrid |
|               | Jamshedpur (PG) & Ramchandrapur (JSEB)  | Stay at Jamshedpur, PGCIL guest house               | Transportation will be arranged by Powergrid  |
|               | Chandil(JSEB) & Ranchi(PG)  | Stay at Ranchi, PGCIL guest house                   | Transportation will be arranged by Powergrid  |
|               | Koderma (DVC) PTPS  |   | Audit team will return back from Koderma on their own transportation arrangement  |
| Team member   | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities |   |   |

| Group-II      |                                 |   |   |
|---------------|---------------------------------|---|---|
| Date of Audit | Substations                     | Lodging and Boarding                            | Transport   |
|               | Rourkela (PG) & Tarkera (OPTCL) | Stay at Rourkela PGCIL guest house              | Audit team will reach Rourkela on their own transportation arrangement and rest of the transportation arrangement will be done by Powergrid |
|               | Joda(OPTCL)                     | Stay at Baripada PGCIL guest house              | Transportation will be arranged by Powergrid  |
|               | Baripada (PG)                   | If required, stay at Baripada PGCIL guest house | Audit team will return back from Baripada on their own transportation arrangement   |
|               | Jaypore(PG)                     | Stay at Jaypore, PGCIL Guest House              | Audit team will reach Jaypore on their own transportation arrangement and rest of the transportation arrangement will be done by Powergrid  |

|                |   |   |  |
|----------------|---|---|--|
|                | Indravati (PG),<br>&<br>Indravati (OHPC)  | Stay at Indravati,<br>PGCIL Guest House               | Transportation will be arranged by Powergrid   |
|                | Jharsuguda  | Stay at PGCIL Guest<br>House                          | Transportation will be arranged by Powergrid   |
|                | Bolangir (PG)<br>&<br>Rengali (PG)  | If required, stay at<br>Rengali, PGCIL<br>Guest House | Audit team will return back from Rengali on<br>their own transportation arrangement  |
| Team<br>member | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities |   |  |
|                | Barh(NTPC) (Audit only up<br>to the commercially<br>installed elements)   | Stay at Kahalgaon,<br>NTPC Guest House                | Audit team will reach Barh(NTPC) on their own<br>transportation arrangement and rest of the<br>transportation arrangement will be done by<br>Powergrid |
|                | Kahalgaon (NTPC)  | Stay at Kahalgaon,<br>NTPC Guest House                | Transportation will be arranged by Powergrid   |
|                | Banka (PG)<br>&<br>Purnea (PG)  | Stay at Purnea,<br>PGCIL Guest House                  | Transportation will be arranged by Powergrid   |
|                | Dalkhola(PG)  |   | Audit team will return back from Dalkhola on<br>their own transportation arrangement   |
| Team<br>member | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities |   |  |

| Date of<br>Audit | Substations   | Lodging<br>and Boarding   | Transport   |
|------------------|---|---|---|
|                  | Parulia (DVC)   | Stay at Durgapur,<br>PG guest house.<br><br>Stay at Mejia, DVC<br>guest house | Audit team will reach Durgapur on their own<br>transportation arrangement and rest of the<br>transportation arrangement will be done by Powergrid |
|                  | Mejia (DVC)<br>&<br>Kalyaneswari<br>(DVC)   | Stay at Maithon,<br>PGCIL guest<br>house.                                     | Transportation will be arranged by Powergrid  |
|                  | Bokaro (DVC)  | Stay at TVNL guest<br>house.  | Transportation will be arranged by Powergrid  |
|                  | TVNL  | Stay at TVNL guest<br>house.  | Audit team will return back from Bokaro on their own<br>transportation arrangement  |
| Team<br>member   | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities |   |   |

| Group-II      |   |   |   |
|---------------|---|---|---|
| Date of Audit | Substations   | Lodging and Boarding                        | Transport   |
|               | Jamshedpur (DVC)  | Stay at Jamshedpur PGCIL guest house.       | Audit team will reach Jamshedpur on their own transportation arrangement and rest of the transportation arrangement will be done by Powergrid |
|               | Budipadar(OPTCL)  | Guest house will be arranged by OPTCL/OPGC. | Transportation will be arranged by Powergrid  |
|               | IB TPS (OPGC)   | If required, stay at OPGC guest house.      | Audit team will return back from IB TPS on their own transportation arrangement   |
| Team member   | One representative from ERPC<br>One representative from ERLDC<br>One representative from PGCIL<br>One representative from auditee utilities |   |   |

## Frequency Response Characteristic Calculation in Eastern Region

**EVEN** On 16-June-15 JP Nigire to Satna-2 is under planned shutdown. JP Nigire Gen 1137 MW is evacuated through JP Nigire-Satna-1. At 19:25 Hrs JP Nigire-Satna-1 tripped on R-Ph to Earth Fault resulting in JP Nigire Gen loss

| S No | Particulars   | Dimension | FSTPP I | FSTPP II | KhSTPP I | KhSTPP II | TSTPS-I | TSTPS-II(SR) | BARH  | Sterlite | MPL   | Adhunik | RHEP  | Teesta V | TALA  | CHUKHA | Bihar  | Jharkhand | DVC    | OPTCL  | WB     | SIKKIM | NK EXCHANGE | SK EXCHANGE | WK EXCHANGE | NER EXCHANGE | Bheramera HVDC 1 | Bheramera HVDC 2 | ER-IR total |
|------|---|-----------|---------|----------|----------|-----------|---------|--------------|-------|----------|-------|---------|-------|----------|-------|--------|--------|-----------|--------|--------|--------|--------|-------------|-------------|-------------|--------------|------------------|------------------|-------------|
| 1    | Actual Net Interchange before the Event (19:29:00)                        | MW        | -758    | -174     | -358     | -1145     | -944    | -1386        | -1    | -782     | -989  | -212    | -62   | -511     | -499  | -187   | 2475   | 504       | -700   | 508    | 2644   | 84     | -305        | -2402       | 352         | -347         | -222             | -221             | -3145       |
| 2    | Actual Net Interchange after the Event (19:31:30)                         | MW        | -762    | -174     | -358     | -1145     | -940    | -1372        | -1    | -769     | -984  | -217    | -62   | -511     | -497  | -189   | 2488   | 528       | -673   | 497    | 2660   | 83     | -288        | -2402       | 356         | -325         | -222             | -221             | -3102       |
| 3    | Change in Net Interchange (2 - 1)   | MW        | -4.6    | -0.6     | -0.5     | 0.0       | 4.7     | 14.2         | 0.0   | 12.1     | 5.1   | -4.1    | -0.1  | 0.0      | 1.4   | -1.7   | 12.9   | 23.7      | 27.6   | -11.5  | 16.2   | -0.6   | 17.0        | 0.0         | 4.0         | 22.2         | -0.1             | -0.1             | 43.0        |
| 4    | Generation Loss (+) / Load Throw off (-) during the Event                 | MW        | 0.0     | 0.0      | 0.0      | 0.0       | 0.0     | 0.0          | 0.0   | 0.0      | 0.0   | 0.0     | 0.0   | 0.0      | 0.0   | 0.0    | 0.0    | 0.0       | 0.0    | 0.0    | 0.0    | 0.0    | 0.0         | 0.0         | 0.0         | 0.0          | 0.0              | 0.0              | 0.0         |
| 5    | Control Area Response (3 - 4)   | MW        | -4.6    | -0.6     | -0.5     | 0.0       | 4.7     | 14.2         | 0.0   | 12.1     | 5.1   | -4.1    | -0.1  | 0.0      | 1.4   | -1.7   | 12.9   | 23.7      | 27.6   | -11.5  | 16.2   | -0.6   | 17.0        | 0.0         | 4.0         | 22.2         | -0.1             | -0.1             | 43.0        |
| 6    | Frequency before the Event  | HZ        | 49.87   | 49.87    | 49.87    | 49.87     | 49.87   | 49.87        | 49.87 | 49.87    | 49.87 | 49.87   | 49.87 | 49.87    | 49.87 | 49.87  | 49.87  | 49.87     | 49.87  | 49.87  | 49.87  | 49.87  | 49.87       | 49.87       | 49.87       | 49.87        | 49.87            | 49.87            | 49.87       |
| 7    | Frequency after the Event   | HZ        | 49.62   | 49.62    | 49.62    | 49.62     | 49.62   | 49.62        | 49.62 | 49.62    | 49.62 | 49.62   | 49.62 | 49.62    | 49.62 | 49.62  | 49.62  | 49.62     | 49.62  | 49.62  | 49.62  | 49.62  | 49.62       | 49.62       | 49.62       | 49.62        | 49.62            | 49.62            | 49.62       |
| 8a   | Change in Frequency (7 - 6)   | HZ        | -0.24   | -0.24    | -0.24    | -0.24     | -0.24   | -0.24        | -0.24 | -0.24    | -0.24 | -0.24   | -0.24 | -0.24    | -0.24 | -0.24  | -0.24  | -0.24     | -0.24  | -0.24  | -0.24  | -0.24  | -0.24       | -0.24       | -0.24       | -0.24        | -0.24            | -0.24            | -0.24       |
| 8    | Effective change in Frequency considering RGMO *                          | HZ        | -0.24   | -0.24    | -0.24    | -0.24     | -0.24   | -0.24        | -0.24 | -0.24    | -0.24 | -0.24   | -0.24 | -0.24    | -0.24 | -0.24  | -0.24  | -0.24     | -0.24  | -0.24  | -0.24  | -0.24  | -0.24       | -0.24       | -0.24       | -0.24        | -0.24            | -0.24            | -0.24       |
| 9    | Frequency Response Characteristic (5 / 8)                                 | MW/HZ     | 19      | 2        | 2        | 0         | -19     | -58          | 0     | -49      | -21   | 17      | 0     | 0        | -6    | 7      | -53    | -97       | -113   | 47     | -66    | 3      | -69         | 0           | -16         | -91          | 0                | 0                | -176        |
| 10   | Net System Demand met before the Event                                    | MW        | 0       | 0        | 0        | 0         | 0       | 0            | 0     | 0        | 0     | 0       | 0     | 0        | 0     | 0      | 2715   | 893       | 2553   | 3481   | 6997   | 84     |             |             |             |              |                  |                  | 16722       |
| 11   | Internal Generation before the Event (10 - 1)                             | MW        | 758     | 174      | 358      | 1145      | 944     | 1386         | 1     | 782      | 989   | 212     | 62    | 511      | 499   | 187    | 240    | 389       | 3253   | 2973   | 4353   | 0      | 305         | 2402        | -352        | 347          | 222              | 221              | 19867       |
| 12   | Ideal load response assuming 4% per Hz (0.04*Row 10)                      | MW/Hz     | 0.0     | 0.0      | 0.0      | 0.0       | 0.0     | 0.0          | 0.0   | 0.0      | 0.0   | 0.0     | 0.0   | 0.0      | 0.0   | 0.0    | 108.6  | 35.7      | 102.1  | 139.2  | 279.9  | 3.4    | 0.0         | 0.0         | 0.0         | 0.0          | 0.0              | 0.0              | 668.9       |
| 13   | Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11) | MW/Hz     | 303.1   | 69.4     | 143.2    | 458.0     | 377.7   | 554.4        | 0.2   | 312.6    | 395.5 | 85.0    | 24.8  | 204.2    | 199.4 | 75.0   | 96.0   | 155.4     | 1301.2 | 1189.1 | 1741.2 | 0.0    | 121.9       | 960.7       | -140.7      | 138.7        | 88.8             | 88.5             | 7946.8      |
| 14   | Composite ideal response (12 + 13)  | MW/Hz     | 303.1   | 69.4     | 143.2    | 458.0     | 377.7   | 554.4        | 0.2   | 312.6    | 395.5 | 85.0    | 24.8  | 204.2    | 199.4 | 75.0   | 204.6  | 191.1     | 1403.3 | 1328.3 | 2021.1 | 3.4    | 121.9       | 960.7       | -140.7      | 138.7        | 88.8             | 88.5             | 8615.7      |
| 15   | Percentage of ideal response {(9/14)x100}                                 | %         | 6.3%    | 3.5%     | 1.5%     | 0.0%      | -5.1%   | -10.5%       | 58.5% | -15.8%   | -5.2% | 19.6%   | 1.4%  | 0.0%     | -2.8% | 9.3%   | -25.8% | -50.7%    | -8.0%  | 3.5%   | -3.3%  | 74.9%  | -57.0%      | 0.0%        | 11.7%       | -65.6%       | 0.6%             | 0.4%             | -2.0%       |

\* In RGMO mode, generation should not be reduced for load throw off when freq <= 50.05 Hz  
Note: +ve exchange=> import; (-)ve exchange => export  
Talcher Stage II generation is considered inside ER for calculating Regional FRC.  
As ISGS is generating Power (Hence Export), -Ve value is shown for their power exchange

### **Latest status on non-availability of SCADA data**

It was informed by ERLDC that some constituents are not updating single line diagram in SCADA as per actual real time network and same is causing lack of network visibility.

All constituents agreed to update SCADA single line diagram as per real network time to time and will furnished the same to ERLDC also.

The status as updated in the SCADA meeting is as given below:

- i) List of additional elements/feeders whose data is not available – station under ULDC project:

| SL no | Name of Utility | KV  | Name of station    | Reason for non reporting        | Latest status  |
|-------|-----------------|-----|--------------------|---------------------------------|--|
| 1     | OPTCL           | 220 | Vedanta (9x135 MW) | No status points are available. | No isolators status are available. MW/ MVAR not available for sterlite 1/2 line, station transformer / Smelter. CBs of Bus coupler not available. Bus-1 KV/ HZ not available.<br><br><b>Problem still not resolved</b> |

- ii) The List of RTU supplied under BSEB ULDC Project but data is faulty/ intermittent:

| S/n | Name of RTU locations   | Latest status  | Remarks   |
|-----|---|--|---|
| 1   | Jakkanpur, Khagaul RTU, Dumraon, Karmnasha, Sitamarhi, , Purnea & Koshi | Data is reporting intermittently.  | 1) Data integrated through GPRS will be intermittent till Final communication packages is implemented ( Already awarded to PGCIL for execution ).<br>2) ALL RTU will be report to SLDC patna subject to availability of communication system ( Already Awarded to PGCIL )<br>3) New RTU is being integrated with OSI systems and this RTU will report to ERLDC once ERLDC OSI system is ready.<br><br><b>Problem still not resolved</b> |
| 2   | Hathidah, Lakhisarai & Darbhanga  | Data is reporting intermittently.. Due to re-conductoring work in Darbhanga-Samastipur T/L, Darbhanga is not reporting temporarily.  |   |
| 3   | BTPS  | RTU dismantled. Renovation/overhauling work is going on. SAS is expected to be operational by the November, 2014.  |   |
| 4   | 220 kV Hajipur  | <i>Hajipur is temporarily down, BSPTCL working to restore it.</i>  |   |
| 5   | Jagdishpur, Sipara, Madhepura   | RTU has been supplied by PGCIL under Sub-transmission project of Bihar but commissioning is left out. Now, it will be done in ULDC upgradation scheme.   |   |
| 6   | Siwan, Valmikinagar, Gopalganj, Kisanganj and Arrah                     | RTU along with communication has been included in the scope of work of Powergrid under up gradation/ replacement scheme of ULDC. It was scheduled to be completed by Oct'14. <i>RTU supplied by M/s. Chemtrols except Darbhanga. RTU reached site.</i> |   |

## Annexure- B29

iii) The updated status of telemetry of JSEB Sub-Stations under ULDC project is as given below:

| Sl. No. | Name of the RTU location | Latest status  | Remarks   |
|---------|--------------------------|--|---|
| 1       | Ramchandrapur            | Reporting is interrupted because of problem in PLCC link between Candil & Ramchandrapur. CVT brusted at Ramchandrapur bay and requires replacement. Arrangement in being done for its replacement.   | 1) RTU's CPU Card sent to Bhubaneswar for repairing .<br>2) All RTU will restored by Mid March 2015.<br><br><b>Problem still not resolved. None of real time data available since 15/06/15.</b> |
| 2       | Jamtara                  | Jamtara RTU has been shifted in new control room. POWER GRID has been requested to reintegrate the feeders in RTU as integration of additional feeder (new element) in the existing RTU. <i>Powergrid informed that Advance Payment towards new element integration is pending since long. After payment, M/s. ALSTOM will give the schedule of site visit for feeder integration.</i> |   |
| 3       | Deoghar                  | Both LMU & LMDU rusted at Jamtara. Arrangement inbeing done for its replacement. Deoghar-Jamtara-Maithon link is interrupted also because of snatching of patching cable at Maithon (G) and Maithon (SLDC). This was found during survey of sites with M/s PUNCOM which will be corrected by the agency under AMC. AMC by PUNCOM has been started.                                     |   |
| 4       | Garawah                  | Garawah RTU will be restored when it will be connected from Ranchi end through Hatia-Loherdaga-Latehar-Daltonganj –Garwah Transmission lie.  |   |
| 5       | Kendposi                 | Reporting is interrupted because of shifting of Chandil bay at Rajkharsawan. PLCC outdoor equipment has been shifted recently to new location of Chandil bay at RKSJ. Some work like termination of co-axial cable will be done soon.  |   |
| 6       | Goelkera                 |  |   |
| 7       | Jadugoda                 | Co-axial cable faulty at Golmuri (Chandil bay)   |   |

iv) The updated status of telemetry of OPTCL Sub-Stations under ULDC project is project as given below:

| S/n | Name of RTU Locations | Latest status   |
|-----|-----------------------|---|
| 1   | Nalco                 | OPTCL informed that RTU is reporting but intermittent since it was not configured properly. The issue was already taken up with Nalco and it will be resolved soon.<br><br>OPTCL has resolved the issue. Some Unit generation polarity will be resolved by Feb 2015.<br><br><b>Problem still not resolved</b> |

## v) RTU telemetry provided but data are intermittent / new element not wired.

| SL No | Name of station/ Utility | Reason for non reporting                                | Latest status  |
|-------|--------------------------|---|--|
| I     | Lalmatia JSEB            | MW / MVAR/ OLTC tap of 220/132 KV ICT –II not available | MW/MVAR/OLTC tap of 220/132 KV ICT-II not available.<br>Will be complete during additional feeder integration, no time frame.<br><b>Problem still not resolved</b> |
| II    | JSPL (Meramundali - 400) | Most of the data not available .                        | OPTCL informed that they are taking matter with JSPL.<br><b>Problem still not resolved</b>   |
| IV    | DVC                      |   |  |
|       | Patherdiah,              |   | RTU reached site.<br>commissioned within Feb 2015.<br><b>(RTU Commissioned but not integrated with SLDC.)</b>  |
|       | Kalipahari               |   | RTU reached site.<br><br><b>(RTU Commissioned but not integrated with SLDC.)</b>   |

## vi) Sub - Stations (220 &amp; 132 kV) Telemetry not provided :

| SL No | Name of station/ Utility  | Reason for non reporting            | Latest status   |
|-------|---|-------------------------------------|---|
| I     | WBSETCL   |                                     |   |
|       | Krishna Nagar   | RTU not provided for data telemetry | RTU integrated .  |
|       | Kalingpong  |                                     | RTU is reporting.   |
|       | Karseong  |                                     | RTU commissioned. Communication link to be provided by WBSETCL.<br><br>WBSETCL requested M/s PGCIL to commissioned one Mux ( to be provided by M/s WBSETCL ) at Siliguri (220) S/s (PGCIL) for integration of the voice and data of Kurseong substation .<br><br>POWERGRID agreed for the same and subject to technical feasibility.<br><br><b>( Data reporting )</b> |
|       | CESC S/s: EM 220 kV   |                                     | CESC control centre ICCP will be integrated with WB's new OSI system by April 2015.<br><b>WBSETCL confirmed that same will available TO OSI system by 31<sup>st</sup> July 2015.</b>  |
|       | CESC : Kasba-132 kV, EM-132 kV Jadavpur, Chakmir, Majerhat and CESC Belur |                                     | CESC control centre ICCP will be integrated with WB's new OSI system by April 2015.<br><b>WBSETCL confirmed that same will available TO OSI system by 31<sup>st</sup> July 2015.</b>  |



## Annexure- B29

|    |                   |  |  |
|----|-------------------|--|--|
| II | JSEB              |  |  |
|    | Hatia New         | <b>RTU not provided for data telemetry</b> | Hatia SAS to be integrated with SLDC. No time frame.   |
|    | Manique (Chandil) |  | By Feb 2015 all RTUs will be supplied. No commissioning time frame.<br><b>Problem still not resolved</b> |
|    | Japla             |  | By Feb 2015 all RTUs will be supplied. No commissioning time frame.<br><b>Problem still not resolved</b> |

### Unavailability Of Critical Real Time data :

| Name of station/ Utility                    | Not reporting since | ERLDC Remarks   |
|---|---------------------|---|
| MPL   | 20/03/15            | In-between reported for 15 days and again down.                           |
| SEL   | 24/06/15            | Status and CBs, SOE point of Old switch yard not available since 01/05/15 |
| APNRL                                       | 1/5/2015            |   |
| Sasaram ( 765)                              | 13/05/15            |   |
| GMR   | Since Generation    | None of Unit side data and protection signal available                    |
| Gaya ( 765)                                 | 23/05/15            |   |
| Lakhisarai (400)                            | 22/05/15            |   |
| Sagardighi (400)                            | 28/04/15            |   |
| Maithon (400)                               | 01/06/15            | Started reporting since last 5 days but highly Intermittent.              |
| Nabinagar (400)                             | 28/12/14            |   |
| JUSNL (JSEB ):<br>None of data is available | 15/06/15            |   |

## Maintenance Schedule of Thermal Generating Units for July, 2015

| System | Station     | Unit | Size (MW) | period   |          | No. of Days | Reason   |
|--------|-------------|------|-----------|----------|----------|-------------|--|
|        |             |      |           | From     | To       |             |  |
| BSPTCL | MTPS (KUNL) | 1    | 110       | 01.07.15 | 31.07.15 | 31          | Boiler Overhaul, Burner Inspection and Duct Repair |
| DVC    | MTPS        | 2    | 210       | 15.07.15 | 30.07.15 | 16          | Burner Replacement                                 |
|        | BTPS'B      | 1    | 210       | 27.07.15 | 16.08.15 | 21          | AOH (Blr, ESP)                                     |
|        | CTPS        | 8    | 250       | 01.07.15 | 26.07.15 | 26          | AOH  |
| ODISHA | TTPS        | 5    | 110       | 27.07.15 | 15.08.15 | 20          | Boiler Overhaul + ESP R&M                          |
| WBPDCI | KTPS        | 3    | 210       | 01.07.15 | 20.07.15 | 20          | Boiler Overhauling (It may differ)                 |
| NTPC   | FSTPS       | 4    | 500       | 30.07.15 | 03.09.15 | 36          | Boiler+LPT+DDCMIS+HP Module Replacement            |
|        | TSTPS       | 3    | 500       | 15.07.15 | 10.09.15 | 58          | Boiler Modification                                |

**EASTERN REGIONAL LOAD DESPATCH CENTRE  
KOLKATA**

**TRANSMISSION ELEMENTS OUTAGE APPROVED IN 110TH OCC MEETING OF ERPC**

| Sr. No | NAME OF THE ELEMENTS   | DATE       | TIME  | DATE       | TIME  | REMARKS | S/D availed BY  | Reason  | SUBJECT TO CONSENT FROM AGENCY  |
|--------|--|------------|-------|------------|-------|---------|-----------------|---|---|
| 1      | 400 KV Rourkela - Raigarh # 2 L/R  | 30-06-15   | 08:00 | 05-07-15   | 18:00 | OCB     | ER-II,Odisha    | Off-line Dry Out of Reactor.  | NLDC  |
| 2      | 400 KV BSF - SSRM - I  | 30-06-2015 | 09:00 | 30-06-2015 | 17:30 | ODB     | ER-I            | BAY SWAPPING WORK AT BSF  |   |
| 3      | 221 KV MTN-DHANBAD-II  | 30-06-15   | 09:00 | 30-06-15   | 17:00 | ODB     | ER-II           | CVT Replacement   | DVC   |
| 4      | 400KV Binaguri-Rangpo-I & 400KV Rangpo-Teesta-I                            | 30-06-2015 | 08:30 | 28-07-2015 | 17:30 | ODB     | ULDC/PG         | OPGW STRINGING WORK   | TEESTA  |
| 5      | A/R 220KV Malda - Dalkhola Ckt- 1 & 2                                      | 30-06-2015 | 08:30 | 28-07-2015 | 17:30 | ODB     | ULDC/PG         | OPGW STRINGING WORK   | EITHER MALDA - DALKHOLA OR SILIGURI - DALKHOLA, ONE WILL BE ALLOWED AT A TIME.  |
| 6      | A/R 220KV Siliguri - Dalkhola Ckt- 1 & 2:                                  | 30-06-2015 | 08:30 | 28-07-2015 | 17:30 | ODB     | ULDC/PG         | OPGW STRINGING WORK   | EITHER MALDA - DALKHOLA OR SILIGURI - DALKHOLA, ONE WILL BE ALLOWED AT A TIME.  |
| 7      | A/R 400 KV Baripda-Keonjhar - Rengali                                      | 30-06-2015 | 08:30 | 28-07-2015 | 17:30 | ODB     | ULDC/PG         | OPGW STRINGING WORK   | The shutdown was also approved earlier. Please mention the detail work schedule. Shutdown will be allowed subject to real time condition. Either Bolangir - Anugul or Baripada - Keonjhar one A/R shutdown will be allowed. |
| 8      | A/R 400KV Bolangir-Angul   | 30-06-2015 | 08:30 | 28-07-2015 | 17:30 | ODB     | ULDC/PG         | OPGW STRINGING WORK   | The shutdown was also approved earlier. Please mention the detail work schedule. Shutdown will be allowed subject to real time condition. Either Bolangir - Anugul or Baripada - Keonjhar one A/R shutdown will be allowed. |
| 9      | 400 KV MTN - GAYA -1   | 30-06-2015 | 08:00 | 30-06-2015 | 18:00 | ODB     | POWERGRID/ GAYA | FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS.                                      |   |
| 10     | 220 KV BALIMELA - UPPER SILERU   | 30-06-2015 | 08:00 | 30-06-2015 | 17:00 | ODB     | OPTCL           | 3 NO OF CT REPLACEMENT OF BALIMELA - JAYANAGAR - III AT BALIMELA                          |   |
| 11     | 765/400 KV 1500 MVA ICT - I AT NRNC  | 30-06-2015 | 08:00 | 30-06-2015 | 18:00 | ODB     | ER-I            | CONSTN. WORK RELATED TO DAHARAMJAYGARH -2 LINE  | NLDC  |
| 12     | 400 KV S/C UIHEP TIE BAY at Indravati                                      | 01-07-15   | 08:00 | 02-07-15   | 19:00 | ODB     | ER-II,Odisha    | Testing of CB & ISOLATORS OF NEW 125 B/R  | OPTCL   |
| 13     | 125 MVAR Bus Reactor at Rourkela   | 01-07-15   | 09:00 | 01-07-15   | 18:00 | ODB     | ER-II,Odisha    | Commissioning of CSD in Tie Bay ( Bay No.-426) and Commissioning of Fire Fighting System. |   |
| 14     | 125 MVAR B/R -2 AT PATNA   | 01-07-2015 | 09:30 | 15-07-2015 | 18:30 | ODB     | ER-I            | FOR CONSTRUCTION OF FIRE WALL   |   |
| 15     | 765 KV GAYA - BALIA  | 01-07-2015 | 08:00 | 03-07-2015 | 17:00 | ODB     | ER-I            | REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS   | NLDC  |
| 16     | 100 MVA ICT -1 AT 220/132 KV PURNEA S/S                                    | 01-07-2015 | 08:00 | 27-09-2015 | 18:00 | OCB     | ER-I            | RETROFITING OF OLD 100 MVA ICT - 1 BY NEW 160 MVA ICT                                     | BIHAR   |
| 17     | 220 KV BUS -1 AT PRN   | 01-07-2015 | 10:00 | 01-07-2015 | 18:00 | ODB     | ER-I            | FOR DISMANTALING OF ICT -1 BAY , 220 KV MAIN BUS -1 ISOLATORS                             | BIHAR   |
| 18     | A/R OF 400KV KHLG-MTN-2  | 01-07-2015 | 07:00 | 31-07-2015 | 18:00 | ODB     | ER-I            | FOR INSTALLATION OF OPGW WORK   |   |
| 19     | A/R OF 400KV KHLG-BARH-2   | 01-07-2015 | 07:00 | 31-07-2015 | 18:00 | ODB     | ER-I            | FOR INSTALLATION OF OPGW WORK   |   |
| 20     | 400 KV Rourkela - Raigarh # 2  | 01-07-15   | 09:00 | 01-07-15   | 18:00 | ODB     | ER-II,Odisha    | AMP Work  | NLDC  |
| 21     | 400KV Bus-I AT BARIPADA  | 01-07-15   | 08:00 | 01-07-15   | 16:00 | ODB     | ER-II,Odisha    | To rectify Bus Isolator allignment  |   |
| 22     | 400KV Maithon-Jamshedpur   | 01-07-15   | 08:00 | 08-07-15   | 17:00 | ODB     | ER-II           | Insulator replacement   |   |
| 23     | 400 KV Maithon-DGP Line-1  | 01-07-15   | 10:00 | 01-07-15   | 14:00 | ODB     | ER-II           | Wave trap jumper to be replaced. Damged due to LOAD current                               |   |
| 24     | 400 KV MTN - GAYA - 1 AND 400 KV KOD. - GAYA - 2                           | 01-07-2015 | 08:00 | 01-07-2015 | 18:00 | ODB     | POWERGRID/ GAYA | FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS.                                      | NLDC  |
| 25     | 220 KV MERAMUNDALI - BHANJANGAR - II                                       | 01-07-2015 | 08:00 | 17-07-2015 | 17:00 | ODB     | OPTCL           | CONSTRUCTION OF 400 KV IB - MERAMUNDALI   |   |
| 26     | 765/400 KV 1500 MVA ICT - 2 AT NRNC  | 01-07-2015 | 08:00 | 01-07-2015 | 18:00 | ODB     | ER-I            | CONSTN. WORK RELATED TO DAHARAMJAYGARH -2 LINE  | NLDC  |
| 27     | 100 MVA ICT - I AT ARA   | 01-07-2015 | 08:00 | 01-07-2015 | 10:00 | ODB     | ER-I            | FOR SWEEP FREQUENCY TAN DELTA MEASUREMENT OF BUSHINGS                                     | BIHAR   |
| 28     | 400 KV SEL - Raigarh # 2   | 02-07-15   | 06:00 | 02-07-15   | 18:00 | ODB     | ER-II,Odisha    | For tightening of Jumpers, Corona Ring tightening at various locations                    | SEL/NLDC  |
| 29     | 63 MVAR L/R OF PATNA KISHANGANJ LINE- II AT PATNA (PRESENTLY USED AS B/R ) | 02-07-2015 | 09:30 | 12-07-2015 | 18:30 | ODB     | ER-I            | FOR ERECTION & COMMISSIONING OF TIE BAY AND LINE SIDE EQUIPMENTS AND PLCC WORK.           |   |
| 30     | TIE BAY OF KAHALGAON - BANKA -1 & B/R AT BANKA                             | 02-07-2015 | 10:30 | 02-07-2015 | 17:30 | ODB     | ER-I            | FOR COMMISSIONING OF CSD DEVICE IN TIE BREAKER OF B/R                                     |   |
| 31     | 400 KV JSR - BARIPADA LINE   | 02-07-2015 | 08:30 | 02-07-2015 | 17:00 | ODB     | ER-I            | REPLACEMENT OF DEFECTIVE INSULATOR DAMAGED BY MISCREANTS                                  |   |
| 32     | 220 KV BUS -2 AT PRN   | 02-07-2015 | 10:00 | 02-07-2015 | 18:00 | ODB     | ER-I            | FOR DISMANTALING OF ICT -1 BAY , 220 KV MAIN BUS -2 ISOLATORS                             |   |
| 33     | 400 KV SSRM - NABINAGAR D/C  | 02-07-2015 | 07:00 | 02-07-2015 | 18:00 | ODB     | ER-I            | FOR CONSTRUCTION OF EXTN. OF 400 KV D/C BSF -SSRM - 3 & 4 TO VARANASI                     | NABINAGAR   |
| 34     | 400 KV BOKARO - KODERMA - I & II AND 220 KV BSF - TENUGHAT                 | 02-07-2015 | 07:00 | 03-07-2015 | 18:00 | ODB     | ER-I            | TO SET RIGHT THE CLEARANCE BETWEEN BOKARO - KODERMA AND 220 KV BSF - TENUGHAT             | BIHAR & JHARKHAND & DVC   |

|    |  |            |             |            |             |     |                    |   |  |
|----|--|------------|-------------|------------|-------------|-----|--------------------|---|--|
| 35 | 400 KV MALDA-FARAKKA-II  | 02-07-15   | 09:00       | 18-07-15   | 18:00       | OCB | ER-II              | FOR CB, LINE ISOLATOR, CT, CVT, LA & WAVE TRAP ERECTION AT MALDA & FARAKKA END.   |  |
| 36 | 400 KV MTN - GAYA -2 AND 400 KV KOD.-GAYA -1   | 02-07-2015 | 08:00       | 05-07-2015 | 18:00       | ODB | POWERGRID/<br>GAYA | FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS.  |  |
| 37 | 400KV BUS-2 AT NRNC  | 02-07-2015 | 08:00       | 02-07-2015 | 18:00       | ODB | ER-I               | FOR JUMPERING OF 400KV BUS-II EXTENSION   | NLDC   |
| 38 | 100 MVA ICT -II AT ARA   | 02-07-2015 | 06:00       | 02-07-2015 | 10:00       | ODB | ER-I               | FOR SWEEP FREQUENCY TAN DELTA MEASUREMENT OF BUSHINGS   | BIHAR  |
| 39 | Rengali-Jeypore TIE bay at Indravati   | 03-07-15   | 06:00       | 03-07-15   | 19:00       | ODB | ER-II,Odisha       | Replacement of 2 nos. CTs(H2Violation)  |  |
| 40 | 400 KV MALDA-PURNEA-II   | 03-07-15   | 08:00       | 03-07-15   | 17:00       | ODB | ER-II              | FOR BAY AMP.  |  |
| 41 | 400KV D/C Berhampore-Bheramara Ckt-2   | 03-07-15   | 10:00 Hours | 03-07-15   | 17:00 Hours |     | ER-II              | AMP of Line Bay Equipments  | NLDC   |
| 42 | 80 MVAR B/R AT BANKA   | 03-07-2015 | 11:00       | 03-07-2015 | 14:00       | ODB | ER-I               | FOR COMMISSIONING OF CSD DEVICE IN TIE BREAKER OF B/R   |  |
| 43 | 220KV GAYA(PGCIL) - DEHRI(BSPTCL) - I & II   | 03-07-2015 | 08:00       | 03-07-2015 | 16:00       | ODB | ER-I               | FOR CROSSING OF 765 KV GAYA - VARANASI T/L  | BIHAR  |
| 44 | 220 KV Bus - I at Rourkela   | 03-07-15   | 09:00       | 03-07-15   | 18:00       | ODB | ER-II,Odisha       | AMP Work  | OPTCL  |
| 45 | 400KV, 63MVARBaripada- Mendhasal Line2 Reactor AT BARIPADA   | 03-07-15   | 08:00       | 03-07-15   | 16:00       | ODB | ER-II,Odisha       | Commissioning of Cooling fan  |  |
| 46 | 315MVA ICT#1 AT BARIPADA   | 03-07-15   | 08:00       | 03-07-15   | 16:00       | ODB | ER-II,Odisha       | 220KV R-ph CT replacement   | OPTCL  |
| 47 | 400 KV Maithon-DGP Line-2  | 03-07-15   | 10:00       | 03-07-15   | 14:00       | ODB | ER-II              | Line side isolator in Tie bay Jumper to be replaced.  |  |
| 48 | 315 MVA ICT-V & 400 KV BUS-II at Malda   | 03-07-15   | 08:00       | 03-07-15   | 17:00       | ODB | ER-II              | NTAMC ADAPTION WORK & ISOLATOR REPAIR WORKS.  | WBSETCL  |
| 49 | 400KV Farakka-Sagardighi line  | 03-07-15   | 09:30       | 03-07-15   | 17:30       | ODB | NTPC               | Bay Maintenance   | NLDC   |
| 50 | 765KV BUS-1 AT NRNC  | 03-07-2015 | 08:00       | 03-07-2015 | 18:00       | ODB | ER-I               | FOR JUMPERING OF 765KV BUS-I EXTENSION  | NLDC   |
| 51 | 315 MVA ICT - I AT PATNA   | 03-07-2015 | 10:00       | 04-07-2015 | 18:00       | OCB | ER-I               | REPLACEMENT OF AIRCELL AT PATNA   | BIHAR  |
| 52 | 400KV Baripada- Mendhasal CKT-I & II   | 04-07-15   | 07:00       | 04-07-15   | 17:00       | ODB | ER-II,Odisha       | Rectification of low sag ACSR moose conductor between loc. No.-224 to 225 of 400KV D/C BPD-MSDL Line  | OPTCL  |
| 53 | BUS-I & BUS-II at Indravati s/s (During this period 400 KV s/c Indravati(PG)-Indravati(ohpc) will be isolated condition) | 04-07-15   | 06:00       | 04-07-15   | 19:00       | ODB | ER-II,Odisha       | For erection & commissioning of 2 nos. of Bus CVT in bay Extension work.  | OPTCL/ Separate shutdown of BUS - I & II may be envisaged.       |
| 54 | 132 KV BUS at Birpara  | 04-07-15   | 09:00       | 04-07-15   | 10:00       | ODB | ER-II              | Isolator retrofitting (Isolator No. 104 -89M1)  | WBSETCL/ There will be no powerflow to WBSEB during this period. |
| 55 | Main bay of ICT-I (132 KV ) at Birpara   | 04-07-15   | 09:30       | 05-07-15   | 17:00       | OCB | ER-II              | Isolator retrofitting (Isolator No. 104 -89M1)  |  |
| 56 | 400 KV JSR - DURGAPUR  | 04-07-2015 | 09:00       | 04-07-2015 | 13:00       | ODB | ER-I               | TESTING OF AUTO RECLOSE RELAY AT JSR END.   |  |
| 57 | 400 KV BSF - BALIA - I   | 04-07-2015 | 08:00       | 05-07-2015 | 18:00       | ODB | POWERGRID/<br>ARA  | FOR ATTENDING INSULATORS AND CONDUCTOR DAMAGED BY MISCREANTS.   | NLDC   |
| 58 | 400KV Baripada-Mendhasal CKT-II  | 04-07-2015 | 07:00       | 07-07-2015 | 17:00       | OCB | ER-II,Odisha       | PLCC panel dismantling, erection at Baripada end and same erection at Duburi end and completion of various testing of LILO line.  | OPTCL  |
| 59 | BUS-I & BUS-II at Indravati s/s (During this period 400 KV s/c Indravati(PG)-Indravati(ohpc) will be isolated condition) | 05-07-15   | 06:00       | 05-07-15   | 19:00       | ODB | ER-II,Odisha       | For erection & commissioning of 2 nos. of Bus CVT in bay Extension work.  | OPTCL/ Separate shutdown of BUS - I & II may be envisaged.       |
| 60 | 132 KV BUS at Birpara  | 05-07-15   | 16:00       | 05-07-15   | 17:30       | ODB | ER-II              | Isolator retrofitting (Isolator No. 104 -89M1)  | WBSETCL/There will be no powerflow to WBSEB during this period.  |
| 61 | 400 KV BSF - LKS - I & II  | 05-07-2015 | 07:00       | 10-07-2015 | 18:00       | ODB | ER-I               | FOR BAY SWAPPING AT BSF /CONSTRUCTION OF MULTI CKT. PORTION   | NLDC   |
| 62 | 220 KV Bus - II at Rourkela  | 05-07-15   | 09:00       | 05-07-15   | 18:00       | ODB | ER-II,Odisha       | AMP Work  | OPTCL  |
| 63 | 400 KV Sundargarh - Raigarh # 2  | 05-07-15   | 09:00       | 05-07-15   | 18:00       | ODB | ER-II,Odisha       | For tightening of Jumpers, Corona Ring tightening at various locations  | NLDC   |
| 64 | 400 KV S/C UIHEP TIE BAY at Indravati  | 06-07-15   | 08:00       | 07-07-15   | 18:00       | OCB | ER-II,Odisha       | Removal of Jumper, erection of aluminium tube & complete testing ,commissioning & charging of new bay . As all jumpers will be removed, UIHEP Power through TIE bay to BUS-II can flow only through new bay . | OPTCL  |
| 65 | 80MVAR Meramundali LR at Meramundali   | 06-07-15   | 08:00       | 06-07-15   | 18:00       | ODB | ER-II,Odisha       | Online Testing of CSD relay.  | OPTCL  |
| 66 | 220 KV GAYA DEHRI -1   | 06-07-2015 | 08:00       | 06-07-2015 | 17:00       | ODB | ER-I               | FOR TIGHTENESS OF JUMPER AND HARDWARE FITTING.  | BIHAR  |
| 67 | 400 / 220 KV 315 MVA ICT -1 AT JSR   | 06-07-2015 | 09:30       | 09-07-2015 | 17:30       | OCB | ER-I               | 1) 02 NO BUSHING REPLACEMENT -- 01 NO OF 220 KV AND 01 NO OF 52 KV<br>2) TAN DELTA TEST TAP POSITION REPLACEMENT IN 02 no. 400 KV BUSHING   | JHARKHAND  |
| 68 | 63 MVAR, Bus Reactor at Jaypore  | 06-07-15   | 07:00       | 06-07-15   | 15:00       | ODB | ER-II,Odisha       | Replacement of LAs 390 KV to 336 KV   |  |
| 69 | ICT#3 400KV Tie Bay (408) at Subhasgram  | 06-07-15   | 09:30       | 06-07-15   | 17:00       |     | ER-II              | AMP   | WBSETCL  |
| 70 | 400 KV BSF - BALIA - 2   | 06-07-2015 | 08:00       | 07-07-2015 | 18:00       | ODB | POWERGRID/<br>ARA  | FOR ATTENDING INSULATORS AND CONDUCTOR DAMAGED BY MISCREANTS.   | NLDC   |
| 71 | 220 KV BUS - I AT PATNA  | 06-07-2015 | 09:30       | 06-07-2015 | 18:00       | ODB | ER-I               | Erection works of one no. Bay at Patna S/S under Consultancy service to BSPTCL  |  |
| 72 | 220 KV GAYA DEHRI -2   | 07-07-2015 | 08:00       | 07-07-2015 | 17:00       | ODB | ER-I               | FOR TIGHTENESS OF JUMPER AND HARDWARE FITTING.  | BIHAR  |
| 73 | 400 KV BSF - SSRM - I AND II   | 07-07-2015 | 07:00       | 08-07-2015 | 18:00       | ODB | ER-I               | FOR CONSTRUCTION OF EXTN. OF 400 KV D/C BSF -SSRM - 3 & 4 TO VARANASI   | NLDC   |
| 74 | 132 KV DEHRI - KUDRA OF BSPTCL   | 07-07-2015 | 08:00       | 07-07-2015 | 16:00       | ODB | ER-I               | FOR CROSSING OF 765 KV GAYA - VARANASI T/L  | BIHAR  |
| 75 | 220 KV Rourkela - Tarkera # 1  | 07-07-15   | 09:00       | 07-07-15   | 18:00       | ODB | ER-II,Odisha       | AMP Work  | OPTCL  |
| 76 | 400kv Bus-I at Angul   | 07-07-15   | 09:00       | 08-07-15   | 17:00       | ODB | ER-II,Odisha       | Stringing of conductor for ICT-3  |  |
| 77 | Indravati ICT-II(3X105 MVA) at OHPC S/Y  | 07-07-15   | 07:00       | 07-07-15   | 18:00       | ODB | ER-II,Odisha       | Measurement of Tan delta of 33 kv Bushing with variable frequency   | OPTCL  |
| 78 | ICT#3 400KV Main Bay (409) at Subhasgram   | 07-07-15   | 09:30       | 07-07-15   | 17:00       |     | ER-II              | AMP   | WBSETCL  |
| 79 | 400KVBarh-Patna LINE#2   | 07-07-15   | 09:30       | 08-07-15   | 17:30       | OCB | NTPC               | PM of CTs, LAs, Isolator, CB of Main and tie bay.   |  |

|     |  |            |       |            |       |     |                    |   |   |
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| 80  | 400 KV MTN - GAYA - 1 AND 400 KV KOD. - GAYA - 2   | 07-07-2015 | 08:00 | 07-07-2015 | 18:00 | ODB | POWERGRID/<br>GAYA | FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS.  |   |
| 81  | 765kV Angul-Jharsuguda Line-II   | 07-07-2015 | 07:00 | 10-07-2015 | 18:00 | ODB | ER-II,Odisha       | For restringing of theft of conductor of 765kV Angul-Jharsuguda Line-I in section 37/0-38/0 (D/C portion of 765kV Angul-Jharsuguda Line-I & II). Due to heavy induction voltage from charged 765kV Angul-Jharsuguda Line-II on the same tower S/D of the charged line is required considering safety of the working gang and personnel. OPGW Stringing work also to be taken up parallelly. | NLDC  |
| 82  | 220 KV BUS - 2 AT PATNA  | 07-07-2015 | 09:30 | 07-07-2015 | 18:00 | ODB | ER-I               | Erection works of one no. Bay at Patna S/S under Consultancy service to BSPTCL  |   |
| 83  | 400KV Baripada- Mendhasal CKT-I & II   | 08-07-15   | 07:00 | 08-07-15   | 17:00 | ODB | ER-II,Odisha       | Dimond Ring connection of Earth wire of OPTCL 132 KV S/C line Duburi-Jajpur (Loc. No 432 to 433).   | OPTCL   |
| 84  | 400KV Baripada- Mendhasal CKT-I & II   | 08-07-15   | 07:00 | 08-07-15   | 17:00 | ODB | ER-II,Odisha       | Rectification of low sag ACSR moose conductor between loc. No.- 201 to 202 of 400KV D/C BPD-MSDL Line   | OPTCL   |
| 85  | 220 KV GAYA - BODHGAYA -1  | 08-07-2015 | 08:00 | 08-07-2015 | 17:00 | ODB | ER-I               | FOR TIGHTENESS OF JUMPER AND HARDWARE FITTING.  | BIHAR   |
| 86  | 765 KV SSRM - FATEHPUR LINE  | 08-07-2015 | 08:00 | 09-07-2015 | 18:00 | ODB | ER-I               | FOR CONSTRUCTION OF 765 KV GAYA VARANASI.   | NLDC  |
| 87  | 160 MVA ICT-II at Malda  | 08-07-15   | 07:00 | 08-07-15   | 17:00 | ODB | ER-II              | For NIFS commissioning.   | WBSETCL   |
| 88  | 400 KV Behrampur – Jeerat Line Bay   | 08-07-15   | 18:00 | 14-07-15   | 09:00 | ODB | ER-II              | Bay S/D for CB Replacement work   | WBSETCL   |
| 89  | 400KV Haldia Line #1 Main Bay (413) at Subhasgram  | 08-07-15   | 09:30 | 08-07-15   | 17:00 |     | ER-II              | AMP   | WBSETCL   |
| 90  | 400kV Farakka-Malda line-1   | 08-07-15   | 09:30 | 08-07-15   | 17:30 | ODB | NTPC               | Bay Maintenance   |   |
| 91  | 220 KV BUS - I AT PATNA  | 08-07-2015 | 09:30 | 08-07-2015 | 18:00 | ODB | ER-I               | Erection works of one no. Bay at Patna S/S under Consultancy service to BSPTCL  |   |
| 92  | 220 KV GAYA - BODHGAYA -2  | 09-07-2015 | 08:00 | 09-07-2015 | 17:00 | ODB | ER-I               | FOR TIGHTENESS OF JUMPER AND HARDWARE FITTING.  | BIHAR   |
| 93  | 220 KV Rourkela - Tarkera # 2  | 09-07-15   | 09:00 | 09-07-15   | 18:00 | ODB | ER-II,Odisha       | AMP Work  | OPTCL   |
| 94  | 220 KV Bus Coupler Bay at Jaypore  | 09-07-15   | 09:00 | 09-07-15   | 17:30 | ODB | ER-II,Odisha       | Amp works.  |   |
| 95  | 400kV Reactor-3 at Angul   | 09-07-15   | 09:00 | 10-07-15   | 17:00 | OCB | ER-II,Odisha       | Balance construction work   |   |
| 96  | 400KV Maithon-Mejia 3  | 09-07-15   | 08:00 | 12-07-15   | 17:00 | ODB | ER-II              | Insulator replacement   | DVC   |
| 97  | 400KV Haldia Line #2 Main Bay (416) at Subhasgram  | 09-07-15   | 09:30 | 09-07-15   | 17:00 |     | ER-II              | AMP   | WBSETCL   |
| 98  | 400 KV Kahalgaon-Farakka#1   | 09-07-15   | 09:30 | 09-07-15   | 17:30 | ODB | NTPC               | PM works & relay testing  |   |
| 99  | 400 KV MTN - GAYA -1   | 09-07-2015 | 08:00 | 09-07-2015 | 18:00 | ODB | POWERGRID/<br>GAYA | FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS.  |   |
| 100 | 220 KV BUS - 2 AT PATNA  | 09-07-2015 | 09:30 | 09-07-2015 | 18:00 | ODB | ER-I               | Erection works of one no. Bay at Patna S/S under Consultancy service to BSPTCL  |   |
| 101 | 400 KV MALDA-FARAKKA-II  | 10-07-15   | 08:00 | 11-07-15   | 18:00 | OCB | ER-II              | FOR COMMISSIONING OF 3252 BAY AT FARAKKA & 404 BAY AT MALDA.  |   |
| 102 | 125 MVAR B/R -1 AT PATNA   | 10-07-2015 | 09:30 | 15-07-2015 | 18:30 | ODB | ER-I               | FOR CONSTRUCTION OF FIRE WALL AND ERECTION & COMMISSIONING OF TIE BAY   |   |
| 103 | 132 KV SASARAM - KUDRA RLY SECTION OF 132 KV DEHRI -SASARAM -KUDRA RLY - KARAMNASHA LINE OF BSPTCL | 10-07-2015 | 08:00 | 10-07-2015 | 16:00 | ODB | ER-I               | FOR CROSSING OF 765 KV GAYA - VARANASI T/L  | BIHAR   |
| 104 | 400KV MTN-KHG-II   | 10-07-15   | 09:00 | 10-07-15   | 14:00 | ODB | ER-II              | Y-PH CVT Replacement  |   |
| 105 | 160 MVA ICT-I at Malda   | 10-07-15   | 07:00 | 10-07-15   | 17:00 | ODB | ER-II              | For NIFS commissioning.   | WBSETCL   |
| 106 | 220KV CESC Line #2 Bay (203) at Sgram  | 10-07-15   | 09:30 | 10-07-15   | 17:00 |     | ER-II              | AMP   | WBSETCL   |
| 107 | 132 KV BUS at Birpara  | 11-07-15   | 09:00 | 11-07-15   | 10:00 | ODB | ER-II              | Isolator retrofitting (Isolator No. 102 -89M1)  | WBSETCL/There will be no powerflow to WBSEB during this period. |
| 108 | 132 KV BRP-WB-I at Birpara   | 11-07-15   | 10:00 | 12-07-15   | 17:30 | OCB | ER-II              | Isolator retrofitting (Isolator No. 102 -89M1)  | Main Bay of ICT-I (132 KV)                                      |
| 109 | 220 KV PSL - ARA D/C   | 11-07-2015 | 07:00 | 11-07-2015 | 18:00 | ODB | ER-I               | TO CONNECT 400 KV PSL - ALLD LINE INTO EASTERN BUS.   | BIHAR   |

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| 110 | 400 KV RANCHI - MAITHON , 400 KV RANCHI - RAGHUNATHPUR AND 220 KV SANTALDIH - CHANDIL ( OF WBSETCL ) | 11-07-2015 | 10:00 | 11-07-2015 | 17:00 | ODB | ER-I         | RECTIFICATION OF CLEARANCE PROBLEM BETWEEN 400 KV RNC - MTN / 400 KV RNC - RAGHUNATHPUR AND 220 KV SANTALDIH - CHANDIL LINE OF WBSETCL BETWEEN LOC. NO. 196-197 OF POWERGRID T/L | WBSETCL   |
| 111 | 220KV WBSETCL Line #1 Bay (207) at Sgram   | 11-07-15   | 09:30 | 11-07-15   | 17:00 |     | ER-II        | AMP  | WBSETCL   |
| 112 | 765kV Angul-Jharsuguda Line-II   | 11-07-2015 | 07:00 | 21-07-2015 | 18:00 | ODB | ER-II,Odisha | For OPGW Stringing completion of 765kV Angul-Jharsuguda Line-II (10 Drums).  | NLDC  |
| 113 | 765KV/400 KV, 1500 MVA ICT AT PUSAULI  | 11-07-2015 | 08:00 | 11-07-2015 | 18:00 | ODB | ER-I         | OIL SAMPLING OF ABB MAKE 765 AND 400 KV BUSHINGS AND REPLACEMENT OF 390 KV LA WITH 336 KV LA. DURING THE S/D THERE WILL NOT BE ANY POWER FLOW IN 765 KV PUSAULI -FATEHPUR.       | NLDC  |
| 114 | 400 KV RANCHI - MTN - I & 400 KV MTN - RTPS  | 11-07-2015 | 09:00 | 11-07-2015 | 17:00 | ODB | ER-I         | RECTIFICATION OF EARTH WIRE PEAK AND SNAPPED OPGW  | DVC   |
| 115 | 132 KV BUS at Bipara   | 12-07-15   | 16:00 | 12-07-15   | 17:30 | ODB | ER-II        | Isolator retrofitting (Isolator No. 102 -89M1)   | WBSETCL/There will be no powerflow to WBSEB during this period. |
| 116 | 400 KV BSF - NPRN - I & II   | 12-07-2015 | 07:00 | 25-07-2015 | 18:00 | OCB | ER-I         | FOR BAY SWAPPING AT BSF /CONSTRUCTION OF MULTI CKT. PORTION  | NLDC  |
| 117 | 400 KV BSF - SSRM - 3 & 4  | 12-07-2015 | 07:00 | 30-07-2015 | 18:00 | OCB | ER-I         | FOR BAY SWAPPING AT BSF /CONSTRUCTION OF MULTI CKT. PORTION  | NLDC  |
| 118 | 400 KV Rourkela - Sundergarh # 1   | 12-07-15   | 09:00 | 13-07-15   | 18:00 | ODB | ER-II,Odisha | Removal of PIR in 400 KV Rourkela - Sundergarh # 1 Main Bay ( Bay No.- 418)/S/D of line required due to clearance issue.   | NLDC  |
| 119 | 400 KV RANCHI - MTN - I & 400 KV DURGAPUR - RTPS D/C LINE OF DVC                                     | 12-07-2015 | 09:00 | 12-07-2015 | 17:00 | ODB | ER-I         | RECTIFICATION OF EARTH WIRE PEAK AND SNAPPED OPGW  | DVC   |
| 120 | 132 KV BRP-WB-I at Birpara   | 13-07-15   | 09:00 | 18-07-15   | 17:30 | ODB | ER-II        | Isolator retrofitting (Isolator No. 102 -89 L & T)   | WBSETCL   |
| 121 | ICT-I (132 KV ) Bay at Birpara   | 13-07-15   | 09:00 | 17-07-15   | 17:30 | ODB | ER-II        | Isolator retrofitting (Isolator No. 104 -89 L & T)   | WBSETCL/There will be no powerflow to WBSEB during this period. |
| 122 | 220KV Maithon - Kalyaneshwari-1 line   | 13-07-15   | 09:00 | 13-07-15   | 17:00 | ODB | ER-II        | Alignment adjustment of line isolator  | DVC   |
| 123 | 400KV Mejia Jamshedpur   | 13-07-15   | 08:00 | 18-07-15   | 17:00 | ODB | ER-II        | Insulator replacement  |   |
| 124 | 220KV WBSETCL Line #2 Bay (209) at Sgram   | 13-07-15   | 09:30 | 13-07-15   | 17:00 |     | ER-II        | AMP  | WBSETCL   |
| 125 | 400 KV S/C Indravati-rengali Line  | 14-07-15   | 07:00 | 14-07-15   | 18:00 | ODB | ER-II,Odisha | Replacement of B-phase Bushing of 50 MVAR LR   | NLDC  |
| 126 | 315MVA ICT-II AT Maithon   | 14-07-15   | 09:00 | 14-07-15   | 17:00 | ODB | ER-II        | 220Kv R-ph isol. Replacement   | DVC   |
| 127 | ICT#2 220KV Bay (210) at Sgram at Sgram  | 14-07-15   | 09:30 | 14-07-15   | 17:00 |     | ER-II        | AMP  | WBSETCL   |
| 128 | 63 MVAR L/R OF PATNA KISHANGANJ LINE- I AT PATNA (PRESENTLY USED AS B/R )                            | 15-07-2015 | 09:30 | 24-07-2015 | 18:30 | ODB | ER-I         | FOR ERECTION & COMMISSIONING OF LINE SIDE EQUIPMENTS AND PLCC WORK.  |   |
| 129 | 132 KV PSL - KUDRA   | 15-07-2015 | 07:00 | 15-07-2015 | 18:00 | ODB | ER-I         | FOR CONSTRUCTION OF EXTN. OF 400 KV D/C BSF -SSRM - 3 & 4 TO VARANASI  | BIHAR   |
| 130 | 400 KV Rourkela - Chaibasa # 1   | 15-07-15   | 09:00 | 16-07-15   | 18:00 | ODB | ER-II,Odisha | Removal of PIR in 400 KV Rourkela - Chaibasa # 1 Main Bay ( Bay No.- 416)/S/D of line required due to clearance issue.   |   |
| 131 | 765/400KV ICT-4 at Angul   | 15-07-15   | 09:00 | 15-07-15   | 17:00 | ODB | ER-II,Odisha | Balance construction work  | NLDC  |
| 132 | 315 MVA ICT AT FARAKKA   | 15-07-15   | 09:00 | 15-07-15   | 18:00 | ODB | ER-II        | FOR BAY AMP.   | JHARKHAND   |
| 133 | ICT#3 220KV Bay (213) at Sgram   | 15-07-15   | 09:30 | 15-07-15   | 17:00 |     | ER-II        | AMP  | WBSETCL   |
| 134 | 400 KV SGR – Jeerat Line Bay   | 16-07-15   | 18:00 | 22-07-15   | 09:00 |     | ER-II        | Bay S/D for CB Replacement work  | WBSETCL   |
| 135 | 400 KV Kahalgaon-Farakka #2  | 16-07-15   | 09:30 | 16-07-15   | 17:30 | ODB | NTPC         | PM works & relay testing   |   |

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| 136 | 400KV MTN-RB-I                            | 19-07-15   | 08:00 | 21-07-15   | 17:00 | ODB | ER-II        | 1. Isolator Arm Replacement and AMP of Line Bay.<br>2. Insulator Replacement work in Line   | MPL   |
| 137 | 315 MVA ICT#1 at DGP                      | 20-07-15   | 08:00 | 24-07-15   | 18:00 | OCB | ER-II        | Dismantling , erection & commissioning of 20189B, 20189T isolator under add cap   | DVC   |
| 138 | 220 KV BUS-1 at DGP                       | 20-07-15   | 08:00 | 24-07-15   | 18:00 | OCB | ER-II        | Dismantling , erection & commissioning of (4 NO BUS ISOLATOR) 20189A,20289A,20389A,20489A isolator under add cap. During the period 315 MVA ICT#1, 220 KV DVC#1 & 220 KV BUS SECTIONALIZER WILL BE OUT OF SERVICE | DVC   |
| 139 | 400 KV CHAIBASA - JSR                     | 21-07-2015 | 09:00 | 21-07-2015 | 17:00 | ODB | ER-I         | FOR BAY CONSTRUCTION WORK OF B/R AT CBS   |       |
| 140 | 400 KV NPRN - NSLG - I                    | 21-07-2015 | 10:00 | 21-07-2015 | 10:10 | ODB | ER-I         | S/D REQUIRED FOR ISOLATOIN OF ITS L/R AT NPRN END FOR NGR BYPASSING.  |       |
| 141 | 400KV Baripada- Mendhasal CKT-I & II      | 21-07-15   | 07:00 | 21-07-15   | 17:00 | ODB | ER-II,Odisha | Dimond Ring connection of Earth wire of OPTCL 132 KV S/C line Duburi-Jajpur (Loc. No 432 to 433)  | OPTCL |
| 142 | 400 KV NPRN - NSLG - I                    | 22-07-2015 | 18:00 | 22-07-2015 | 18:10 | ODB | ER-I         | S/D REQUIRED FOR CONNECTION OF ITS L/R AT NPRN END FOR NGR BYPASSING.   |       |
| 143 | 400KV Baripada- Mendhasal CKT-I & II      | 22-07-15   | 07:00 | 22-07-15   | 17:00 | ODB | ER-II,Odisha | Rectification of low sag ACSR moose conductor between loc. No.- 201 to 202 of 400KV D/C BPD-MSDL Line   | OPTCL |
| 144 | 400KV MTN-RB-II                           | 22-07-15   | 08:00 | 25-07-15   | 17:00 | ODB | ER-II        | 1. Isolator Arm Replacement, Strung bus repair,oil sampling of Y-Ph line CT (Alstom make).<br>2. Insulator Replacement.   | MPL   |
| 145 | 400 KV CHAIBASA - RKL                     | 23-07-2015 | 09:00 | 23-07-2015 | 17:00 | ODB | ER-I         | FOR BAY CONSTRUCTION WORK OF B/R AT CBS   |       |
| 146 | 400 KV NPRN - NSLG - 3                    | 23-07-2015 | 10:00 | 23-07-2015 | 10:10 | ODB | ER-I         | S/D REQUIRED FOR ISOLATOIN OF ITS L/R AT NPRN END FOR NGR BYPASSING.  |       |
| 147 | 400KV Baripada- Mendhasal CKT-I & II      | 23-07-15   | 07:00 | 23-07-15   | 17:00 | ODB | ER-II,Odisha | Rectification of low sag ACSR moose conductor between loc. No.-224 to 225 of 400KV D/C BPD-MSDL Line  | OPTCL |
| 148 | 132KV Kh(NTPC)-Kh(BSPTCL)                 | 23-07-15   | 09:30 | 23-07-15   | 17:30 | ODB | NTPC         | PM works & relay testing  | BIHAR |
| 149 | 400 KV NPRN - NSLG - 3                    | 24-07-2015 | 18:00 | 24-07-2015 | 18:10 | ODB | ER-I         | S/D REQUIRED FOR CONNECTION OF ITS L/R AT NPRN END FOR NGR BYPASSING.   |       |
| 150 | 220 KV Siliguri -Dalkhola Ckt. I & II     | 25-07-15   | 08:00 | 05-08-15   | 17:00 | OCB | ER-II        | Erection of Towers & Stringing of both CKT. LILO of 2200 KV D/C. Siliguri - Dalkhola (CKT. I & II) at Kisangnaj S/s.  |       |
| 151 | 400 KN NSLG-NPRN Ckt.III & IV (POWERLINK) | 26-07-15   | 08:00 | 10-08-15   | 17:00 | OCB | ER-II        | Erection of Towers & Stringing of both CKT. LILO of 400 KV D/C NSLG(Binaguri) - New Purnea (CKT. III & IV, POWERLINK) at Kisangnaj S/s.   | NLDC  |
| 152 | 315MVA ICT-I AT Maithon                   | 27-07-15   | 09:00 | 27-07-15   | 17:00 | ODB | ER-II        | Relay retrofitting,42489T (Y-Ph) Isolator arm replacement   | DVC   |
| 153 | 400 KV BSF - SSRM - IV                    | 29-07-2015 | 08:00 | 30-07-2015 | 18:00 | ODB | ER-I         | FOR ERECTION OF 80 MVAR REACTOR /BAY SWAPPING WORK AT BSF   |       |

**Annexure-C.2**

**Anticipated Power Supply Position for the month of  
Jul-15**

| SL.NO | PARTICULARS   | PEAK DEMAND<br>MW | ENERGY<br>MU |
|-------|---|-------------------|--------------|
| 1     | <b>BIHAR</b>  |                   |              |
| i)    | NET MAX DEMAND  | 2950              | 1628         |
| ii)   | NET POWER AVAILABILITY- Own Source (including bilateral)                                    | 645               | 336          |
|       | - Central Sector  | 2455              | 1630         |
| iii)  | SURPLUS(+)/DEFICIT(-)   | 150               | 339          |
| 2     | <b>JHARKHAND</b>  |                   |              |
| i)    | NET MAX DEMAND  | 1100              | 750          |
| ii)   | NET POWER AVAILABILITY- Own Source  | 560               | 187          |
|       | - Central Sector  | 589               | 364          |
| iii)  | SURPLUS(+)/DEFICIT(-)   | 49                | -200         |
| 3     | <b>DVC</b>  |                   |              |
| i)    | NET MAX DEMAND (OWN)  | 2677              | 1660         |
| ii)   | NET POWER AVAILABILITY- Own Source  | 4564              | 2318         |
|       | - Central Sector  | 486               | 348          |
|       | Long term Bi-lateral (Export)   | 1250              | 930          |
| iii)  | SURPLUS(+)/DEFICIT(-)   | 1123              | 77           |
| 4     | <b>ORISSA</b>   |                   |              |
| i)    | NET MAX DEMAND  | 3900              | 2286         |
| ii)   | NET POWER AVAILABILITY- Own Source  | 3420              | 1881         |
|       | - Central Sector  | 1106              | 741          |
| iii)  | SURPLUS(+)/DEFICIT(-)   | 626               | 336          |
| 5     | <b>WEST BENGAL</b>  |                   |              |
| 5.1   | <b>WBSEDCL</b>  |                   |              |
| i)    | NET MAX DEMAND (OWN)  | 5400              | 3316         |
| ii)   | CESC's DRAWAL   | 100               | 45           |
| iii)  | TOTAL WBSEDCL's DEMAND  | 5500              | 3361         |
| iv)   | NET POWER AVAILABILITY- Own Source  | 3750              | 2235         |
|       | - Import from DPL   | 140               | 41           |
|       | - Central Sector  | 1866              | 1315         |
| v)    | SURPLUS(+)/DEFICIT(-)   | 256               | 230          |
| 5.2   | <b>DPL</b>  |                   |              |
| i)    | NET MAX DEMAND  | 290               | 230          |
| ii)   | NET POWER AVAILABILITY  | 430               | 271          |
| iii)  | SURPLUS(+)/DEFICIT(-)   | 140               | 41           |
| 5.3   | <b>CESC</b>   |                   |              |
| i)    | NET MAX DEMAND  | 1750              | 1015         |
| ii)   | NET POWER AVAILABILITY - OWN SOURCE   | 1050              | 650          |
|       | FROM HEL  | 525               | 315          |
|       | FROM CPL/PCBL   | 45                | 15           |
|       | Import Requirement  | 130               | 35           |
| iii)  | TOTAL AVAILABILITY  | 1750              | 1015         |
| iv)   | SURPLUS(+)/DEFICIT(-)   | 0                 | 0            |
| 6     | <b>WEST BENGAL (WBSEDCL+DPL+CESC)</b><br>(excluding DVC's supply to WBSEDCL's command area) |                   |              |
| i)    | NET MAX DEMAND  | 7440              | 4561         |
| ii)   | NET POWER AVAILABILITY- Own Source  | 5230              | 3156         |
|       | - Central Sector  | 2391              | 1630         |
| iii)  | SURPLUS(+)/DEFICIT(-)   | 181               | 224          |
| 7     | <b>SIKKIM</b>   |                   |              |
| i)    | NET MAX DEMAND  | 85                | 34           |
| ii)   | NET POWER AVAILABILITY- Own Source  | 16                | 4            |
|       | - Central Sector  | 146               | 100          |
| iii)  | SURPLUS(+)/DEFICIT(-)   | 78                | 69           |
| 8     | <b>EASTERN REGION</b><br>At 1.03 AS DIVERSITY FACTOR  |                   |              |
| i)    | NET MAX DEMAND  | 17623             | 10919        |
|       | Long term Bi-lateral  | 1250              | 930          |
| ii)   | NET TOTAL POWER AVAILABILITY OF ER<br>(INCLUDING C/S ALLOCATION)                            | 21609             | 12695        |
| iii)  | PEAK SURPLUS(+)/DEFICIT(-) OF ER<br>(ii)-(i)  | 2736              | 846          |