

Eastern Regional Power Committee **Kolkata-33**

Salient Decisions taken in 104th OCC meeting held on 23.12.14

1. OCC advised to update the latest status of DR & EL, Reactors, PLCC ownership and feeders under AUFLS scheme.
2. OCC advised that all constituents should certify the healthiness of UFRs in their respective control area on monthly basis in every OCC. Constituents agreed.
3. OCC advised all the constituents to certify the healthiness of SPS as per checklist in every OCC meeting. It was also agreed that an ERPC team would check on-site healthiness of SPS twice in a year as per schedule prepared by ERLDC.
4. On Kahalgaon bus-splitting scheme, OCC felt that this type of scheme as it benefits different regions needs funding from PSDF like URTDSM scheme being implemented by PGCIL. OCC advised secretariat to refer the issue to appraisal committee of PSDF for reviewing its decision with subsequent referral to TCC/ERPC.

Eastern Regional Power Committee

Minutes of 104th OCC Meeting held on 23rd Dec, 2014 at ERPC, Kolkata

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

Item no. A.1: Confirmation of minutes of 103rd OCC meeting of ERPC held on 25.11.2014

The minutes were uploaded in ERPC website and circulated vide letter dated 10.12.14 to all the constituents. No comments were received till date.

Members may confirm the minutes.

Deliberation in the meeting

Members confirmed the minutes of 103rd OCC Meeting.

PART B

Item no. B.1: DR, EL, PLCC and Reactor status installed in Eastern Region

Members may update the latest status on following status is circulated in the meeting.

1. DR and EL Status
2. Reactors installed and yet to installed
3. Ownership of PLCC System

Further, in 96th OCC meeting it was assured that the implementation of UFR based load relief scheme for total load relief of 3320 MW in four (4) stages as decided by NPC for the Eastern Region is completed. The updated Feeder wise detailed list under Automatic Under-Frequency Load-shedding Scheme (AUFLS) is enclosed at Annexure-B.1d. All the constituents are requested to update the list.

Members may update.

Deliberation in the meeting

*Members updated the latest status of DR and EL. Updated status is enclosed in **Annexures - B.1a. OCC requested secretariat to upload the latest status in ERPC web site and advised members to confirm the same by next occ.***

*OCC requested to update the latest status of Reactors, PLCC ownership and feeders under AUFLS scheme enclosed at **Annexure-B.1b, B.1c & B1d.***

OCC requested secretariat to upload the latest status in ERPC web site and advised members to confirm the same by next occ.

OCC informed that ERPC Secretariat will test the healthiness of UFRs periodically.

However, OCC advised that all constituents should certify the healthiness of UFRs in their respective control area on monthly basis in every OCC. Constituents agreed.

Item no. B.2: Healthiness of SPS existing in Eastern Region

Presently there are five (5) nos. of system Special Protection Scheme (SPS) are in operating conditions in Eastern Region for safe and secure operation of grid. These are as mentioned below:

- a) Tripping of Talcher - Kolar HVDC Bipole (s) - SPS at Talcher stage-II, NTPC (SPS 450 & SPS 1000)
- b) Modification in Talcher-Kolar SPS in ER Region due to Synchronisation of SR grid with NEW grid (Additional 600MW Gen Reduction)
- c) SPS for Chuzachen HPS in Sikkim
- d) SPS for Power Export to Bangladesh
- e) SPS for Sesa Sterlite Limited (SSL)

During 101st OCC meeting the OCC felt that a regular maintenance practice should be followed to check the healthiness of SPS. In view of the above in every OCC the healthiness of these SPS needs to be ensured from concerned members.

Members may deliberate.

Deliberation in the meeting

OCC advised ERLDC to prepare a checklist and a schedule for testing the SPS. ERLDC agreed.

OCC advised all the constituents to certify the healthiness of SPS as per checklist in every OCC meeting.

It was also agreed that an ERPC team would check on-site healthiness of SPS twice in a year as per schedule prepared by ERLDC.

Item no. B.3: O & M of 220 kV Farakka –Lalmatia transmission system -- NTPC

Rajmahal area of ECL receives power supply from Farakka Super Thermal Power Station of NTPC through 220 kV Farakka –Lalmatia Transmission System (FLTS) at its Dhankunda sub-station, Lalmatia, JSEB.

220kV Farakka –Lalmatia transmission system (FLTS) was constructed by NTPC for which the fund was provided by ECL owner of the line is M/s. ECL. NTPC is doing the operation & maintenance of 220kV Farakka –Lalmatia transmission system along with its associated switchyard equipments and ECL is paying for the same.

At present JSEB is not only giving power to ECL Rajmahal but also to district Godda, Dumka through Farakka – Lalmatia line.

NTPC is facing a lot of problems in maintenance of the line as their expertise is in power generation, not in the transmission field. Recently, for restoration of collapsed tower of Farakka-Lalmatia transmission system, NTPC has taken help of PGCIL.

In view of above, it is requested to JSEB / PGCIL for operation & maintenance of 220kV Farakka –Lalmatia transmission system along with its associated switchyard equipments. NTPC will facilitate for transfer of operation & maintenance contract of 220kV Farakka – Lalmatia transmission system. M/S ECL has also consented for O & M agreement with JSEB / PGCIL, as discussed in ECL- NTPC meeting on dated 16.06.2014.

In 101st OCC, JSEB informed that a meeting was held with ECL on 26th & 27th Aug, 2014 wherein ECL and JSEB agreed in principle and it has been taken up for ECL board approval.

In 103rd OCC, NTPC informed that they are having meeting with ECL on 25th November, 2014, and agreed to communicate the outcome to ERPC Secretariat.

NTPC/ JSEB may update.

Deliberation in the meeting

NTPC informed that ECL management intends to hand over the line to Powergrid for O&M however, the final outcome is still awaited.

Item no. B.4: Implementation of double bus scheme and commissioning of remaining tie/main breakers at Angul S/S.

In 102nd OCC, Powergrid informed that double bus scheme has been implemented at 400kV Anugul S/s and submitted the schedule for commissioning of remaining main/tie breakers as follows:

- i. 400kV GMR bays (2 nos): 15th November, 2014
- ii. 400kV GMR-JITPL ties (2 nos) : 15th November, 2014
- iii. 400kV ICT-1 bay: 5th November, 2014
- iv. 400kV ICT-2 bay and tie: 6th November, 2014
- v. 400kV ICT-3 bay and tie: 7th November, 2014
- vi. 400kV ICT-4 bay and tie: 8th November, 2014
- vii. 400kV Monnet bays (2 nos) : 30th November, 2014

Powergrid may update.

Deliberation in the meeting

Implementation of Double Bus scheme scheduled to be completed by end of November, 2014 was not complete because of natural calamity and non availability of consent for shut down by other constituents. Powergrid informed the status of bus configuration at 400kV Angul Substation is as follows:

- i. 400kV GMR bays (2 nos): Done on 21.12.2014
- ii. 400kV GMR-JITPL ties (2 nos) : Done on 21.12.2014
- iii. 400kV ICT-I & II bays: Done on 21.12.2014
- iv. 400kV ICT-III & IV bays: Done on 21.12.2014
- v. 400kV Monnet bays (2 nos) : Subjected to Shutdown clearance

Item no. B.5: Submission of DPR for R&U of protection and control system for funding from PSDF

1. 28th ERPC advised CTU for place the requisite application before NLDC for availing funding from PSDF for Its STATCOM project.

In 103rd OCC Powergrid informed that DPR for STATCOM would be submitted to NLDC by December, 2014.

Powergrid may update.

Deliberation in the meeting

Powergrid informed that DPR for STATCOM would be submitted to NLDC by January, 2015.

2. In 103rd OCC, NTPC informed that they have submitted the DPR for Kahalgaon bus-splitting scheme to NLDC on 08.10.2014.

Subsequently, NLDC vide letter dated 11.12.2014 communicated that the Appraisal Committee deliberated upon the eligibility of the scheme for funding from PSDF based on para 5 "Utilization of Funds" of the approved procedure & guidelines for funding and it was decided that the scheme did not qualify for funding from PSDF.

Members may note.

Deliberation in the meeting

After detailed deliberations, members felt that this type of scheme as it benefits different regions needs funding from PSDF like URTDSM scheme being implemented by PGCIL.

OCC advised secretariat to refer the issue to appraisal committee of PSDF for reviewing its decision with subsequent referral to TCC/ERPC.

Item no. B.6: New Islanding Schemes in Eastern Region

B.6.1. FSTPS Islanding Scheme, NTPC

98th 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 94th OCC.

In 99th OCC, Powergrid informed that the new estimate for procurement of above items is in approval stage by its appropriate authority but indicated that the amount would be around Rs. 53,41,889/-. It was informed that the final approved estimate will be submitted to JSEB by July, 2014.

In 100th OCC, Powergrid informed that the estimate of Rs. 53,10, 526/- has already been sent to JSEB and requested JSEB to release the amount as early as possible.

JSEB informed PGCIL to send the details to GM, Dumka for payment of the project estimate/cost incurred for PLCC checking as it comes under jurisdiction of Dumka.

In 28th TCC meeting, JSEB informed that they have received the estimate on 4th September, 2014 and they will release the payment by October, 2014.

Powergrid informed that implementation of the scheme will take five (5) months after receiving the amount. JSEB also assured to provide all the logistics as requested by Powergrid vide its letter to GM, Dumka.

NTPC informed that, implementation of the NTPC part will be completed by December, 2014.

In 101st OCC, JUSNL informed that the estimate has been sent to Headquarter for payment.

In 103rd OCC, NTPC informed that, implementation of the NTPC part will be completed by January, 2015.

JUSNL informed that they would settle the payment in December, 2014.

Powergrid/ JUSNL may update the status.

Deliberation in the meeting

Powergrid informed that payment was not yet received from JUSNL.

JUSNL informed that they would settle the payment by January, 2015.

B.6.2. Chandrapura TPS Islanding Scheme, DVC

In 28th TCC meeting, DVC informed that order is yet to be placed for procurement of elements etc. towards execution of the scheme; the vendor did not qualify on certain technicalities and so representative from DVC expressed that it would not be possible to implement the islanding scheme by 30th October, 2014.

TCC stressed that Chandrapura TPS islanding scheme is an important one which was envisaged after grid disturbance of 2012. Discussions were held in last few TCC and ERPC meetings but the scheme is not yet initialized from DVC end.

The 28th ERPC reviewed the progress of the scheme and took serious note on performance of DVC towards execution of the scheme.

However, on request of DVC, 28th ERPC has extended the completion schedule to December, 2014 from 31st October, 2014 as earlier decided by 27th ERPC with specific direction to place the work order latest by 31st October, 2014.

ERPC has also further advised DVC to place the progress report on implementation of the CTPS islanding scheme to ERPC Secretariat in each fortnight.

In 101st OCC, DVC informed that the matter has been taken up with Head Quarter and the work order will be placed shortly on single bid system.

In 102nd OCC, DVC informed that order has been placed to Alstom, India on 16th October, 2014 and the implementation will take six more months (expected by March 2015).

In 103rd OCC, DVC informed that M/s Alstom has submitted the drawings/documents for approval of DVC on 14-11-2014 for implementation of the scheme. The same were under scrutiny by concerned department of DVC and likely to be approved shortly.

DVC may update the status.

Deliberation in the meeting

DVC informed that a meeting was scheduled to be held on 29th December, 2014 to finalize drawings/documents.

B.6.3. BkTPS Islanding Scheme, WBDCL

In 27th TCC/ERPC, WBDCL informed that LOA has been placed on 14th May, 2014 and the work will be completed by December, 2014 (+/- 2 months).

In 103rd OCC, WBDCL informed that the scheme will be implemented by February, 2015.

WBDCL may update the status.

Deliberation in the meeting

WBDCL informed that the scheme would be implemented in schedule.

B.6.4. Tata Power Islanding Scheme, Haldia

In 28th TCC meeting, WBSETCL informed that implementation of the scheme may take 2 more months and it will be implemented by January, 2015.

In 101st OCC, WBSETCL informed that order has been placed for relay and other equipment. The fabrication work has been started and the scheme will be completed in schedule.

In 103rd OCC, WBSETCL informed that the scheme will be completed in schedule.

WBSETCL may update the status.

Deliberation in the meeting

WBSETCL informed that the scheme will be completed in schedule.

Item no. B.7: Concerned members may update the latest status.

B.7.1. Status of construction of 400 kV Sterlite-Jharsuguda D/C sections

In 101st OCC, Sterlite informed that the order would be placed by this month for line and bay equipments.

In 103rd OCC, Sterlite representative informed that order was placed for construction of bays and the forest clearance needed for construction of the line is still pending.

It was informed that in spite of ERPC decision Sterlite is failing to submit monthly progress report on construction of this line to secretariat.

OCC took serious note of it and advised Sterlite to send the latest status of this line regularly to secretariat on monthly basis under written communication.

Sterlite agreed to send the monthly status without fail.

Accordingly status report for the month of December has been placed.

Sterlite may further update.

Deliberation in the meeting

Sterlite representative informed that order was placed for construction of bays and it will take 15 months to complete the work. Regarding construction of the line, Sterlite informed that the forest clearance is still pending.

B.7.2. Status of 400 kV GMR- Angul D/C line.

In 28th TCC, GMR informed that they are facing serious ROW problem and the issues are being addressed.

ERLDC informed that presently GMR is allowed to evacuate 550 MW and in case the dedicated ATS is not brought in time, severe problem will be faced by the grid operators.

In line with OCC decision TCC also advised GMR to complete the line by end of October, 2014, failing which scheduling of GMR for evacuation of its generation through LILO could be discontinued.

In 102nd OCC, GMR informed that work is in progress and the line will be commissioned by 30th October, 2014.

GMR also informed that their bays at Angul are ready. The charging approval for line and bays are to be obtained from Regional Inspectorate Office which is looking after by Powergrid. OCC advised Powergrid to interact with inspectorate office for early completion.

In 103rd OCC, GMR informed that remaining 1 km stringing of the line will be complete by November, 2014. The inspection of the line and bays by inspectorate office is scheduled from 3rd December, 2014. Thereafter the line will be charged subjected to the availability of shutdown.

OCC advised GMR to send the shutdown requisition to ERLDC. GMR agreed.

Subsequently, GMR vide letter dated 13.12.2014 informed that they are ready for taking shutdown of the LILO w.e.f. 16.12.2014 for two days and to charge their dedicated ATS, 400 kV GMR - Angul D/C line.

GMR, ERLDC and Powergrid may update.

Deliberation in the meeting

GMR informed that 400kV GMR-Angul D/C line has been commissioned. However, the GMR lines are connected to single bus of 400kV Angul S/s, which may create problem for GMR evacuation under contingency.

Powergrid informed that they could not commission the second bus scheme for GMR & some other sections because of Hud-Hud cyclone and non-availability of shut down by other constituents.

OCC advised Powergrid to complete the commissioning of the second bus as early as possible.

Powergrid agreed to complete the work in first week of January, 2015.

B.7.3. Status of construction of Chuzachen bay at Rangpo S/s.

In 100th OCC, Chuzachen informed that the construction of these bays was undertaken by Govt. of Sikkim. Sikkim representative informed that the issue is under consideration of Sikkim Government.

In 102nd OCC, Sikkim representative informed that the proposal has been submitted to cabinet for approval.

Sikkim may update.

Deliberation in the meeting

Sikkim representative was not available for discussion. However, it was informed that Sikkim Govt. has approved the proposal.

B.7.4. Status of 400kV Maithon-Gaya and Koderma-Gaya D/C lines.

Powergrid informed that 400kV Maithon-Gaya-I and Koderma-Gaya-I will be commissioned by October, 2014.

In 102nd OCC, Powergrid informed that work was delayed due to rain and 400kV Maithon-Gaya-I and Koderma-Gaya-I will be commissioned by November, 2014.

In 103rd OCC, Powergrid informed that 400kV Maithon-Gaya-I and Koderma-Gaya-I will be commissioned by December, 2014.

Powergrid may update the latest status.

Deliberation in the meeting

Powergrid informed that 400kV Maithon-Gaya-I and Koderma-Gaya-I will be commissioned by end of December, 2014.

B.7.5. Status of 80MVAR Line reactor of 400kV Meramundali-Angul at Meramundali

In 101st OCC, OPTCL informed that the relay has been arranged; now commissioning work is in the process for fixing the relay settings by Powergrid.

In 102nd OCC, OPTCL informed that relay has been installed and it will be commissioned as and when shutdown is accorded.

OPTCL and Powergrid may update.

Deliberation in the meeting

OPTCL informed that Powergrid has to set the relay settings.

OCC advised OPTCL & Powergrid to co-ordinate and charge the reactor immediately after incorporating the relay settings.

B.7.6. 220 kV inter-connecting lines of OPTCL with 400/220 kV Bolangir (PG) S/s

400/220 kV, 2X 315 MVA S/S at Bolangir has been established by Powergrid as part of ISTS system & the following 220 kV interconnecting lines was envisaged to be established by OPTCL:

- (i) LILO of OPTCL's Katapalli-Bolangir line at Bolangir (PG).
- (ii) Bolangir(PG) –Bolangir (OPTCL) S/C line.
- (iii) Bolangir(PG) –Kesinga S/C line.

In 103rd OCC, OPTCL informed the status as follows:

- (i) LILO of OPTCL's Katapalli-Bolangir line at Bolangir(PG) —Work is in progress and it would be completed by January, 2015
- (ii) Bolangir(PG) –Bolangir (OPTCL) line-I.--- it would be completed by January, 2015
- (iii) Bolangir(PG) –Bolangir (OPTCL) line-II.--- it would be completed by March, 2015
- (iv) Bolangir(PG) –Kesinga S/C line —Tender opened and completion schedule is Dec, 2015.

OPTCL may update the status.

Deliberation in the meeting

OPTCL informed that status as follows:

- (i) LILO of OPTCL's Burla (Katapalli)-Bolangir line at Bolangir (PG)- By March' 2015
- (ii) 220 kV Bolangir(OPTCL)- Bolangir (PG) S/C line, which is a part of proposed Bolangir-Kesinga D/C line with one ckt LILO at Bolangir (PG)- By January, 2015.

B.7.7. Power Evacuation from 400/ 220KV Daltanganj and Chaibasa Substations

In 101st OCC, Powergrid informed the status as follows:

1. 220/132 kV Daltanganj:

- Land acquisition matter has been taken up with Jharkhand Govt. & expected to be resolved by January, 2015.
- Thereafter, 400/220kV Daltanganj S/s would be constructed by October, 2015.
- Powergrid requested JUSNL to expedite the construction of 220/132kV Daltanganj S/s for evacuation of power from 400/220kV Daltanganj S/s

2. 220/132/33 kV Chaibasa:

- 400/220kV Chaibasa S/s will be ready by October, 2014.
- Order has been received from JUSNL on 01.09.2014 for construction 220kV Chaibasa(PG)-Chaibasa(JUSNL).
- The construction work of 220/132kV Chaibasa S/s under consultancy project is being delayed due to non-receipt of payment from JUSNL.

In 102nd OCC, Powergrid informed that 400/220kV Chaibasa S/s will be charged on 27th October, 2014 and Transformer will be commissioned by November, 2014. Regarding downstream system Powergrid informed that they are yet to receive the fund from JSEB.

In 103rd OCC, Regarding Daltanganj, Powergrid informed that the status is same.

Powergrid informed that 400/220kV ICT will be commissioned at Chaibasa by 26th November, 2014. Regarding downstream system Powergrid informed that they are yet to receive the fund from JSEB.

Powergrid and JSEB may update the status.

Deliberation in the meeting

Regarding Daltanganj, Powergrid informed that the status is same.

Powergrid informed that they are yet to receive the fund from JSEB for construction of downstream system at Chaibasa.

B.7.8. Status of works related to Implementation of SPS for 500MW round the clock power through HVDC Bheramara

In 102nd OCC, Powergrid informed the status as follows:

- Line reactor of Behrampur-Jeerat will be converted into switchable bus reactor: tendering completed and expected by March, 2015.
- 400 kV Sagardighi-Behrampur D/C (HTLS twin): Work has been awarded and will be commissioned by Dec, 2014.

Powergrid may update the status.

Deliberation in the meeting

Powergrid informed the status as follows:

- *Line reactor of Behrampur-Jeerat will be converted into switchable bus reactor: order placed and expected by December, 2015.*

- 400 kV Sagardighi-Behrampur D/C (HTLS twin): Expected to be synchronized on 23rd December, 2014.

B.7.9. Modification of 132kV Bus arrangement at 220/132kV Purnea Sub-station of POWERGRID

In 101st OCC, Powergrid informed that work order is expected to be awarded in September, 2014.

In 102nd OCC, Powergrid informed that order will be placed in October, 2014 and the implementation would take 18 to 24 months.

In 103rd OCC, Powergrid informed that the scheme will be implemented by July, 2016.

Powergrid may update the latest status.

Deliberation in the meeting

Powergrid informed that the scheme would be implemented in schedule.

B.7.10. Augmentation of Transformation Capacity in PGCIL Grid S/s at Muzaffarpur, Purnea, Sampatchak(Patna) & Sasaram-- BSPHCL

In 101st OCC, Powergrid informed that the work order has been placed on 20.06.2014 for augmentation of the transformation capacity at Purnea, Sampatchak(Patna) & Sasaram. The work is expected to be complete by January, 2016.

For Muzaffarpur the order is expected to be placed on October, 2014.

In 102nd OCC, Powergrid informed that the status as follows,

- Muzaffarpur: The order was placed on 20th October, 2014 for augmentation of transformation capacity and it will take 18-24 months for completion.
- Sampatchak(Patna) & Sasaram: will be completed by January, 2016.
- Purnea: One 315 MVA ICT has already been augmented and other two will be completed by March, 2015.

Powergrid may update the status.

Deliberation in the meeting

Powergrid informed that the work will be completed in schedule.

B.7.11. Status of construction of 132kV Banka-Deoghar line

In 103rd OCC, Powergrid informed that the construction activities were not yet initiated.

Powergrid may update the status.

Deliberation in the meeting

It was informed that work of construction of this line is yet to be awarded to CTU.

B.7.12. Augmentation of 3rd ICT at 400kV Jeypore s/s.

The 2 nos. of 315 MVA ICT's at Jeypore s/s are getting loaded up to 200 MW each many times. In such a scenario, tripping of any one ICT will lead to tripping of second ICT also. The ICT-I has already completed 25 years and its performance also getting deteriorated. Hence, it is proposed to approve for 3rd ICT, in view of contingency & reliability.

In 101st OCC, OPTCL explained that augmentation of transformation capacity as proposed by CTU may not be feasible at this juncture. It was informed that plan for proper load management in the affected areas are initiated and as implementation of the same, needs for augmentation of transformation capacity could only be ascertained.

OCC advised OPTCL to give their proposal for relief of ICTs.

In 102nd OCC, OPTCL requested Powergrid to give the test reports of the ICTs for analysis.

OCC advised Powergrid to give the test reports and loading pattern of ICTs to OPTCL.

After deliberation, OCC agreed to the proposal of augmentation for 3rd ICT of 500 MVA at 400kV Jeypore S/s. The issue was referred to TCC.

In 103rd OCC, OPTCL expressed their reservation on argumentation of 3rd ICT at 400kV Jeypore S/s and asked for test reports for further analysis at their end.

OCC advised Powergrid to submit the test reports to OPTCL and decided to review the issue after receiving the comments of OPTCL before referring to TCC.

Subsequently, GRIDCO vide letter No. Sr.GM-PP-72/2012-8005(4) dated 21.11.2014 informed that the 3rd ICT at Jeypore S/S is not required. The action taken by OPTCL to take care of overloading of 315 MVA ICT at Jeypore and 220 kV Jeypore-Jayanagar line is circulated in the meeting.

OPTCL may update.

Deliberation in the meeting

*OPTCL has delivered a presentation on this subject. Presentation is enclosed at **Annexure-B.7.12.***

During the presentations OPTCL expressed that the overloading of ICTs occurs only during spilling of southern reservoirs which can be addressed:

- *By keeping more numbers of Indravati units on 400kV system by bus splitting arrangement.*
- *Connectivity of JITPL with 400kV Angul-Bolangir-Jeypore ckt. & GMR with Angul sub-station.*
- *Discussion for export of power to AP in 220kV Balimela-U.Sileru ckt. through bilateral transaction is in progress.*
- *Augmentation of Jeypore S/S capacity shall not serve any purpose, unless and until 220 kV 2nd DC line is in place.*

In view of the above, augmentation of Jeypore sub-station capacity is not required at this juncture.

ERLDC informed that they will study and report in next OCC.

Further, in conclusion OPTCL opined that:

- *Major contribution for overloading 220kV Jayanagar- Jeypore line and ICTs is due to enhancement of power export to SR through Gazuwaka Back to back DC.*
- *Installation of FSC causes rise in voltage profile at Jeypore 400kV bus as well as increase in power export.*
- *The State has to boost up its hydro generation to avoid congestion in the State's system due to export of power to SR through open access by other utilities.*

- *Although, it is not the State's interest for capacity augmentation of Jeypore - Jayanagar ckts; still OPTCL has taken action for construction of 220 kV Jeypore-Jayanagar 2nd D/C line.*
- *Commissioning ICT at Jeypore shall be considered, provided a separate ATC considering South Odisha hydro stations (for export of power to SR) shall be made by NLDC exclusively for the State's export to SR.*

B.7.13. Synchronization of 132 kV Dalkhola(WB)-Kishanganj(BSPTCL) S/C

132 kV Dalkhola-Kishanganj is presently kept in an unutilized condition for a long period of time. Earlier it was kept open to avoid overloading of backward 132 kV system in West Bengal side, however with commissioning of 220/132 kV Substation at Dalkhola (WB) along with 220 kV Dalkhola(PG)-Dalkhola(WB) D/C this issue of loading of backward network is resolved. With closing of the 132kV Dalkhola(WB)-Kishanganj(BSPTCL) S/C line would relieve the loading of Purnea 220/132kV ATRs and enhance reliability of supply to N. Bihar and Nepal. Rejuvenation of this unused tie line will enhance reliability of supply to Purnea and adjoining areas. Therefore this tie needs to be restored at the earliest.

In 102nd OCC, WBSETCL informed that it is very old line and not in service since long. They will check the status of the line from Dalkhola end and intimate the status in next OCC.

BSPTCL informed that the line is already idle charged from their end.

OCC advised to make the line operational for benefit of both WB and Bihar as well as improve the reliability of power supply to N. Bihar.

In 103rd OCC, WBSETCL informed that line condition is OK and the bay is also ready for charging. The protection coordination is to be done with remote end.

OCC advised WBSETCL and Bihar to interact each other for proper protection settings and also advised to charge the line on trail basis in December, 2014.

WBSETCL and Bihar agreed.

WBSETCL may update the status.

Deliberation in the meeting

WBSETCL informed that line protection relay is not functional at Dalkhola end and it will be replaced with new relay by January, 2015.

Further, it was informed that at Dalkhola presently 2x160 MVA transformer is there which were fully loaded during peak and there is no scope of putting additional transformer due to space constraints. So, WBSETCL cannot transfer power to Bihar on continuous basis.

OCC advised WBSETCL and Bihar to charge the line on trail basis first for better connectivity and for utilizing the line under emergency.

B.7.14. Non functioning of main meter (NP-5896-A) at Teesta end of 400 kV Rangpo line-1

The Main Meter (NP-5896-A) installed in line Teesta-V Rangpo Line-1 is non functional since last 3 months and consequently SEM data from this meter is not being provided to ERLDC. Presently data for this line is being provided by the Check Meter (NP-5895-A). Keeping in view the provision of CEA Metering Regulation 2006 and subsequent amendments, it is requested to do

necessary action for replacement of the defective Main meter at the earliest. The matter has been taken up with ERLDC and PGCIL through emails but remedial action is awaited.

ERLDC/PGCIL may update.

Deliberation in the meeting

PGCIL informed that they would replace the meter within a week.

NTPC pointed that 7 series meters are not allowing time correction and Powergrid agreed to replace all the 7 series meters but till date their meters were not replaced.

OCC advised Powergrid to replace the meters immediately and resolve the problem of the meters with L&T. Powergrid agreed.

B.7.15. Rectification/replacement of the defective tie line meter for 220kV DVC (Kalyaneswari)-PGCIL (Pithakari) line at DVC end

DVC vide their letter dated 7th November, 2014 informed that in spite of repeated persuasion with ER-II, PGCIL, for the early rectification / replacement of the defective tie line meter at DVC end for 220kV DVC (Kalyaneswari)-PGCIL (Pithakari) line, no responsive action from ER-II, PGCIL has been received yet. The matter was even discussed in the 27th Commercial Sub-Committee meeting. But still no fruitful result was noticed. Meanwhile another tie line meter at DVC end for 400kV Mejia(DVC)-Maithon(PGCIL) line (Meter no.NP 6535 A) has become out of order and no data can be downloaded from that meter.

This is very unfortunate that important interstate tie line meters remains out of service and UI calculation is made based on average basis for months after months. Even the letter from Member Secretary, ERPC to GM, ER-II, PGCIL dated 19.09.2014 in this matter failed to get any confirmation/ status report from PGCIL.

It is therefore, requested to please look into the matter for finding the way out of this problem so that DVC will not have to bear the loss in 220kV Maithon(PG)- Kalyaneswari(DVC) and 400kV Mejia(DVC)-Maithon(PGCIL) line unilaterally for indefinite period.

During 103rd OCC the issue could not be discussed as Powergrid ER-II representative was not available.

DVC/PGCIL may update.

Deliberation in the meeting

PGCIL informed that the meter has been replaced.

Item no. B.8: Status of “Third Party Protection Audit”

List of the observations along with updated compliances received from the constituents made available in reports of ERPC website (www.erpc.gov.in).

In 103rd OCC, OPTCL informed that they have received the estimate from CPRI and they will start the Protection Audit soon.

Further, it was informed that as per the recommendations of the enquiry committee the third party audit of the protection system needs to be carried out on periodically.

After detail deliberation, OCC advised to chalk out the detailed plan for 2nd third party Protection audit of ER by the next OCC to start the same from January, 2015

1st Third Party Protection audit of Eastern Region was carried out in important S/Ss the list of which is circulated in the meeting.

Members may decide the road map for carrying out the 2nd third party audit.

Deliberation in the meeting

OPTCL informed that CPRI will carry out the protection audit in four of their 220kV substations namely Meeramundali, Theruvali, Jayanagar and Budhipadar.

It was decided that the checklist of ERPC used in its 1st third party protection audit would be modified in line with recommendation by the Task Force committee under V. Ramakrishna and on acceptance of the same by 105th OCC the road map for 2nd Protection Audit of ER will be finalized.

Powergrid informed that they have also prepared a checklist for Protection Audit.

OCC advised Powergrid to share the template. Powergrid agreed.

Item no. B.9: 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 2nd August, 2013. In 88th OCC, constituents requested for another workshop on this issue. OCC agreed and requested NTPC and CESC to share their scheme in the workshop.

Members may note and comply.

Deliberation in the meeting

Members noted.

Item no. B.10: 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 nominate their Nodal officers as advised.

Deliberation in the meeting

Members noted.

Item no. B.11: Certification through BIS as per IS 18001:2007 to all generating/transmission units. (Item No. B9 of 84th OCC meeting)

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

In 85th 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 88th 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.

Members may note and update the status.

Deliberation in the meeting

WBPDCCL informed that Bandel TPS certified with IS 18001.

Item no. B.12: Restricted Governor Mode of Operation

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

Members may update.

Deliberation in the meeting

Members noted.

Item no. B.13: Pollution mapping for Eastern Region -- Powergrid

In 103rd OCC, Powergrid updated the status as follows:

Utility	Scope	Dummy Insulators Installed	Balance grids (Pending Location)	Co- coordinators
BSPTCL	59	52	7	Shri Brij Mohan AEE, BSPTCL
JUSNL	67	27	40	Shri Ajay Prasad, ESE, CRITIL, JUSNL
WBSECTL	74	62	12	Shri Ram Prasad Mandal, SE(E),

				WBSETCL
WBSEDCL				
OPTCL	164	102	62	Shri Jayant Senapati, DGM (Elect.) OPTCL
Sikkim	12	9	3	Jeewan Thapa, EE (EHV)
POWERGRID ER 1	96	96	0	
POWERGRID ER 2	43	43	0	
POWERGRID Odisha	43	43	0	

Further, Powergrid informed that the Instrument Kits for measurement related to Pollution Mapping were expected to be delivered to the constituents by 30th November, 2014.

OCC advised all constituents to complete the installation of dummy insulators for the Pollution Mapping as early as possible.

Powergrid may update the status.

Deliberation in the meeting

Powergrid requested JSEB to intimate about the locations where they cannot put the dummy insulators due to non-availability of towers on those locations. JSEB agreed.

Powergrid also informed that the Instrument Kits for measurement related to Pollution Mapping were expected to be delivered to the constituents by December, 2014 and the work on actual measurements may be started from January, 2015.

Item no. B.14: Procurement of Emergency Restoration System (ERS Towers) for Eastern Region constituents- Powergrid

In 102nd OCC, Powergrid informed that FR is under approval stage.

A meeting was taken by Member (Power System), CEA on 10.11.2014 at N. Delhi for formulation of plan for procurement and placement of ERS in the country wherein the latest status as well as the future plan was discussed.

Powergrid may update the latest status.

Deliberation in the meeting

Powergrid informed that the status remained same.

Item no. B.15: Over-voltage settings of EHV lines in ER

In 103rd OCC, OCC requested all the constituents to send the missing data and advised to update the discrepancy data.

The latest status as updated is circulated in the meeting.

Members may update.

Deliberation in the meeting

Members updated their respective missing over voltage data.

Item no. B.16: Mock Black start exercises in Eastern Region – ERLDC

i) The status of black start exercises

In 103rd OCC, the schedule of the Black start exercise was updated by the members as follows:

- U. Indravati HEP :- First week of December, 14
- Theesta:- 15th December, 2014
- Sikidri:- 4th week of December, 2014
- Chuzachen:- January, 2015

Members may update.

Deliberation in the meeting

The status of Black start exercise was updated by the members as follows:

- U. Indravati HEP :- Done on 16th December, 14
- Theesta:- Done on 16th December, 2014
- Sikidri:- 4th week of December, 2014
- Chuzachen:- Jan/Feb, 2015
- Subarnarekha:- No water is available

ii) Testing of DG sets meant for Black start

Report regarding test run of DG sets for the month of Nov, 2014 has not been received from any of the constituents. All test reports may be forwarded to erldc.cal@gmail.com & psdas_psd@yahoo.com.

Constituents may kindly ensure compliance.

Deliberation in the meeting

Members noted.

iii) Updating of Restoration Procedure of Eastern Region for 2014

The Restoration Procedure of Eastern Region has been updated till the current year. Soft copy of the draft updated procedure would be circulated among OCC members during the meeting.

Members may offer their valuable observations by 7-12-14 for finalization of the procedure.

In this connection, updated information pertaining to restoration of traction supply in Eastern Region was sought vide ERLDC/SS&MIS/2014/2446 dated 24-10-14, addressed to Eastern Railways, East-Central Railways, South-Eastern Railways, East-Coast Railways and South-East-Central Railways.

However, no comments have been received from them, despite requesting them once again vide email dated 5-11-14. Under the circumstances, it is presumed that there are no changes in the information pertaining to traction supply.

In 103rd OCC, ERLDC circulated the Restoration Procedure of Eastern Region for 2014 and requested to send their comments by 7th December, 2014 for finalization of the procedure.

All constituents agreed.

ERLDC may update.

Deliberation in the meeting

ERLDC informed that they have received the comments from DVC and Railways. The Restoration Procedure is ready and it would be published within a week.

Item no. B.17: Restoration of SCADA data

Updated latest status is circulated in the meeting. During deliberations in 99th 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 31st July, 2014.

Updated status as updated in 103rd OCC meeting is available is circulated in the meeting.

CTU may update.

Deliberation in the meeting

*CTU updated the latest status. Updated status is enclosed at **Annexure-B.17**.*

Replacement of RTUs at Kahalgaon, NTPC

NTPC in 98th OCC informed that on account of the fire incidence in RTU & SIC panels of the ULDC system at NTPC-Kahalgaon Switchyard control room, the real time data transmission to ERLDC for generation & power flow of various lines have stopped since 18th June, 2014. These RTU & SIC panels are the assets of PGCIL and needs to be made available by PGCIL at the earliest.

In 102nd OCC, Powergrid informed that LOA has been placed to M/s. Deejay. RTU integrated & Unit side data (MW/MVAR) made available at ERLDC as per commitment. Other feeders integration will be done by in phase manner within December 2014.

In 103rd OCC, Powergrid informed that the work will be completed in schedule.

Powergrid/NTPC may update.

Deliberation in the meeting

Powergrid informed that material has been reached and the work would be completed by 10th Jan, 2015.

Item no. B.18: Agenda from ULDC -- BSPTCL

1) Delay in Up-gradation Scheme of ULDC of BSPTCL:

As per decision of the ERPC, BSPTCL has entrusted Powergrid vide BSPHCL office letter no.2386 dated 05.12.12, to execute the up-gradation / replacement of data/ voice telemetry of all operating as well as under construction GSS under BSPTCL region. This includes the replacement of RTUs installed under ULDC-ER phase-I project.

44 RTUs were delivered without cable. Now cable for only 20 nos RTUs has been delivered. Installation of these RTUs has been taken up by the contractor from 29th August. But the work is slow. Whatever instillation being taken up is not being commissioned. Power grid has been requested to increase the installation and commissioning team.

Also, hardware for Control Room has been delivered without cable, BSPTCL is pursuing for installation of equipments with Power grid and Chemtrols but outcome is pathetic.

The matter has been reviewed with Powergrid on 05.04.2014, 30.06.2014 and 19.08.2014, BSPTCL has expressed concern over the delay and directed Powergrid to expedite the work on priority to complete by October, 2014.

Communication package consisting of supply installation and commissioning of Fiber Optic Communication, PLCC communication. Auxiliary Power Supply System are not awarded to suitable vendor by Power grid yet. BSPTCL has repeatedly requested Power grid to expedite the work to meet the requirement of RTUs commissioning date to enable RTUs to communicate to SLDC, Patna. But Power grid is unable to confirm the target date and giving the reason of the constraint of installation team of OPGW.

BSPTCL apprehended that after installation of RTUs data cannot be communicated to SLDC, Patna and subsequently to ERLDC, due to non-availability of communication channel. So, BSPTCL has taken forward step to make the RTUs communicated over GPRS. BSPTCL is procuring GPRS devices as an interim arrangement in this regard. However, PGCIL may be requested to furnish target date for supply, installation & commissioning of RTUs along with communication and commissioning of new SLDC Centre.

2) Supply of MUX at Samastipur, BTPS and Jakkanpur site:

It has been requested to Power grid to supply the communication equipment for fiber communication on priority as integration of 5 nos. of GSS under up-gradation scheme of ULDC shall depend on these equipments. It has come to know that 1st lot of equipments is being dispatched but BSPTCL does not find a place in it.

3) Underground laying of Fibre from jakkanpur to SLDC, Patna:

ERPC has declared to FO communication of BSPTCL in commercial operation except Jakkanpur- SLDC UGFO link. The work of critical UGFO link from Jakkanpur to SLDC, Patna is yet to be completed by Power grid. BSPTCL has repeatedly requested Power grid to expedite the work.

4) Final bills of the advance payment already released for AMC charges of Wideband Communication System, Auxiliary Power Supply System and supply of battery bank.

As agreed by PGCIL in the SCADA meeting held on 28.05.2014, the final bill has to be furnished by 15th June, 2014 but final bill of RTU has only been received till now. The final bill of AMC of Wide band communication, Auxiliary Power Supply System and the supply of battery bank is still awaited.

Further payment of APS is also held up for want of final bill of 1st to 5th half yearly advance payment released to Power grid.

In 102nd OCC, BSPTCL informed the following:

- Powergrid is working on to commission the control centre only with the available RTU. Data exchange Between ERLDC and SLDC shall depend on the commissioning of server at ERLDC
- Installation of 20 RTUs are under progress.
- Communication package is still pending with Powergrid.
- Mux has been delivered at Patna and being diverted to site.
- Laying of underground cable and commissioning from Jakkanpur to SLDC Patna under MW replacement scheme is still pending.

ERLDC informed that for server, FAT process is going on and after that the new sever will be installed at ERLDC, Kolkata.

In 103rd OCC, Powergrid agreed to communicate the latest status within a week.

Powergrid may update.

Deliberation in the meeting

*Powergrid submitted the official communication to ERPC Secretariat on latest status of the issue which is enclosed at **Annexure- B.18**.*

OCC also advised to discuss the issue bilaterally or in SCADA meeting.

Item no. B.19: High voltage problem in WBSETCL system

WBSETCL informed that during this winter season they are facing high voltage problem at Subashgram, NJP and Birpara S/s during light load period and requested for changing the Tap Position of respective ICTs.

In 103rd OCC, ERLDC informed that they will study and report in next OCC.

ERLDC may update.

Deliberation in the meeting

After detail deliberation, OCC decided to decrease the ICT tap position as follows:

<i>Birpara</i>	<i>100MVA, 220/132kV ATR</i>	<i>10 to 9</i>
<i>Birpara</i>	<i>160MVA, 220/132kV ATR</i>	<i>12 to 11</i>
<i>NJP</i>	<i>315MVA, 400/220kV ATR 1&2</i>	<i>10 to 9</i>

Item no. B.20: High voltage problem at 400kV Jeypore OPTCL Substation—OPTCL

In 101st OCC, OPTCL has submitted the voltage data from 01.09.2014 to 21.09.2014 and informed that the maximum voltage is recorded as 246kV & minimum is 238kV.

OPTCL informed that at present ICT tap position at 400kV Jeypore S/s is at tap position 14 and requested for further lowering of ICT tap position by two taps.

In 102nd OCC, ERLDC informed that further lowering of ICT tap position would cause some voltage excursion on 400 kV side and informed that it will be reviewed after HVDC Gajuwaka-Jeypore line is available.

In 103rd OCC, OPTCL informed that they are still facing high voltage problem at 400kV Jeypore S/s and requested to resolve the issue.

ERLDC informed that high voltage will be regulated as and when 125 MVAR reactor at Jeypore S/s is commissioned.

OCC felt Powergrid may shift the reactor from some other place for immediate relief.

Since Powergrid ER-II representative was not available for discussion, the issue was referred to next OCC.

Subsequently, OPTCL vide letter dated 05.12.2014 informed that installation of FSC in 400 kV circuits emanating from Jeypore has also impact on overvoltage profile. Persistence overvoltage

at Jaynagar command area has adverse impact on hydro stations as well as on other equipments as intimated by OPTCL & OHPC.

Powergrid/OPTCL may update.

Deliberation in the meeting

The issue was discussed under Item No. B.21.

Item no. B.21: Effect of FSCs on Generators and Power House equipments - OHPC

It has been reported that fixed series capacitances introduce sub-synchronous resonance, odd harmonics and ripple in voltage and current wave forms into the power system. During low load periods, overcompensation of the line reactance gives rise to high voltage and switching over voltage in the power system which may cause serious problem to the system elements. This causes stator and rotor earth faults of nearby generators. This may also cause over heating due to increased iron loss, maloperation of relays and saturation of CT's. In fact it has been observed that since 2007-08 after installation and commissioning of ESC's at Jeypore by PGCIL all the units of Upper Kolab have developed stator and rotor earth fault resulting in failure of pole coils and stator bars. It is often seen that generators of Upper Kolab and Balimela operate in VAR absorbing mode resulting in overheating of Stator and Rotor which may lead to development of earth fault. It is also observed that most of the time the system voltage remains high which not only increases the iron loss with heating of system equipments but also makes it very difficult for synchronization of the generators to grid.

In view of this it is requested that the characteristics and performance of FSC's along with it's effect on gear by Generators may be analysed with expert opinion backed by testing if necessary to rule out its stated detrimental effects before connecting it in to the system. Switching in / out of interconnecting lines according to the load may also be considered to control the voltage.

Powergrid/OHPC may update.

Deliberation in the meeting

*OHPC delivered a presentation on the above subject which is enclosed at **Annexure-B.21**.*

While giving the presentation OHPC/GRIDCO informed that they are experiencing following problems:

- *They are facing high voltage problem since 2005-06*
 - *Jeypore Bus Voltage - Min 235KV*
 - Max 248KV*
- *Over voltage problem to Bus bar, Generator, GT & associate equipments and difficult for synchronisation of generating Units*
- *Generators are absorbing MVAR almost 95% of its operating hours since 2005-2006.*
- *Generator running in 4th quadrant produces harmonics resulting eddy current in stator core, rotor core and also in Generator Transformers.*
- *Over heating of Stator end regions and part of Rotor causing frequent Stator earth fault of UKHEP Generator, Bar failure and Rotor pole failure.*
- *Due to back to back system at Gajuwaka, the line MVAR supplied by shut admittance during low loading of lines are absorbed by UKPH Generator as only real power MW is transmitted through back to back system to southern Grid.*
- *Tie line capacitance & Load capacitance are add up & flow towards Generator and the generator becomes a reactive energy reserve for the Grid.*
- *As per operating chart of the Generator by OEM (BHEL), it is operating at a leading P.F. (i.e. endangering the stability) as it is close the stability limit.*

GRIDCO also suggested the following:

- Shunt Reactors for feeders are to be installed at power Grid on 400KV Jeypore-Gajuwaka Feeder –I & II and Bolangir & Indravati Feeder to absorb the leading MVAR supplied by admittance of the line during low loading of feeder.
- The ICT tap position may be maintained at normal position for maintaining normal voltage at Upper Kolab, Jayanagar and Balimela 220 KV Bus.
- The FSC may be passed along with back to back system at Gajuwaka after synchronisation of Southern Grid to avoid harmonics and ripples in voltage & current wave form.

Powergrid informed that they are carrying out power quality measurement for Odisha Sub-stations and it will be done within a week for Jeypore S/s.

OCC advised OPTCL also to carry out Power Quality measurements or they can utilize the services of Powergrid in this regard. OCC also advised Powergrid to submit the result of Power Quality measurements to OCC. Powergrid agreed.

OCC also advised OHPC/GRIDCO to communicate their observations regarding FSCs to CTU/CEA as the detail study was carried out by them for installations/dismantling of FSCs.

Item no. B.22: Reactive Power performance of Generators and GT tap position optimization

Maximum and minimum voltage was observed (data taken from SCADA)

Generating stations have been monitored for sample dates in the month of November 14:

Power Plant	Max and Min Voltage observed for Nov 14 (KV)	Date for monitoring (Nov 2014)
Farakka STPS	424, 410	15,16,24
Khalgaon STPS	Data not Available	NA
Talcher STPS	417,412	18,19,29
Teesta	414,400	6,13
Bakreshwar TPS	412,394	8,10,17
Kolaghat TPS	425,400	8,17,24
Sagardighi TPS	424,410	15,23
MPL	427,415	12,13,25
Mejia-B	429,419	17,24,27
DSTPS	432,421	17,23,24
Adhunik TPS	431,421	22,24
Sterlite	434,422	14,16,27

ERLDC may update.

Deliberation in the meeting

ERLDC presented the generators performance and members noted.

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

In 97th 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 27th 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 3rd 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 101st OCC, ERLDC informed that MPL should also reduce the GT tap from tap position 5 to 6. MPL informed that they will confirm in the next OCC.

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

MPL informed that they may face high voltage problem while synchronization of their generator with the agreed GT tap position.

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 103rd OCC, MPL informed that they need clear cut written communication from ERLDC that during synchronization of their generators what actions they need to take.

ERLDC once again assured that they will take care of the high voltage during synchronization of the generators.

Since the deliberations are already noted in the minutes of special meeting of GT tap, OCC felt no separate written communication is required and advised MPL to change the tap position.

MPL agreed.

ERLDC and MPL may update the status.

Deliberation in the meeting

OCC felt that one reactor at Durgapur is necessary to tackle the high voltage problems and decided to place the proposal to standing committee.

PART C:: OPERATIONAL PLANNING

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

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

Members may confirm.

Deliberation in the meeting

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

Item no. C.2: Anticipated power supply position during Jan'15

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of Jan'15 were prepared by ERPC Secretariat on the basis of Provisional LGBR for 2014-15, keeping in view that the units are available for generation and expected load growth etc. and is circulated in the meeting.

Members may confirm.

Deliberation in the meeting

*Modified anticipated power supply position for the month of Jan, 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:

Generating Station	UNIT NO	CAP(MW)	DATE	REASONS FOR OUTAGE	Date of restoration
MEJIA	2	210	05.09.14	COAL SHORTAGE	
MEJIA	4	210	09.11.14	GENERATOR PROTECTION	
BOKARO B	1	210	02.12.14	TUBE LEAKAGE	
BOKARO B	2	210	25.11.14	TUBE LEAKAGE	
BOKARO B	3	210	18.11.14	TUBE LEAKAGE	
KODERMA	1	500	12.11.14	ASH HANDLING PROBLEM	
DSTPS	2	500	01.12.14	BOILER TUBE LEAKAGE	
WARIA	4	210	24.11.14	LESS DEMAND	
BAKRESWAR	2	210	02.12.14	ANNUAL O/H	
BANDEL	5	210	16.11.13	MAINTENANCE	
DPL	8	250	24.10.14	TUBE LEAKAGE	
BUDGE BUDGE	2	250	14.12.14	MAINTENANCE	
DPL	7	300	03.12.14	MAINTENANCE	
IB THERMAL	2	210	24.11.14	A M P	
JITPL	1	600	16.08.14	LEAKAGE IN STATOR	
APNRL	1	270	25.11.14	TURBINE PROBLEM	
SEL	2	600	05.12.14	LESS DEMAND	
SEL	1	600	21.11.15	ANNUAL OVER HAULING	

(ii) Transmission elements

Name of the Line/Element	Outage Date	Reason	Date of restoration
220 KV JEERAT - SATGACHIA D/C	15.06.10	DUE TO LAND SLIDE OF GANGES RIVER BANK	
220 KV BALIMELA - U' SILERU	05.12.14	LINE IDLE CHARGED FROM	
220 KV NAYAGARH- MENDASAL	27.11.14	B -PH LA BLAST AT NAYAGARH	
400 KV TALA-BINAGURI-IV	20.11.14	SHUTDOWN AVAILED BY TALA AND KEPT OPEN BY TALA	

Members may update.

Deliberation in the meeting

Members noted.

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

1. 750 MVA, 400/21kV GT-2 of JITPL (Jindal) was charged for the first time on no load at 16:12hrs of 07/11/14 and first time loaded at 17:12hrs of 27/11/14.
2. 400kV Binaguri-Bongaigaon-IV was charged for the first time at 00:14hrs of 11/11/14.
3. 400kV Binaguri-Bongaigaon-III was charged for the first time at 16:19hrs of 12/11/14.
4. 400kV Raigarh-IBEUL (400kV Raigarh-Jhasuguda made LILO at IBEUL (Ind-Barath)) was charged for the first time at 17:44hrs of 12/11/14. Subsequently Main Bus-II at IBEUL was charged at 17:53hrs and 400kV IBEUL -Jhasuguda was charged at 19:01hrs of 12/11/14.
5. 63 MVAR L/R-II of 400 kV Patna-Kishangunj-II was charged for the first time as B/R at Patna at 18:22hrs of 27/11/14.
6. 132kV Rangit-Rangpo (132kV Rangit-Gangtok made LILO at Rangpo) was charged for the first time at 17:22hrs of 29/11/14. Subsequently 132kV Rangpo-Gangtok was charged at 17:27hrs of 29/11/14.
7. 400kV Tie bay (ICT-I and 400kV Chaibasa-Jamshedpur-I) at Chaibasa was charged for the first time at 19:30hrs of 29/11/14. Subsequently 400kV Main bay of ICT-I at Chaibasa was charged at 19:32hrs of 29/11/14.
8. 400kV Tie bay (ICT-II and 400kV Chaibasa-Rourkela-I) at Chaibasa was charged for the first time at 20:40hrs of 29/11/14. Subsequently 400kV Main bay of ICT-II at Chaibasa was charged at 20:42hrs of 29/11/14.
9. 315 MVA, 400/220kV ICT-II at Chaibasa was charged for the first time from 400kV side at 20:13hrs of 30/11/14. Subsequently 220kV Main Bus-I at Chaibasa was charged at 20:46hrs of 30/11/14.
10. 132/33 KV, 50 MVA new power transformer charged at Jakkampur GSS on 17.11.2014.
11. Replacement of 132/33 KV, 20 MVA transformer with 50 MVA new transformer at Gopalganj GSS; charged on no load on 03.11.2014.
12. 132/33 KV, 50 MVA power transformer charged at Khagaul GSS on 05.11.2014.

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	Koderma Unit#2	2x500MW	
2	Corporate Power Unit#1	2x270MW	
3	Teesta-III Unit#1	1x200MW	
4	Raghunathpur Unit#1	2x600MW	
5	TLDP-IV	1x40MW	

New transmission elements:

Sl No.	Name of Element	Expected date
1	400 kV Maithon-Gaya D/C	
2	400 kV Gaya-Koderma D/C	
3	400kV Sasaram-Daltonganj D/C & Daltonganj S/Stn	
4	400 kV Ranchi-Raghunathpur D/C	
5	400 kV Meramandali-Dubri D/C	
6	400 kV Corporate- Ranchi D/C	
7	400 kV IB-Meramandali D/C	
8	220 kV TLDP-IV – NJP ckt-2	2014
9	220 kV Jeerat-Rishra D/C	
10	220 kV Latehar-Daltonganj D/C	
11	220 kV Lohardaga-Lathehar D/C	
12	220 kV Bidhansai-Cuttack D/C	
13	220 kV Girdih-Koderma D/C	2014
14	400kV Rajarhat-Purnea D/C(with LILO of one circuit each at Farakka and Gokarno)	
15	Augmentation of 400kV Farakka-Malda D/C with HTLS conductor	

Members may update.

Deliberation in the meeting

Members noted.

PART D:: OTHER ISSUES**Item no. D.1: UFR operation during the month of Nov'14**

System frequency touched a minimum of 49.53Hz in November'14. Accordingly, no report of operation of UFR has been received from any of the constituents.

ERLDC may update.

Deliberation in the meeting

Members noted.

Item no. D.2: Grid incidences during the month of Nov, 2014

Sl no	Disturbance Place	Date & Time	Generation loss (MW)	Load loss (MW)	Remark	Category
1	FSTPP and JSEB(Lalmatia, Dumka)	06/11/14 at 17:28hrs.	0	105	Various 400kV lines and ICT at FSTPS tripped due to malfunctioning of BFR element i.r.to main CB of 400kV FSTPP-KhSTPS-II at Farakka S/s which leads to power failure at Lalmatia	GD-1
2	WBSETCL (Bakreswar TPS)	07/11/14 at 02:36Hrs	0	370	Various 400kV lines and units at Bakreswar TPS tripped due to rupturing of Y-Ø LA in 400kV bus reactor bay.	GD-1
3	OPTCL(Meramundali)	08/11/14 at 23:20hrs.	0	0	Various 400kV lines and ICTs at Meramundlai S/s tripped due to fault in 400kV Meramundali-IBTPS-I (idle charged at Meramundali) line.	-

4	DVC(Mejia-B)	28/11/14 at 05:02hrs	385	0	Total power failure occurred at Mejia-B TPS due to mal operation of LBB relay at Mejia-B i.r.to 400kV Mejia-B -Maithon-III.	GD-1
5	Odisha (Chandaka)	29/11/14 at 15:27hrs	0	160	Various 220kV and 400kV lines tripped due to blasting of Y-Ø LA of 220kV Mendhasal-Chandaka-IV at Mendhasal.	-

Members may note.

Deliberation in the meeting

Members noted.

Item no. D.3: Any other items

D.3.1. Non availability of important bays at FSTPP end

Presently, the following bays are under outage at FSTPP end:

- Main bay of FSTPP-Sagardighi at FSTPP end
- Bay connecting FSTPP-Malda-II to Bus-II which is under outage since disturbance at FSTPP on 28/08/14 (Bay connecting to Bus-I in service).
- FSTPP-KhSTPP-IV Tie bay

Considering the recent disturbance at FSTPP it is essential that the bays are commissioned at the earliest.

NTPC may update.

Deliberation in the meeting

Powergrid informed that work is under progress and it will be completed at the earliest.

D.3.2. Unsuccessful backing down at Sterlite and GMR on tripping of HVDC Talcher-Kolar Pole-II on 16/12/14

At 10:30Hrs of 16/12/14, HVDC talcher-Kolar Pole-II got blocked due to valve cooling problem at Kolar end causing injection of around 1000MW into the Grid. SPS at HVDC Talcher acted to generate the trip signal for backing down of generation at Sterlite and GMR which was confirmed received at NTPC, TSTPP end for onwards transmission to GMR and Rourkella. However no backing down of generation at Sterlite and GMR was observed. In this respect it needs to be noted that as per the MOM of SPS committee held at ERPC on 08/05/14, ER generators were to give a total relief of 600MW with bifurcation as follows:

Sterlite-600MW, GMR-150MW, Jindal-100MW (SPS at JITPL end yet to be commissioned).

Sterlite/GMR may kindly confirm the reasons with DR and PLCC channel counter data and intimate the rectification measures undertaken.

Sterlite, GMR and JITPL may update.

Deliberation in the meeting

GMR informed that, since their GMR-Meramundali line-2 has received many false tripping through PLCC, they have used AND logic for both PLCC Receiver to generate the signal for generation reduction. On 16th Dec, 2014 they received Rx signal only in Panel-B but not in Panel-A simultaneously, so the command for generation reduction was not generated.

As a remedial measure, both PLCC panels at Angul and GMR were configured, checked & the extension of SPS signals in both the panels was made on 20th Dec, 2014. The AND logic was replaced with OR logic.

Sterlite informed that there is no increment in PLCC Rx counter at their end.

It was informed that the signal was generated from Talcher HVDC and received at NTPC Talcher, Rourkela and Angul Sub-stations.

OCC advised Sterlite and Powergrid to check the SPS scheme.

D.3.3. Commissioning of Ind-Bharath to Jharsuguda D/C(dedicated line)

The interim LILO of 400kV Jharsuguda-Raigarh-I at Ind-Bharath has been commissioned on 12/11/14. As per decisions taken, it needs to be noted that the above LILO is an interim arrangement for the purpose of drawal of start up power only. As informed Ind-Bharath would be completing the Ind-Bharath-Jharsuguda D/C(dedicated line) by December,2014. Ind-Bharath may confirm the latest status in this regard.

In 103rd OCC, ERLDC informed that LILO of 400 kV Jharsuguda-Rourkela line at Ind-bharat was allowed for 1 month w.e.f. 12th November, 2014 for drawing start up power only.

OCC felt that Ind-Bharath should utilize this LILO only for drawing start up power and not for injection of power. They should bring their dedicated ATS in time for injecting the power into the grid.

Ind-Bharath may update.

Deliberation in the meeting

Ind-Bharath representative was not available for discussion.

D.3.4. Permission for Drawal of Startup Power from ISTS for Navinagar Thermal Power Project(4x250 MW) of BRBCL

Member Secretary, ERPC informed that he was in receipt of a letter from AGM(EED), BHARATIYA RAIL BIJLEE COMPANY LIMITED (BRBCL), a joint venture company of NTPC and Indian Railways. It has been informed that BRBCL is constructing Navinagar Thermal Power Project of 4X250 MW at Aurangabad district of Bihar. The Power Station shall be directly connected to the CTU network through Sasaram-Navinagar line As the commissioning of first unit would commence shortly, BRBCL has requested for permission for drawal of startup power from the grid.

Deliberation in the meeting

On query, the BRBCL representative informed that the maximum quantum of startup power that shall be needed was 15 MW. The requirement of startup power shall be for six months only. He appealed that, in the interest of early commissioning of the units, permission be granted at the earliest for availing start up power from ISTS network.

After detailed deliberations, the followings were decided:

- i) BRBCL shall apply to ERLDC immediately for the start up power, giving all requisite documents.*

- ii) BRBCL shall ensure that data and voice communication links with ERLDC are in place before availing the start up power.*
- iii) The maximum quantum of power that may be drawn by BRBCL is 15 MW.*
- iv) SEMs shall be in place for recording of power transaction between BRBCL and Eastern Regional grid. BRBCL shall ensure that the SEM data are transferred to ERLDC on weekly basis as per the time schedule prescribed by CERC.*
- v) BRBCL shall start drawing start up power only on receipt of clearance from ERLDC.*
- vi) Power drawn by BRBCL shall be treated as unscheduled power and shall be accordingly priced based on frequency.*
- vii) BRBCL shall be a Pool Member for settlement of transactions and shall pay all necessary charges.*
- viii) The facility of startup power shall be for a period of six month (as first instance) or the date of synchronisation of unit whichever is earlier.*
- ix) BRBCL shall abide by all the instructions issued by ERLDC from time to time.*

BRBCL was requested to contact ERLDC for completing all the necessary formalities.

Meeting ended with vote of thanks to the chair.

Participants in 104th OCC Meeting

Venue: ERPC Conference Room

Time: 11:00 hrs

Date: 23.12.14 (Tuesday)

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

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Time: 11:00 hrs

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Annexure – B1.a

AVAILABILITY STATUS OF EVENT LOGGER / DISTURBANCE RECORDER / GPS

Sl. NO	Substation	Protection & Control System						Remarks
		Availability			Time Synchronization			
		EL	DR	GPS	Relay	DR	EL	
1	Subhasgram	Yes	Yes	Yes	Yes	Yes	Yes	
2	Maithon	Yes	Yes	Yes	Yes	Yes	Yes	
3	Durgapur	Yes	Yes	Yes	Yes	Yes	Yes	
4	Malda	Yes	Yes	Yes	Yes	Yes	Yes	
5	Dalkhola	Yes	Yes	Yes	Yes	Yes	Yes	
6	Siliguri	Yes	Yes	Yes	Yes	Yes	Yes	
7	Binaguri	Yes	Yes	Yes	Yes	Yes	Yes	
8	Birpara	Yes	Yes	Yes	Yes	Yes	Yes	
9	Gangtok	Yes	Yes	Yes	Yes	Yes	Yes	
10	Baripada	Yes	Yes	Yes	Yes	Yes	Yes	
11	Rengali	Yes	Yes	Yes	Yes	Yes	Yes	
12	Indravati (PGCIL)	Yes	Yes	Yes	Yes	Yes	Yes	
13	Jeypore	Yes	Yes	Yes	Yes	Yes	Yes	EL is old and not working satisfactorily. New EL would be implemented in BCU under NTAMC project by March, 2015
14	Talcher	Yes	Yes	Yes	Yes	Yes	Yes	
15	Rourkela	Yes	Yes	Yes	Yes	Yes	Yes	
16	Bolangir	Yes	Yes	Yes	Yes	Yes	Yes	
17	Patna	Yes	Yes	Yes	Yes	Yes	Yes	
18	Ranchi	Yes	Yes	Yes	Yes	Yes	Yes	
19	Muzaffarpur	Yes	Yes	Yes	Yes	Yes	Yes	
20	Jamshedpur	Yes	Yes	Yes	Yes	Yes	Yes	
21	New Purnea	Yes	Yes	Yes	Yes	Yes	Yes	
22	Gaya	Yes	Yes	Yes	Yes	Yes	Yes	
23	Banka	Yes	Yes	Yes	Yes	Yes	Yes	
24	Biharsariif	Yes	Yes	Yes	Yes	Yes	Yes	
25	Barh	Yes	Yes	Yes	Yes	Yes	Yes	
26	Sagardighi	No	Yes	Yes	Yes	Yes	No	EL is under process of restoration with help from OEM, China
27	Kahalgaon	Yes	Yes	Yes	Yes	Yes	Yes	
28	Farakka	Yes	Yes	No	No	No	No	Time synchronization available for Farakka-Kahalgaon line-III & IV. The same will be implemented in rest of the lines by December, 2014.
29	Meramundali	Defunct	Yes	Yes	Yes	Yes	No	EL will be restored by March, 2015.
30	Tisco	Yes	Yes	Yes	Yes	Yes	Yes	
31	Bidhannagar	No	Yes	Yes	No	No	No	Using DR & EL available in Numerical relays. GPS will be put in service by January, 2015.
32	Indravati (OHPC)	Yes	Faulty	No	No	No	No	Time synchronization will be done by Feb, 2015. ICT-I feeders using DR & EL available in Numerical relays. 400 kV ICT-II feeder is being maintained by

								PGCIL, Mukhiguda. Status may confirm from PGCIL
33	Kharagpur	No	Yes	Yes	No	No	No	Using DR & EL available in Numerical relays.
34	DSTPS	Yes	Yes	Yes	Yes	Yes	Yes	
35	Sterlite	Yes	Yes	Yes	Yes	Yes	Yes	
36	Mejia 'B'	Yes	Yes	Yes	Yes	Yes	Yes	
37	Mendhasal	Defunct	Yes	Yes	Yes	Yes	No	EL will be restored by March, 2015.
38	Arambagh	No	Yes	Yes	No	No	No	Using DR & EL available in Numerical relays
39	Jeerat	No	Yes	No	No	No	No	Using DR & EL available in Numerical relays. Procurement of new GPS is in progress.
40	Bakreswar	Yes	Yes	Yes	Yes	Yes	Yes	
41	GMR	Yes	Yes	Yes	Yes	Yes	Yes	
42	Maithon RB	Yes	Yes	Yes	Yes	Yes	Yes	
43	Raghunathpur	Yes	Yes	Yes	Yes	Yes	Yes	
44	Kolaghat	Yes	Yes	Yes	Yes	Yes	Yes	
45	Teesta V	Yes	Yes	Yes	Yes	Yes	Yes	
46	Koderma	Yes	Yes	Yes	Yes	Yes	Yes	
47	Sasaram	Yes	Yes	Yes	Yes	Yes	Yes	
48	Rangpo	Yes	Yes	Yes	Yes	Yes	Yes	
49	Adhunik	Yes	Yes	Yes	Yes	Yes	Yes	
50	JITPL							
51	Angul	Yes	Yes	Yes	Yes	Yes	Yes	
52	Chuzachen	Yes	Yes	Yes	No	Yes	Yes	
53	New Ranchi 765kV	Yes	Yes	Yes	Yes	Yes	Yes	
54	Lakhisarai	Yes	Yes	Yes	Yes	Yes	Yes	
55	Chaibasa							
56	Jharsuguda	Yes	Yes	Yes	Yes	Yes	Yes	
57	Beharampur	Yes	Yes	Yes	Yes	Yes	Yes	

**REACTIVE COMPENSATION DETAILS
FOR 400 KV AND ABOVE LINES / SUB-STATIONS**

List of Line reactors

Sl No	Name of the Transmission Line	LENGTH (KM)	END	Capacity in MVAR	REMARKS
1	BEHRAMPUR-JEERAT	144	JEERAT	1X50	SWITCHABLE
2	SAGARDIGHI-SUBASHGRAM	256.3	SAGARDIGHI	1X63	
			SUBHASGRM	1X50	
3	FARAKKA-PARULIA-I	150	FARAKKA	1X50	
4	BIDHANAGAR-PARULIA I	11	PARULIA	1X50	
5	LAKHISARAI-B'SHARIFF-I	89	B'SHARIFF	1X50	
6	LAKHISARAI-B'SHARIFF-II	89	B'SHARIFF	1X50	
7	K'GAON-MAITHON-I	172	MAITHON	1X50	
8	K'GAON-MAITHON-II	172	MAITHON	1X50	
9	ROURKELLA-CHAIBASA-I	120	ROURKELA	1X50	
10	ROURKELLA-CHAIBASA-II	120	ROURKELA	1x50	
11	ROURKELA-TALCHER I	175	TSTPP	1X50	
12	ROURKELA-TALCHER II	175	TSTPP	1X50	
13	KEONJHAR-BARIPADA	156	BARIPADA	1X50	
14	BARIPADA-MENDASAL-I	273	MENDASAL	1 X 63	
15	BARIPADA-MENDASAL-II	273	MENDASAL	1 X 63	
			BARIPADA	1 X 63	NOW AT 220 KV
16	BAKRESWAR-ARAMBAGH	132	BAKRESWAR	1X63	
17	BAKRESWAR-JEERAT	162	JEERAT	1X63	
18	RENGALI-INDRAVATI	356	RENGALI	1x50	
			INDRAVATI	1x50	
19	B'SHARIFF-TENUGHAT	180	TENUGHAT	1x50	
20	MALDA-PURNEA -I	167	MALDA	1x63	
21	MALDA-PURNEA -II	167	MALDA	1x63	
22	BINAGURI-BONGAIGAON-I	216	BONGAIGAON	1X63	
23	BINAGURI-BONGAIGAON-II	216	BONGAIGAON	1X63	
24	BINAGURI-BONGAIGAON-III	224	BINAGURI	1X80	
25	BINAGURI-BONGAIGAON-IV	224	BINAGURI	1X80	
26	BINAGURI-TALA-I	115	BINAGURI	1X63	
27	BINAGURI-TALA-II	115	BINAGURI	1X63	
28	BINAGURI-TALA-IV	98	BINAGURI	1X63	
29	PURNEA-BINAGURI-I	168	PURNEA	1x63	SWITCHABLE
30	PURNEA-BINAGURI-III	160	PURNEA	1X63	
31	PURNEA-MUZAFFARPUR-I	240	PURNEA	1x63	
			MZFRPR	1x63	
32	PURNEA-MUZAFFARPUR-II	240	PURNEA	1x63	
			MZFRPR	1x63	
33	ROURKELA-JHARSUGUDA- I	142	ROURKELA	1x63	
34	ROURKELA-STERLITE-I	113	ROURKELA	1X63	
35	MERAMUNDALI-ANGUL-I	20.8	MERAMUNDALI	1x80	
36	ANGUL-BOLANGIR	199	BOLANGIR	1x50	
37	BOLANGIR-JEYPORE	288	BOLANGIR	1x50	
			JEYPORE	1x80	
38	B'SHARIFF-PUSAULI D/C	195	PUSAULI	2x63	
39	PUSAULI-ALLAHABAD	271	PUSAULI	1X63	
40	PUSAULI-SARNATH		PUSAULI	1X63	
41	MUZAFFARPUR-GRKPR-I	260	MUZAFFARPUR	1X63	SWITCHABLE
42	MUZAFFARPUR-GRKPR-II	260	MUZAFFARPUR	1X63	
43	B'SHARIFF-BALIA -I	242	BALIA	1X50	
44	B'SHARIFF-BALIA -II	242	BALIA	1X50	
45	RANCHI-SIPAT-I	405	RANCHI	1X80	
46	RANCHI-SIPAT-II	405	RANCHI	1X80	
47	JEYPORE-GAJUWAKA-I	220	GAJUWAKA	1X80	
48	JEYPORE-GAJUWAKA-II	220	GAJUWAKA	1X80	
49	MPL-RANCHI -I	188	MPL	1 X50	
			RANCHI	1 X50	
50	MPL-RANCHI -II	188	MPL	1 X50	
			RANCHI	1 X50	
51	PUSAULI-BIHARSHARIFF-III	198	BIHARSARIFF	1 X50	
			PUSAULI	1 X50	
52	PUSAULI-BIHARSHARIFF-IV	198	PUSAULI	1 X50	
			BIHARSARIFF	1 X50	
53	765 kV GAYA-PUSAULI-FATEHPUR	482 (145 & 337)	GAYA	1 X 240 #	765 kV LINE MID POINT REACTOR IN NR
			PUSAULI	1 X 330 #	
			FATEHPUR	1 X 330 #	

54	765 kV PUSAULI-FATHEPUR	356	PUSAULI	1 X 330 #	765 kV LINE
55	765 kV RANCHI-DHRAMJAYGARH I	398	RANCHI	1 X 240 #	765 kV LINE
56	765 kV RANCHI-DHRAMJAYGARH II	398	RANCHI	1 X 240 #	765 kV LINE
57	LAKHISARAI-KhSTPP - I		LAKHISARAI	1 X 50	
58	PATNA - KISHANGUNJ-I	352	PATNA	1 X 63	NOW CONNECTED AT B/R
59	MAITHON-GAYA-I	235	GAYA	1 X 50	SWITCHABLE
			MAITHON	1 X 50	SWITCHABLE
60	MAITHON-GAYA-II	235	GAYA	1 X 50	SWITCHABLE
			MAITHON	1 X 50	SWITCHABLE
61	BANKA-BIHARSARIEFF I & II	185	BANKA	2 X 50	
62	BARIPADA-KEONJHAR	156	BARIPADA	1 X 50	
63	BIHARSARIEFF-PURNEA I	232	BIHARSARIEFF	1 X 80	SWITCHABLE
64	BIHARSARIEFF-PURNEA II	232	BIHARSARIEFF	1 X 80	SWITCHABLE
65	765 KV JHARSUGUDA-ANGUL II		JHARSUGUDA	1 X 240 #	NOW CONNECTED AT B/R
TOTAL				5611	

List of Bus reactors

Sl No	Name of SUB-STN	Capacity in MVAR	REMARKS
66	765 KV ANGUL	1 x 330 #	765 kV
67	765 kV GAYA	1 x 240 #	765 kV
68	765 KV JHARSUGUDA	1 X 240 #	765 kV
69	765 kV PUSAULI	1 x 330 #	765 kV
70	765 kV RANCHI NEW	1X240 #	765 kV
71	ANGUL	3X125	
72	ARAMBAGH	1X50	
73	BAKRESWAR	1X50	
74	BANKA	1X80	
75	BARH	1X80	
76	BEHRAMARA	2X63	BANGLADESH
77	BEHRAMPUR	1X80	
78	BIDHANNAGAR	1X50	
79	BIHARSHARIEFF	1X50+1X80	
80	BINAGURI	2X125	
81	BOLANGIR	1X80	
82	FARAKKA	2X50	
83	GAYA	2 X125	
84	JAMSHEDPUR	2X50	
85	JEERAT	1X50	
86	JEYPORE	31.5* +1 x 63	* Tertiary winding of 400/220/33 kV ICT
87	JHARSUGUDA	2X125	
88	KAHALGAON	2X50	
89	KEONJHAR	1X80	
90	KHARAGPUR	1 X80	
91	KODERMA	2X50	
92	LAKHISARAI	1 X 80	
93	MAITHON	1X50	
94	MAITHON RIGHT BANK	2 X 50	
95	MUZAFFARPUR	1X63	
96	PARULIA	1X50	
97	PATNA	1X80+2x125	
98	PURNEA	2X125	
99	PUSAULI	2 X 125	
100	RAGHUNATHPUR	2X50	
101	RANCHI	1X80+1x125	
102	RANCHI NEW	2x125	
103	RANGPO	2 X 80	
104	RENGALI	31.5*	* Tertiary winding of 400/220/33 kV ICT
105	ROURKELA	1X50	
TOTAL		5905	

three single phase units, whose combined capacity is indicated

* 31.5 MVAR reactor is connected to 33 kV tertiary winding

List of Owner of PLCC equipment

Sl No	TIE-LINE	CONNECTED SYSTEM		LENGTH (KM)	CONDUCTOR (Type)	VOLTS (kV)	NO OF CKTS	Ownership		Maintenance		Owner of Line	
								End1	End2	End1	End2		
1	MEZIA-JAMSHEDPUR	DVC	POWERGRID(ER)	168	TWIN MOOSE	400	S/C	POWERGRID	POWERGRID	DVC/POWERGRID	POWERGRID	POWERGRID	
2	TSTPP-MERAMUNDALI	NTPC	OPTCL	51	MOOSE	400	D/C	OPTCL	OPTCL	OPTCL	OPTCL	POWERGRID	
3	FARAKKA-SAGARDIGHI	POWERGRID	WBSETCL	70	MOOSE	400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
4	BINAGURI-TALA	POWERGRID	THEPA	114	MOOSE	400	T/C	POWERGRID	Tala Hydropower Plant/Bhutan Power Corporation	POWERGRID	Tala Hydropower Plant/Bhutan Power Corporation	Powergrid/Bhutan Power Corporation Ltd.	
5	BINAGURI-MALBASE	POWERGRID	THEPA	121	MOOSE	400	S/C	POWERGRID	Bhutan Power Corporation Ltd.	POWERGRID	Bhutan Power Corporation Ltd.	Powergrid/Bhutan Power Corporation Ltd.	
6	FARAKKA-JEERAT	POWERGRID	WBSETCL	238	MOOSE	400	S/C	POWERGRID	POWERGRID	Powergrid/NTPC	POWERGRID	POWERGRID	
7	INDRAVATI-INDRAVATI	POWERGRID(ER)	OPTCL	1	MOOSE	400	S/C	OPTCL	OPTCL	OPTCL / POWERGRID	OPTCL	OPTCL	
8	SASARAM -SARNATH	POWERGRID(ER)	POWERGRID(NR)	76	MOOSE	400	S/C	POWERGRID	UPPCL	POWERGRID	UPPCL	POWERGRID	
9	MAITHON-DSTPS	POWERGRID(ER)	DVC	97	TWIN MOOSE	400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID / DVC	DVC	
10	JEYPORE-MERAMUNDALI	POWERGRID(ER)	OPTCL	456	MOOSE	400	S/C						
11	RAIGARH-STERLITE	POWERGRID(WR)	VEDANTA	147	TWIN MOOSE	400	S/C	POWERGRID(WR)	STERLITE ENERGY Ltd	POWERGRID(WR)	STERLITE ENERGY Ltd	STERLITE UPTO LILO POINT(26 KM)/REMAINING PORTION OF THE LINE IS OWN BY PGCIL	
12	STERLITE-ROURKELA	VEDANTA	POWERGRID(ER)	114	TWIN MOOSE	400	S/C	STERLITE ENERGY Ltd	POWERGRID(ER)	STERLITE ENERGY Ltd	POWERGRID(ER)		
13	JEERAT-SUBHASGRAM	WBSETCL	POWERGRID	80	MOOSE	400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
14	KHARAGPUR-BARIPADA	WBSETCL	POWERGRID(ER)	174	MOOSE	400	S/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL & POWERGRID	
15	SAGARDIGHI-SUBHASGRAM	WBPDCL	POWERGRID	300	MOOSE	400	S/C	WBPDCL	WBPDCL	WBPDCL	WBPDCL	POWERGRID	
16	SAGARDIGHI-PARULIA I	WBSETCL	POWERGRID(ER)	130	TWIN MOOSE	400	S/C	WBPDCL	WBPDCL	WBPDCL	WBPDCL	WBPDCL	
17	BARIPADA-MENDASAL	POWERGRID	OPTCL	272	TWIN MOOSE	400	D/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID / OPTCL	POWERGRID	
18	PARULIA-BIDHANNAGAR	POWERGRID	WBSETCL	11	TWIN MOOSE	400	S/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
19	MAITHON-MAITHON RB	POWERGRID	MPL	31	TWIN MOOSE	400	D/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID / MPL	POWERGRID	
20	RENGALI - BARIPADA	POWERGRID	POWERGRID	240	TW. MOOSE	400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	OPTCL & POWERGRID	
21	FARAKKA - KAHALGAON I & II	NTPC	NTPC	95	TW. MOOSE	400	D/C	PGCIL	NTPC Farakka	NTPC Kahalgaon	NTPC Farakka	PGCIL	
22	FARAKKA-KAHALGAON III & IV	NTPC	NTPC	95	TW. MOOSE	400	D/C	PGCIL	PGCIL	PGCIL	PGCIL	PGCIL	
23	FARAKKA - MALDA	NTPC	POWERGRID	40	TW. MOOSE	400	D/C	POWERGRID	POWERGRID	POWERGRID / NTPC	POWERGRID	POWERGRID	
24	KAHALGAON BIHARSARIFF I & II	NTPC	POWERGRID	201	TW. MOOSE	400	D/C	NTPC Kahalgaon	PGCIL	NTPC Kahalgaon	PGCIL	PGCIL	
25	KAHALGAON-BANKA I & II	NTPC	POWERGRID	166	TW. MOOSE	400	D/C	PGCIL	PGCIL	PGCIL	PGCIL	PGCIL	
26	KAHALGAON -PATNA	NTPC	POWERGRID	257	QD. MOOSE	400	S/C	This line has been now LILO at NTPC Barh and Thus Kahalgaon -Barh and Barh-Patna is now D/C					
27	KAHALGAON -BARH	NTPC	NTPC	217	QD. MOOSE	400	S/C	PGCIL	PGCIL	PGCIL	PGCIL	PGCIL	
28	BARH -PATNA I & II	NTPC	POWERGRID	94	QD. MOOSE	400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
29	BARH -PATNA III & IV	NTPC	POWERGRID	68	QD. MOOSE	400	D/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
30	TSTPP - ROURKELA	NTPC	POWERGRID	171	TW. MOOSE	400	D/C	NTPC	POWERGRID	NTPC	POWERGRID	POWERGRID	
31	FARAKKA - PARULIA	NTPC	POWERGRID	150	TW. MOOSE	400	S/C	PGCIL	POWERGRID	Powergrid	POWERGRID	POWERGRID	
32	TEESTA-V - BINAGURI I	NHPC	POWERGRID	115	TW. MOOSE	400	D/C	ABB System - NHPC	ABB System - NHPC	NHPC / POWERGRID	NHPC / POWERGRID	POWERGRID	
33	TEESTA-V - BINAGURI II	NHPC	POWERGRID	116	TW. MOOSE	400	D/C	BPL System - PGCIL	BPL System - PGCIL	NHPC / POWERGRID	BPL System - PGCIL	POWERGRID	
34	Kahalgaon-Maithon #1 & 2	NTPC Kahalgaon	PGCIL	171.9	TW. Moose	400	D/C	NTPC Kahalgaon	May be verified from remote end	NTPC Kahalgaon	May be verified from remote end	PGCIL	
35	KANIHA-RENGALI	NTPC	POWERGRID	25	TWIN MOOSE	400	D/C	NTPC	POWERGRID	NTPC	POWERGRID		
36	BKTPP-ARAMBAGH	WBPDCL	WBSETCL	129	TWIN MOOSE	400	S/C	WBPDCL	WBSETCL	WBPDCL	WBSETCL	WBSETCL	
37	BKTPP-JEERAT	WBPDCL	WBSETCL	162	TWIN MOOSE	400	S/C	WBPDCL	WBSETCL	WBPDCL	WBSETCL	WBSETCL	
38	KANIHA-RENGALI	NTPC	POWERGRID	25	TWIN MOOSE	400	D/C	NTPC	POWERGRID	NTPC	POWERGRID	POWERGRID	

SL No	TIE-LINE	CONNECTED SYSTEM		LENGTH (KM)	CONDUCTOR (Type)	VOLTS (kV)	NO OF CKTS	Ownership		Maintenance		Owner of Line	
								End1	End2	End1	End2		
39	KANIHA-MERAMANDALI	NTPC	OPTCL	51	TWIN MOOSE	400	D/C	OPTCL	OPTCL	OPTCL	OPTCL	POWERGRID	
40	RTPS-Ranchi (PG)	DVC	POWERGRID			400	D/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
41	RTPS-Maithon (PG)	DVC	POWERGRID			400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
42	DSTPS-MTPS	DVC	DVC			400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
43	KTPS-Biharshariff	DVC				400	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
44	DEHRI--GAYA	BSEB	POWERGRID	96	ZEBRA	220	D/C	POWERGRID/BSEB	POWERGRID	POWERGRID/BSEB	POWERGRID	Upto LILO portion POWERGRID(ie 11 km)	
45	GAYA--BODHGAYA	POWERGRID	BSEB	16	ZEBRA	220	D/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	Upto LILO portion POWERGRID(ie 12 km)	
46	WARIA-BIDHANNAGAR	DVC	WBSETCL	17	ZEBRA	220	D/C	DVC	WBSETCL	DVC	WBSETCL		
47	CHANDIL-RANCHI	JSEB	POWERGRID	42	ZEBRA	220	S/C	POWERGRID/JSEB	POWERGRID	POWERGRID/JSEB	POWERGRID	Out of total line length 07 KM (Upto LILO)own by POWERGRID and rest own by JSEB	
48	CHANDIL-SANTALDIH	JSEB	WBSETCL/WBPDCL	105	ZEBRA	220	S/C	JSEB	WBSETCL/WBPDCL	JSEB	WBSETCL/WBPDCL	JSEB & WBSETCL/WBPDCL	
49	TENUGHAT-BIHARSHARIFF	JSEB	BSEB	182	MOOSE	220	S/C	JSEB	BSEB	JSEB	BSEB	JSEB & BSEB	
50	TSTPP-TALCHER	NTPC	OPTCL	30	ZEBRA	220	S/C	OPTCL	OPTCL	OPTCL	OPTCL	OPTCL	
51	TSTPP-MERAMUNDALI	NTPC	OPTCL	40	ZEBRA	220	D/C	OPTCL	OPTCL	OPTCL	OPTCL	OPTCL	
52	TSTPP-RENGALI	NTPC	OPTCL	40	ZEBRA	220	S/C	OPTCL	OPTCL	OPTCL	OPTCL	OPTCL	
53	FARAKKA-LALMATIA	NTPC	JSEB	79	ZEBRA	220	S/C	PGCIL	ECL	PGCIL	ECL	ECL	
54	BALIMELA-U.SILLERU	OPTCL	APTRASCO	24	ZEBRA	220	S/C						
55	BUDHIPADAR-RAIGARH	OPTCL	CHATTISGARH	81	ZEBRA	220	S/C						
56	JODA-RAMCHANDRAPUR	OPTCL	JSEB	127	ZEBRA	220	S/C	JSEB	JSEB	JSEB	JSEB		
57	JINDAL-JAMSHEDPUR	OPTCL	DVC	129.65	ZEBRA	220	S/C	Jindal	DVC	Jindal	DVC		
58	BUDHIPADAR-KORBA	OPTCL	CHATTISGARH	180	ZEBRA	220	D/C	POWERGRID	POWERGRID (WR)	POWERGRID / OPTCL	POWERGRID	POWERGRID	
59	BINAGURI-NJP	POWERGRID	WBSETCL	0.2	MOOSE	220	S/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
60	SUBHASGRAM-SUBHASGRAM	POWERGRID	WBSETCL	0.5	ZEBRA	220	D/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
61	JEYPORE-JAYNAGAR	POWERGRID	OPTCL	1	ZEBRA	220	D/C	OPTCL	OPTCL	OPTCL / POWERGRID	OPTCL	OPTCL	
62	PARULIA(PG)-PARULIA(DVC)	POWERGRID	DVC	1	ZEBRA	220	D/C	DVC / POWERGRID	DVC	DVC / POWERGRID	DVC	DVC	
63	RENGALI-RENGALI	POWERGRID	OPTCL	1	ZEBRA	220	D/C	OPTCL	OPTCL	OPTCL / POWERGRID	OPTCL	OPTCL	
64	MAITHON-K'SWARI III & IV	POWERGRID	DVC	7	ZEBRA	220	D/C	DVC / POWERGRID	DVC	DVC / POWERGRID	DVC	DVC	
65	PARULIA-BIDHANNAGAR	POWERGRID	WBSETCL	11	MOOSE	220	S/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
66	BISRA-TARKERA	POWERGRID	OPTCL	15	ZEBRA	220	D/C	OPTCL	OPTCL	OPTCL / POWERGRID	OPTCL	OPTCL	
67	MUZZFARPUR-KANTI	POWERGRID	BSEB	22	ZEBRA	220	D/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERLINK	
68	RANCHI-HATIA	POWERGRID	JSEB	34	ZEBRA	220	S/C	POWERGRID	JSEB	POWERGRID	JSEB	Out of total line length 07 KM (Upto LILO)own by POWERGRID and rest own by JSEB	
69	BIRPARA-MALBASE	POWERGRID	POWERGRID	40	ZEBRA	220	S/C	POWERGRID	CHPC/Bhutan Power Corporation Ltd.	POWERGRID	CHPC/Bhutan Power Corporation Ltd.	Powergrid & CHPC/Bhutan Power Corporation Ltd.	
70	ARRAHA-KAHAGAUL	POWERGRID	BSEB	50	ZEBRA	220	D/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
71	PUSUALI-SAHUPURI	POWERGRID	UPPCL	72	ZEBRA	220	S/C	Powergrid	UPPCL	Powergrid	UPPCL	LILO portion belongs to Powergrid	
72	BIRPARA- CHUKHA	POWERGRID	POWERGRID	76	ZEBRA	220	D/C	POWERGRID	Chhukha Hydropower Plant	POWERGRID	Chhukha Hydropower Plant	Powergrid & Bhutan Power Corporation Ltd.	
73	MAITHON-DHANBAD-CTPS I & II	POWERGRID	DVC	105	ZEBRA	220	D/C	DVC / POWERGRID	DVC	DVC / POWERGRID	DVC	DVC	
74	PATNA-KHAGAUL	POWERGRID	BSEB	25	ZEBRA	220	S/C	POWERGRID	BSEB	POWERGRID	BSEB	BSEB	
75	BKTPP-GOKARNA	WBPDCL	WBSETCL	82	ZEBRA	220	D/C	WBPDCL	WBSETCL	WBPDCL	WBSETCL	WBSETCL	
76	BKTPP-SATGACHIA	WBPDCL	WBSETCL	131	ZEBRA	220	D/C	WBPDCL	WBSETCL	WBPDCL	WBSETCL	WBSETCL	

SL No	TIE-LINE	CONNECTED SYSTEM		LENGTH (KM)	CONDUCTOR (Type)	VOLTS (kV)	NO OF CKTS	Ownership		Maintenance		Owner of Line	
								End1	End2	End1	End2		
77	BKTPP-BIDHANNAGAR	WBPDC	WBSETCL	400	ZEBRA	220	D/C	WBPDC	WBSETCL	WBPDC	WBSETCL	WBSETCL	
78	KANIHA-MERAMANDALI	NTPC	OPTCL	40	ZEBRA	220	D/C	OPTCL	OPTCL	OPTCL	OPTCL	OPTCL	
79	KANIHA-RENGALI	NTPC	OPTCL	40	ZEBRA	220	S/C	OPTCL	OPTCL	OPTCL	OPTCL	OPTCL	
80	KANIHA-TTPS	NTPC	OPTCL	30	ZEBRA	220	S/C	OPTCL	OPTCL	OPTCL	OPTCL	OPTCL	
81	PURNEA-PURNEA	BSEB	POWERGRID	1	LARK	132	T/C	PGCIL	PGCIL	PGCIL	PGCIL	PGCIL	
82	KAHALGAON-KAHALGAON	BSEB	NTPC	2	PANTHER	132	S/C	NTPC	NTPC	NTPC	NTPC		
													LILo portion belongs to Powergrid
83	ARRAH-ARRAH	BSEB	POWERGRID	3	PANTHER	132	S/C	BSEB	BSEB	BSEB	BSEB	BSEB	
84	KARMANASA-SAHUPURI	BSEB	UPPCL	27	PANTHER	132	S/C	BSEB	BSEB	BSEB	BSEB	BSEB	
85	MOHONIA-PUSUALI	BSEB	POWERGRID	29	PANTHER	132	S/C	Powergrid	Powergrid	Powergrid	Powergrid	Powergrid	
													LILo portion belongs to Powergrid
86	DUMRAON-ARRAH	BSEB	POWERGRID	61	PANTHER	132	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	BSEB	
87	DEHRI-PUSUALI	BSEB	POWERGRID	63	PANTHER	132	S/C	Powergrid	Powergrid	Powergrid	Powergrid	Powergrid	
88	SONENAGAR - RIHAND	BSEB	UPPCL	139	PANTHER	132	S/C	BSEB	BSEB	BSEB	BSEB	BSEB	
89	SONENAGAR - JAPLA	BSEB	JSEB	16	PANTHER	132	S/C	BSEB	JSEB	BSEB	JSEB		
90	KHARAGPUR-KHARAGPUR	DVC	WBSETCL	1	PANTHER	132	S/C						
91	KOLAGHAT-KOLAGHAT	DVC	WBSETCL	1	PANTHER	132	S/C						
92	WARIA-DPL	DVC	DPL	8.5	ZEBRA	132	D/C						
93	MAITHON-JAMTARA	DVC	JSEB	100	PANTHER	132	S/C	JSEB	JSEB	JSEB	JSEB		
94	BARHI-RAJGIR	DVC	BSEB	125	LARK	132	S/C	DVC	BSEB	DVC	BSEB		
95	BARHI - B'SHARIFF	DVC	BSEB	142	PANTHER	132	S/C	DVC	BSEB	DVC	BSEB		
96	CHANDIL-MANIQUE	JSEB	DVC	1	PANTHER	132	D/C	JSEB	DVC	JSEB	DVC		
97	PATRATU-PATRATU	JSEB	DVC	3	LARK	132	S/C	JSEB	DVC	JSEB	DVC		
98	GARWA-RIHAND	JSEB	UPPCL	30	PANTHER	132	S/C	JSEB	UPPCL	JSEB	UPPCL		
99	LALMATIA-SABOUR	JSEB	BSEB	72	PANTHER	132	S/C	JSEB	BSEB	JSEB	BSEB		
100	DEOGHAR-SULTANGANJ	JSEB	BSEB	93	PANTHER	132	S/C	JSEB	BSEB	JSEB	BSEB		
101	GARWA-SONENAGAR	JSEB	BSEB	104	PANTHER	132	S/C						
102	RANGIT-RAMMAM	NHPC	WBSETCL	27	PANTHER	132	S/C	NHPC	PGCIL	NHPC	PGCIL	PGCIL	
103	RANGIT - MELLI	NHPC	SIKKIM	32.5	PANTHER	132	D/C	Sikkim power dept	Sikkim power dept	Sikkim power dept	Sikkim power dept	Sikkim power dept. It's a S/C line, PLCC not working since JSEB & BSEB/NTPC	
104	KAHALGAON-LALMATIA	NTPC	JSEB	34	PANTHER	132	S/C	NTPC Kahalgaon	NTPC	NTPC Kahalgaon			
105	JODA-KENDPOSI	OPTCL	JSEB	48	PANTHER	132	S/C	JSEB		JSEB	JSEB		
106	ROURKELA-GOELKERA	OPTCL	JSEB	68	PANTHER	132	S/C	JSEB		JSEB	JSEB		
107	MACHKUND-VIZAG	OPTCL	APTRANSCO	160	LARK	132	S/C						
108	GANGTOK - GANGTOK	POWERGRID	SIKKIM	0	PANTHER	132	D/C	SIKKIM Power Dept.	SIKKIM Power Dept.	SIKKIM PD / POWERGRID		SIKKIM PD	
109	BIRPARA-BIRPARA	POWERGRID	WBSETCL	1	PANTHER	132	S/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
110	MALDA-MALDA	POWERGRID	WBSETCL	6	PANTHER	132	D/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
111	NJP-NBU	POWERGRID	WBSETCL	8	PANTHER	132	D/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
112	BARIPADA-BARIPADA	POWERGRID	OPTCL	11	PANTHER	132	S/C	OPTCL	OPTCL	OPTCL / POWERGRID	OPTCL	OPTCL	
113	RANGPO-GANGTOK												
114	BARIPADA-RAIRANGPUR	POWERGRID	OPTCL	70	PANTHER	132	S/C	OPTCL	OPTCL	OPTCL / POWERGRID	OPTCL	OPTCL	
115	BARIPADA-BALASORE	POWERGRID	OPTCL	77	ZEBRA	132	S/C	OPTCL	OPTCL	OPTCL / POWERGRID	OPTCL	OPTCL	
116	NJP-MELLI	POWERGRID	SIKKIM	90	PANTHER	132	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
117	PURNEA-KISHENGANJ	POWERGRID	BSEB	70	PANTHER	132	S/C	POWERGRID	POWERGRID	POWERGRID	POWERGRID	POWERGRID	
118	PURULIA-PURULIA	WBSETCL	DVC	1	PANTHER	132	S/C						
119	RANGIT-RANGPO	NHPC	PGCIL			132kV							
120	DALKHOLA-KISHENGANJ	WBSETCL	BSEB	26	PANTHER	132	S/C	WBSETCL	WBSETCL	WBSETCL	WBSETCL	WBSETCL	
121	RANGIT-SILIGURI	NHPC	PGCIL	92.6	PANTHER	132	S/C	NHPC	POWERGRID	NHPC	POWERGRID	POWERGRID	
122	RANGIT - MELLI	NHPC	SIKKIM	37	LARK	66	S/C	PLCC Scheme not available for this line. Now the line is Rangit-Ravangla instead of Rangit-Melli which is approx 10 km.					
123	KALINGPONG-MELLI	WBSETCL	SIKKIM	15	DOG	66	D/C						

Feeder wise details under Automatic Under-Frequency Load-shedding Scheme (AUFLS)

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
Bihar	Stage-I 49.2 Hz	132/33 KV Digha grid	Excise colony	20
		132/33 KV Bari Pahari (Bihar Sharif)	Bari Pahari I	11
			Bari Pahari II	5.5
			Sohsarai	10
			Noorsarai	10
			Asthama	5
		132/33 KV Harnaut	Harnaut	5.0
		132/33 KV Ekangarsarai	Parwalpur	3
		132/33 KV Purnea	Maranga	12
			Madhubani	10
		132/33 KV Nalanda	Nalanda	6
		132/33 KV Rajgir	Raytar	8
		Total Load Relief under Stage-I		105.5
	Stage-II 49.0 Hz	220/132/33 KV Fatuha grid	Fatuha	22
			Dina Iron	12
		132/33 KV Digha grid	Patliputra	20
		132/33 KV Harnaut	Line II Feeder (Charan)	1.5
		132/33 KV Ekangarsarai	Islampur	6
			Ekangarsarai	5
			Hilsa	4
		220/132/33 KV Sampatchak	Bahadurpur	14
			Sampatchak	7
			Kuda Nawada	10
		Total Load Relief under Stage-II		101.5
	Stage-III 48.8 Hz	132/33 KV Mithapur grid	PESU V	18
			PESU II & IV	32
		220/132/33 KV Fatuha grid	Katra	14
			Meena Bazar	24
		132/33 KV Katra	Sabalpur	5
			Karmalichak	8
			Ashoknagar	14
		Total Load Relief under Stage-III		115.0
	Stage-IV 48.6 Hz	132/33 KV Gaighat grid	Saidpur	20
			City Feeder	22
		132/33 KV Digha grid	Digha - I	18
			Digha - II	7
		132/33 KV Bari Pahari (Bihar Sharif)	Ramchandrapur	15
		132/33 KV Harnaut	Kalyanbigha	0.5
		132/33 KV Katra	Pahari	18
			Kankarbag	18
		Total Load Relief under Stage-IV		118.5
		Total Load relief under UFR Scheme		440.5

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub-Station		LOAD IN MW
Jharkhand	Stage-I 49.2 Hz	Lalmatia	Mahagama	14
		Dumka	Saraiyahat	12
		Pakur	Pakur	11
		Kamdara	Kamdara	06
		Gumla	Gumla	08
		Deoghar	Sarath	14
		Total Load Relief under Stage-I		65
	Stage-II 49.0 Hz	Garhwa	Ranka	12
			Bhavnathpur	12
		Sahebganj	Tinpahar	11
			Sahebganj	11
		Deoghar	Baidyanathpur	18
		Total Load Relief under Stage-II		64
	Stage-III 48.8 Hz	Hatia	Brambay	6
		Adityapur	Adityapur-I	17
			Adityapur-II	15
		Manique	Chandil-I	12
		Lalmatia	Godda	13
		Total Load Relief under Stage-III		63
	Stage-IV 48.6 Hz	Namkum	Kokar (R)	14
		Hatia	Argora	12
			Dhurwa	24
			Harmu	19
		Total Load Relief under Stage-IV		69
		Total Load relief under UFR Scheme		261

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub-Station		LOAD IN MW
DVC	Stage-I 49.2 Hz	Giridih sub station	JSEB Giridih	42.75
		Koderma Sub-Station	JSEB Koderma	28.5
		Burdwan	WBSEB Burdawan	45.6
		Total Load Relief under Stage-I		116.85
	Stage-II 49.0 Hz	Kalipahari Sub-station	DPSCO Luchipur	35.625
		Kumardhubi Sub-station	DPSCO Dishergarh	30.4
			JSEB (Mugma + Kumardubi + Sanjoy chowk)	16.15
		Total Load Relief under Stage-II		82.175
	Stage-III 48.8 Hz	Hazaribagh	JSEB Hazaribagh	28.5
		Patherdih Sub-station	JSEB: Govindpur(19)+ Mukunda(4) + Digwadi(11)	32.3
		Putki sub station	JSEB Godhor F#1 + Bhuli F#2	18.145
			JSEB Ganeshpur (F#1 & F#2)	11.4
			JSEB Katras + JSEB Katras Sijua	31.54
		Total Load Relief under Stage-III		121.885
DVC	Stage-IV 48.6 Hz	Ramgarh	JSEB Ramgarh	
		Kalipahari Sub-station	WBSEB Kanyapur + ECL Satgram F#2	30.875
			DPSCO Sheebpur	36.1
			DPSCO J.K.Nagar	19
		Total Load Relief under Stage-IV		119.225
		Total Load relief under UFR Scheme		440.135

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
WBSETCL	Stage-I 49.2 Hz	NBU 132 kV	33 kV TCF	7
			33 kV Khanbari	12
			33 kV Ujanu	16
			11 kV Teesta	7
			11 kV Bagdogra	16
			11 kV Phansidewa	11
		Uluberia 132 kV	UIGC-1	6
			Banitabla	14
			Foodpark	17
			Amta	14
			UIGC-2	10
		Kalyani 132 kV	33 kV WBIDC-I	3
			33 kV WBIDC-II	7
			33 kV University- I	14
			33 kV University- II	10
			1x6.3 MVA & 2x5 MVA, 33/11 kV Tr- 1, 2 & 3	13
		Dharampur 132 kV	33 kV Panpur	10
			33 kV Kachrapara	14
			33 kV Gouripur	14
			33 kV Cord Rd-1	7
			33 kV Cord Rd-2	10
			33 kV Jeerat	10
		Gangarampur 132 kV	33 kV Buniadpur-I	14
			33 kV Buniadpur-II	10
			33 kV Salas	10
			33 kV Rampur	05
			2x6.3 MVA 33/11 kV Tr- 1, 2	08
		CESC		65
		Total Load Relief under Stage-I		354
	Stage-II 49.0 Hz	220 kV Domjur S/S	33 kV jangalpur	19
			33 kV Jaladhulaguri-1	23
			33 kV Munshirhat	13
		Bagnan 132 kV	33 kV Bagnan-1	11
			33 kV Bagnan-2	11
			33 kV Amta	16
			Mugkalyan-1 &2	14
		132 kV Malda	33 kV Narayanpur	15
			33 kV Habibpur-Rabindra Bhavan	22
			33 kV Manikchak	12
			33 kV KPS	21
			33 kV Kalichak	23
			33 kV Gazol	17
			1x6.3 MVA, 1x5 MVA, 33/11 kV Tr- 1, 2	6

		New Bishnupur 220 kV	33 kV Sonamukhi	10
			33 kV Patrashayar	10
		Borjora 132 kV	33 kV Borjora-II	16
			2x6.3 MVA, 33/11 kV Tr- 1, 2	2
		CESC		90
		Total Load Relief under Stage-II		351

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
WBSETCL	Stage-III 48.8 Hz	Liluah 132 kV	33 kV Kona	19
			33 kV JNP	8
			33 kV KTT	16
			33 kV MKD	14
			33 kV Baltikuri-1	10
			33 kV Baltikuri-2	10
		NJP 220 kV	33 kV Radhabari	16
			33 kV Raninagar	20
			33 kV Debonagar	18
			33/11 kV 6.3 MVA Tr-I	2
			33/11 kV 6.3 MVA Tr-II	2
		Salt Lake 132 kV	33 kV M5F1	17
			33 kV M5F2	16
		Old Bishnupur 132 kV	33 kV Kotalpur	17
			33 kV Jaipur	18
			33 kV Simlapal	17
			33 kV Onda	15
			33 kV Bankadaha	3
			2x5 MVA, 1x6.3 MVA, 33/11 kV Tr- 1, 2 & 3	10
		CESC		125
		Total Load Relief under Stage-III		373

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
WBSETCL	Stage-IV 48.6 Hz	Siliguri 132 kV	33 kV Siliguri-I	15
			33 kV Siliguri-I	18
			33 kV Rabindranagar-I	16
			33 kV Housing Board	10
		Darjeeling 132 kV	33 kV Lebong	16
			33 kV Happy Valley	8
		Jangipara 132 kV	33 kV Jangipara	8
			33 kV Siakhala	10
			33 kV Singhati	9
			6.3 MVA 33/11 kV Tr- 1&2	8

		Tamluk 132 kV	33 kV Barbeia	7
			33 kV Moyna	3
			33 kV Gopalpur	22
			33 kV Tamluk	15
			6.3 MVA, 33/11 kV Tr-1&2	8
		Rishra	33 kV Raghunathpur	18
			33 kV Dankuni- I&II	11
			33 kV Kalikala-II	12
			4x6.3 MVA, 33/11 kV Tr-1, 2, 3 & 4	20
		CESC		120
		Total Load Relief under Stage-IV		354
		Total Load relief under UFR Scheme		1432

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
CESC	Stage-I 49.2 Hz	Chakmir S/S	55 MVA Tr1 & 2	47
		NCGS	Kamarhati T1	8
			Kutighat T3	10
	Stage-II 49.0 Hz	Dum Dum S/S	New Dum Dum T1	15
			New Dum Dum T2	14
			South Dum Dum T1	15
			Dum Dum T3	12
		BGS	Bauria 1&3	18
			Fore Shore Rd O/S (6kV Fdrs)	9
			Shalimar D/S (6kV Fdrs)	7
	Stage-III 48.8 Hz	Majerhat S/S	Diamond City (W) /S	13
			Thakurpukur T1	10
			Thakurpukur T2/Behala(N) T1	24
		Jadavpore S/S	South City D/S T2	13
			Tollygunge (N) D/S T-1	23
			South City T1	
		KRS	Ballygunge (E) D/S T1	8
		PRS	Orince St D/S	16
		NCGS	Kutighat T1	6
			Kutighat T2	6
			Kutighat T4	6
	Stage-IV 48.6 Hz	132 kV Liluah- CESC (BRS) 1,2 & 3 at WBSETCL Liluah		120

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
OPTCL	Stage-I 49.2 Hz	Kasinga	33kV Naria Feeder	11.0
		Junagarh	33kV Chartahal Feeder	10.0
		Bhanjanager	33kV KB Par Feeder	7.0
		Aska	33kV Buguda Feeder	11.0
		Berhampur	33kV Chikiti Feeder	11.0
		Balugaon	33kV Tangi Feeder	16.0
		Khurda	33kV Babki Feeder	13.0
		Nayagarh	33kV Khandapada Feeder	8.5
		Jagatsinghpur	33kV Jharpada Feeder	11.0
		Bonda	33kV Balikuda Feeder	12.0
		Bhadrak	33kV Dhamnagar Feeder	16.0
		Balasore	33kV Srijang Feeder	6.5
		Bolangir(Old)	33kV Dumarbanai Feeder	10.5
		Baragarh	33kV Dunguri Feeder	15.0
		Rourkela	33kV Lathikata Feeder	8.0
		Khanar	33kV Khanar RE	15.0
			Total	181.5

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
OPTCL	Stage-II 49.0 Hz	Jayanagar	33kV Bonguma Feeder	10.0
		Sunabeda	33kV Laxmpur Feeder	8.0
		Theuval	33kV Bissm Katak Feeder	8.0
		Phulbani	33kV Kalinga Feeder	8.0
		Kandrapara	33kV Luna Feeder	15.0
		Pattamundai	33kV Rajnagar Feeder	8.0
		Chatrapur	33kV Taratanni Feeder	14.0
		Chandikhole	33kV Kabatabandha Feeder	15.0
		Nimapara	33kV Kakatpur Feeder	13.0
		Khurda	33kV Delanga Feeder	12.0
		Dhenkanal	33kV Hindol Rd Feeder	12.0
		Chainpal	33kV Banarpal Feeder	15.0
		Jiapur Road	33kV Panikili Feeder	12.0
		Bhanjanagar	33kV Belaguntha Feeder	12.0
		Sundergarh	33kV Bargaon Feeder	6.5
		Aska	33kV Budamba Feeder	15.0
			Total	183.5

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
OPTCL	Stage-III 48.8 Hz	Bhadrak	33kV Chandbal Feeder	16.0
		Dhenkana	33kV Gondia Feeder	13.0
		Sambaipur	33kV Rangali Feeder	15.0
		Baragarh	33kV Turung Feeder	22.0
		Nayagarh	33kV Binodpara Feeder	12.0
		Brajarajnagar	33kV Sargipalli Feeder	15.0
		Patnagarh	33kV Khapra khol Feeder	8.0
		Palasponga	33kV Remuli Feeder	18.0
		Boinda	33kV Athmalik Feeder	5.0
		Chairpal	33kV Panang Feeder	13.0
		Kalarangi	33kV Goda Feeder	10.0
		Kesinga	33kV Titiagarh Feeder	12.0
		Nimapara	33kV Konark Feeder	7.0
		Aska	33kV Nuagaon Feeder	10.0
		Jaipur Road	33kV Kuakhia Feeder	8.0
			Total	184.0

State/ Utility	Stage/ Frequency	NAME OF GRID/ Sub- Station	Name of FEEDER	LOAD IN MW
OPTCL	Stage-IV 48.6 Hz	Khanar	33kV Kharnar Feeder	7.0
		Sunabeda	33kV Nandapur Feeder	7.0
		Barkote	33kV Mandhas Feeder	9.0
		Palasponge	33kV Keonjhar Feeder	17.0
		Aska	33kV Kabisurya Nagra Feeder	13.0
		Sundergam	33kV Sabdega Feeder	5.0
		Bhanjanagar	132kV Phulbani Feeder	22.0
		Kendrapara	132kV Pattamundi Feeder	24.0
		Jaipur Road	132kV Anandapur Feeder	30.0
		Bolangir (New)	132kV Patnagarh Feeder	22.0
		Jayanagar	132kV Tentukhunti Feeder	30.0
			Total	186.0
		Total Load relief under UFR Scheme		735

Annexure-B7.12

**Augmentation of 400 kV Jeypore S/S
Capacity-Installation of 3rd ICT**

Views of GRIDCO / OPTCL

Date 23.12.2014

INTRODUCTION

Presently, two numbers of ICTs having capacity of 315 MVA each are in service at 400kV Jeypore sub-station.

As deliberated in the OCC meeting,

- ICTs are getting loaded up to 200MW each many times.
- ICT-I has completed 25 years and its performance is getting deteriorated.
- Installation of 3rd ICT has been suggested by Powergrid for contingency & reliability.

DISCUSSION IN OCC MEETINGS

This issue was also discussed in the 87th, 89th, 90th & 92nd OCC meeting.

Abstract of discussion:

- Increase of generation from Balimela & U. Kolab hydro stations in **July'13**, coupled **with enhancement of export to SR through HVDC Gazuwaka**, the loading of each of the ICTs is touching 200MW almost on daily basis.
- to plan a SPS for backing down of their generation to fulfill the (N-1) criteria.
- Regulation of Balimela & Upper Kolab generation to limit per circuit flow to 160MW.
- provide over current settings for 220kV Jaynagar-Jeypore ckt.

DISCUSSION IN OCC MEETINGS, Contd.

OPTCL suggested:

- for keeping two units of Indravati in the 400 kV grid.
- for implementation of SPS, if required, for backing down of hydro generation.
- expedition for commissioning of 220kV Jaynagar-Jeypore second D/C.

OCC felt that SPS is not required in view of construction of Jeypore -Jaynagar D/C line.

OCC felt that, the heavy loading would be relieved after synchronization of NEW grid with SR grid and injection of JITPL into the grid. OCC decided to review the situation after synchronization of NEW grid with SR grid.

DISCUSSION IN OCC MEETINGS, Contd.

In the 101st OCC meeting the issue of augmentation of Jeypore sub-station capacity was again raised by Powergrid due to deteriorated performance of ICT-I which has already completed 25 years of service.

In the 102nd OCC meeting, the proposal for augmentation was approved in the OCC without considering OPTCL's request for review of test results of ICT-I with loading pattern.

However, OCC in the 103rd meeting has advised Powergrid to furnish the test report to OPTCL for views before referring to TCC.

Views of OPTCL / Gridco

Overloading of ICTs occurs only during spilling of southern reservoirs which can be addressed :

- by keeping more numbers of Indravati units on 400kV system by bus splitting arrangement.
- connectivity of JITPL with 400kV Angul-Bolangir-Jeypore ckt. & GMR with Angul sub-station.
- discussion for export of power to AP in 220kV Balimela-U.Sileru ckt. through bilateral transaction is in progress.
- augmentation of Jeypore S/S capacity shall not serve any purpose, unless and until 220 kV 2nd DC line is in place.

In view of the above, augmentation of Jeypore sub-station capacity is not required at this juncture.

CONCLUSION

Further, it was opined in the PSOC meeting of OPTCL that:

- major contribution for overloading 220kV Jayanagar- Jeypore line and ICTs is due to enhancement of power export to SR through Gazuwaka Back to back DC.
- Installation of FSC causes rise in voltage profile at Jeypore 400kV bus as well as in crease in power export.
- The State has to boost up its hydro generation to avoid congestion in the State's system due to export of power to SR through open access by other utilities.
- Although, it is not the State's interest for capacity augmentation of Jeypore - Jayanagar ckts; still OPTCL has taken action for construction of 220 kV Jeypore-Jayanagar 2nd D/C line.
- Commissioning ICT at Jeypore shall be considered, provided a separate ATC considering South Odisha hydro stations (for export of power to SR) shall be made by NLDC exclusively for the State's export to SR.

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 furnish the same to ERLDC also .

The status as updated in the 104th OCC meeting is as given below:

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

SL no	Name of Utility	kV	Name of station	Reason for not reporting	Latest status as on 23.12.14
1	DVC	220	CTPS-B (2 x 250 MW)	Except GT MW & line flow, no data available	No CB/isolators status available. KV /HZ . Unit site MW/MVAR . Bokaro-B I & II line flow , Station Transformer value not available,

- ii) 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 as on 23.12.14
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.

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

S/n	Name of RTU locations	Latest status as on 23.12.14
1	Jakkanpur, Khagaul RTU, Dumraon, Karmanasha, Sitamarhi, , Purnea & Koshi	Data is reporting intermittently.
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>

- iv) 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 as on 23.12.14
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.
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	Rajkharsawan	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	Kendposi	
7	Goilkera	
8	Jadugoda	Co-axial cable faulty at Golmuri (Chandil bay)

- v) 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 as on 23.12.14
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.

- vi) RTU telemetry provided but data are intermittent / new element not wired.

SL No	Name of station/ Utility	Reason for non reporting	Latest status as on 23.12.14
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.
II	Mendhasal	400 KV Baripda 1 & 2 line flow and Reactors data, Tap position of both 400 ICTs not available since charging of bays.	OPTCL informed that reporting except OLTC data.
III	JSPL (Meramundali - 400)	Most of the data not available .	OPTCL informed that they are taking matter with JSPL.
IV	Jhasurguda 400	Data reporting is highly intermittent.	<i>Data reporting is intermittent .POWERGRID informed fibre link will be commissioned by</i>

			27/11/14 .
V	DVC		
	Ramgarh	Data for 220 KV bay not available	RTU Commissioned. Data reporting is intermittent.
	Putki		RTU installation Completed. RTU Cabling in progress.
	Patherdiah,		RTU reached site.
	Kalipahari		RTU reached site.
VI	Arrah(220)		Data stopped reporting since Aug 2014 . Communication problem.

vii) Sub - Stations (220 & 132 kV) Telemetry not provided :

SL No	Name of station/ Utility	Reason for non reporting	Latest status as on 23.12.14
I	WBSETCL		
	Subhasgram	RTU not provided for data telemetry	Data integrated
	New Bishnupur		Data integrated
	Bantala		Commissioning work completed. Data integrated
	New Town		Data integrated
	Krishna Nagar		RTU commissioned.
	Kalingpong		RTU is reporting.
	Karseong		RTU commissioned. Communication link to be provided by WBSETCL.
	CESC S/s: EM 220 kV		By January, 2015
	CESC : Kasba-132 kV, EM-132 kV Jadavpur, Chakmir, Majerhat and CESC Belur		By January, 2015
II	DVC		
	Burnpur	RTU not provided for data telemetry	Data integrated
	Dhanbad		Data integrated
	Chandil (Manique)		Data integrated
III	JSEB		
	Hatia New	RTU not provided for data telemetry	<i>RTU yet to be supplied by M/s. Chemtrols.</i>
	Manique (Chandil)		
	Japla		<i>RTU supplied by M/s. Chemtrols. RTU reached site for installation.</i>

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)



पूर्वी क्षेत्र पारेषण प्रणाली-I मुख्यालय : अलंकार प्लेस (द्वितीय, पाँचवा व छठा तल), बोरिंग रोड, पटना-800 001
दूरभाष : 0612-2231071, 2233140, फैक्स : 0612-2228984
Eastern Region Transmission System-I H.Q.: Alankar Place (2nd, 5th & 6th Floor), Boring Road, Patna-800 001
Tel.: 0612 - 2231071, 2233140 Fax : 0612 - 2228984

Ref: ER-I/PT/ULDC/ERPC/ 5858

Date: 18.12.2014

To,

Eastern Region Power Committee,
14, Golf Club, Road, Tollygunge,
Kolkata- 700033.

Sub: Reply to Agenda points raised by BSPTCL pertaining to SCADA/EMS Upgradation Package-reg.

Dear Sir,

This has reference to the points raised by BSPTCL in the 101st & 102nd OCC meeting pertaining to the delay in Upgradation of SCADA/EMS System of BSPTCL.

In line with the issues raised by BSPTCL pertaining to SCADA Upgradation of BSPTCL, a letter dtd. 09.12.2014 has been sent from GM (LD&C)/POWERGRID/ Gurgaon to Director BSPTCL/Patna. Attached please find a copy of the same for your kind reference.

Further, the issues pertaining to BSPTCL are being discussed in various meetings and all concerns of BSPTCL related to the delay in SCADA Upgradation are being addressed. Moreover, there are various site readiness related issues which needs to be addressed by BSPTCL and same is being discussed on time to time basis.

In view of inter-dependency of POWERGRID & BSPTCL in implementation of SCADA Upgradation project, it will be more prudent to discuss these issues in bipartite meeting or in SCADA O&M meeting rather than discussing the same in OCC Meeting.

Attached please find herewith a point wise reply to the Agenda points raised by BSPTCL (Refer. Annex-A).

This is for your kind information please.

Thanking you.

Yours truly,


(R V S Kushwaha)
General Manager (O&M)

Encl: A/a.

Copy to:

1. Director (Proj.)/ BSPTCL, Vidyt Bhawan, Bailey Road, Patna.

Agenda Pt. Sl. No. (Item no. B.20:)

Sl. No.	Agenda from ULDC -- BSPTCL	Status as on 18.12.2014
1	<p>Delay in Up-gradation Scheme of ULDC of BSPTCL: As per decision of the ERPC, BSPTCL has entrusted Powergrid vide BSHCL office letter no.2386 dated 05.12.12, to execute the up-gradation / replacement of data/ voice telemetry of all operating as well as under construction GSS under BSPTCL region. This includes the replacement of RTUs installed under ULDC-ER phase-I project.</p>	Kindly refer Letter from GM (LD&C) dtd. 9.12.14 addressed to Dir. (Proj)/BSPTCL (copy enclosed).
	44 RTUs were delivered without cable. Now cable for only 20 nos RTUs has been delivered. Installation of these RTUs has been taken up by the contractor from 29th August. But the work is slow. Whatever installation being taken up is not being commissioned. Power grid has been requested to increase the installation and commissioning team.	-do-
	Also, hardware for Control Room has been delivered without cable, BSPTCL is pursuing for installation of equipments with Power grid and Chemtrolls but outcome is pathetic.	-do-
	Communication package consisting of supply installation and commissioning of Fiber Optic Communication, PLCC communication. Auxiliary Power Supply System are not awarded to suitable vendor by Power grid yet. BSPTCL has repeatedly requested Power grid to expedite the work to meet the requirement of RTUs commissioning date to enable RTUs to communicate to SLDC, Patna. But Power grid is unable to confirm the target date and giving the reason of the constraint of installation team of OPGW.	-do-
	BSPTCL apprehended that after installation of RTUs data cannot be communicated to SLDC, Patna and subsequently to ERLDC, due to non-availability of Communication channel. So, BSPTCL has taken forward step to make the RTUs communicated over GPRS. BSPTCL is procuring GPRS devices as an interim arrangement in this regard. However, PGCIL may be requested to furnish target date for supply, installation & commissioning of RTUs along with communication and commissioning of new SLDC Centre.	-do-
2	<p>Supply of MUX at Samastipur, BTPS and Jakkampur site It has been requested to Power grid to supply the communication equipment for fiber communication on priority as integration of 5 nos. of GSS under up-gradation scheme of ULDC shall depend on these equipments. It has come to know that 1st lot of equipments is being dispatched but BSPTCL does not find a place in it.</p>	<p>Samastipur & Jakkampur SDH/PDH Mux, DCPS Installed. Commissioning pending in want: 1. BSPTCL to identify Power Tapping point. 2. Air-conditioning to be provided by BSPTCL.</p> <p>BTPS: SDH/PDH Mux, DCPS available at Patna. Material entry permission for BTPS pending with BSPTCL.</p>
3	<p>Underground laying of Fibre from Jakkampur to SLDC, Patna: ERPC has declared to FO communication of BSPTCL in commercial operation except Jakkampur- SLDC UGFO link. The work of critical UGFO link from Jakkampur to SLDC, Patna is yet to be completed by Power grid. BSPTCL has repeatedly requested Power grid to expedite the work.</p>	POWERGRID has applied for ROW Clearance way back in July '14 from RCD/Patna & same is awaited. Pending that POWERGRID has already commissioned link between ERLDC & SLDC Patna though POWERTEL way back in 2013.

18/12/14

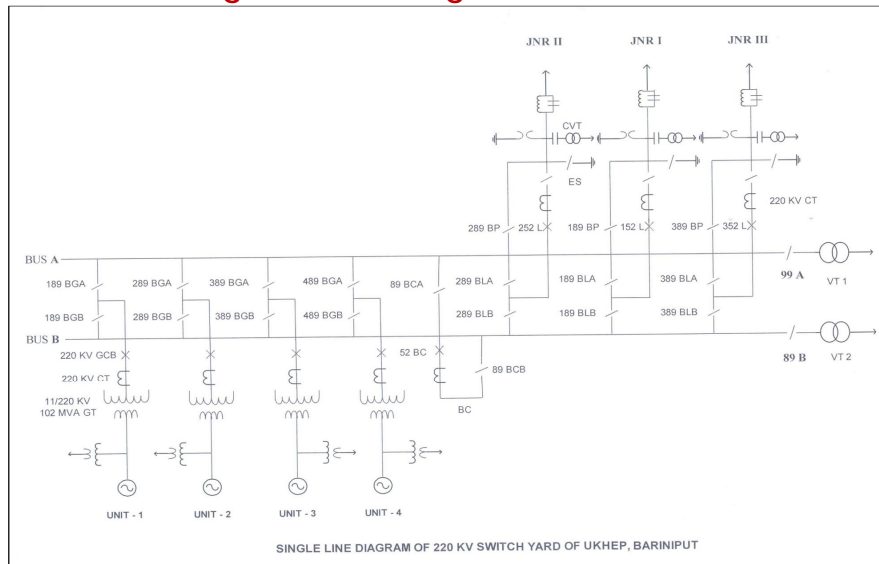
Annexure-B.21

Effect of FSC on Nearest
Generator in Interconnecting
Grid Network

Upper Kolab Hydro Electric Project

- ❖ 4x80 MW BHEL make Generator
commissioned since 1987
- ❖ Connected to Jeypore Power Grid through 220
KV Jayanagar Grid at a distance of 16 KM line
length

Single Line Diagram of UKHEP



FSC System used in Power Grid , Jeypore

- FSC of 50% for 400KV Gajuwaka,D/C Line(76.4MVAR) & 40% of 400KV Bolangir Line(84.2 MVAR).
- Benefit of Power Flow \longrightarrow increased 50% more in Gajuwaka D/C Line.
- **Power Transfer, $P = \frac{V_s V_R \sin \delta}{X}$**

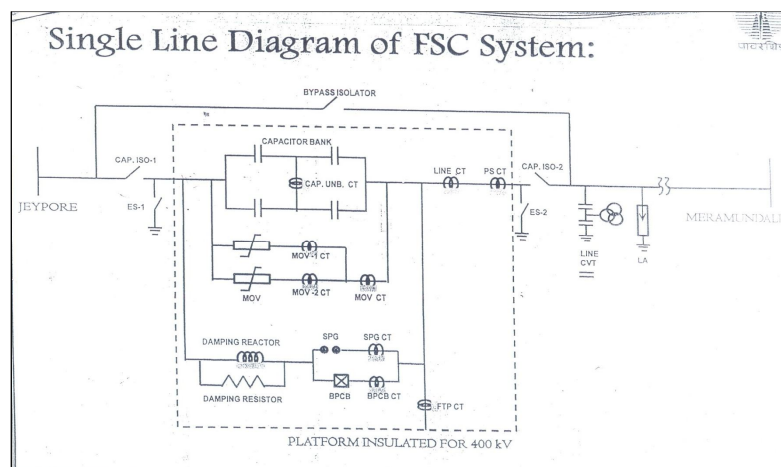
Where X – Reactance of inter connector

δ - Power angle (angle between V_s & V_R)

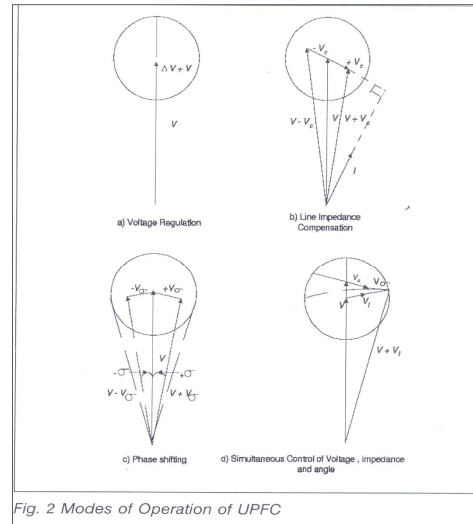
- X is compensated by introducing X_c as 50% of the inductive reactance of the Gajuwaka line.

- Reactive Power Control
 - Reactive Shunt Compensation (Capacitors/Reactors)
 - Series Compensation (FSC) – Adopted at Jeypore Power Grid
 - Phase Angle Shifting

FSC of PGCL, Jeypore



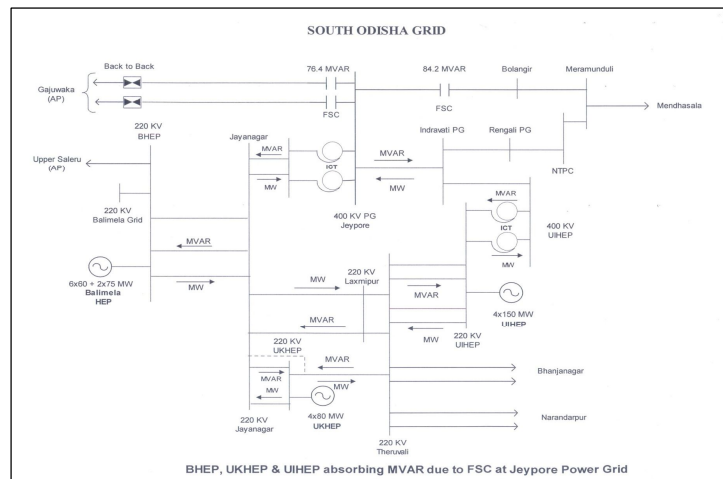
Two modes of Operation of UPFC



Advantages of FSC for Power Grid

- Improve power flow stability for Grid and compensating for reactive power losses in line & voltage regulation.
- Improve power transfer capability & system stability.
- At Jeypore Power Grid FSC setting is 200A it bypass FSC when line current fall below 200A i.e. under light load condition.
- Better for transmission system stability but some bad effect on nearest Generators of UKHEP as per our practical experience since 2005-06. Hence balance between Generator & transmission is required for stability of system.

South Odisha Grid

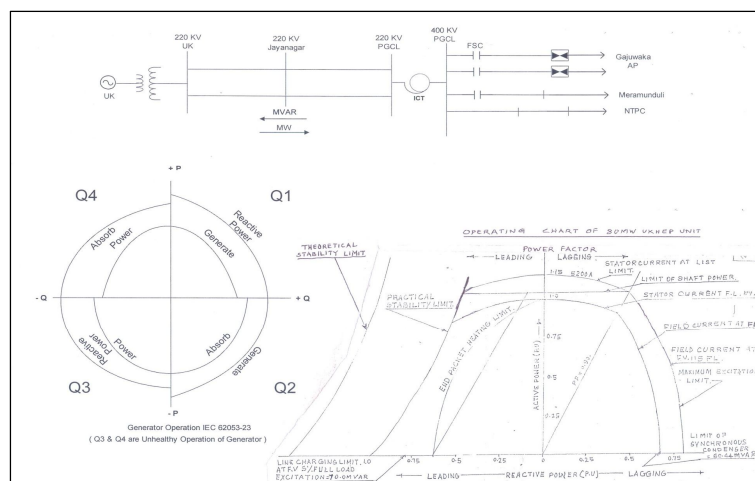


Effect on Generator

- System high voltage since 2005-06
 - Bus Voltage - Min → 235KV
 - Max → 248KV
- Series Capacitors give rise to odd harmonics & ripple in voltage and current wave form.
- Cause pollution to sine wave & introduce sub-synchronous resonance.
- Generators are absorbing MVAR almost 95% of its operating hours since 2005-2006.
- Generator running in 4th quadrant produces harmonics resulting eddy current in stator core, rotor core and also in Generator Transformers.

- Over heating of Stator end regions and part of Rotor causing frequent Stator earth fault of UKHEP Generator, Bar failure and Rotor pole failure.
- Transformer Core loss also increases.
- Due to back to back system at Gajuwaka, the line MVAR supplied by shut admittance during low loading of lines are absorbed by UKPH Generator as only real power MW is transmitted through back to back system to southern Grid.
- Tie line capacitance & Load capacitance are add up & flow towards Generator and the generator becomes a reactive energy reserve for the Grid.
- As per operating chart of the Generator by OEM (BHEL) , it is operating at a leading P.F. (i.e. endangering the stability as it is close the stability limit.
- Over voltage problem to Bus bar, Generator, GT & associate equipments and difficult for synchronisation of generating Units

Operating Characteristic of UKPH Generator



Suggestion

- Shunt Reactors for Feeders are to be installed at power Grid on 400KV Jeypore-Gajuwaka Feeder –I & II and Bolangir & Indravati Feeder to absorb the leading MVAR supplied by admittance of the line during low loading of feeder.
- The ICT tap position may be maintained at normal position for maintaining normal voltage at Upper Kolab, Jayanagar and Balimela 220 KV Bus.
- The FSC may be passed along with back to back system at Gajuwaka after synchronisation of Southern Grid to avoid harmonics and ripples in voltage & current wave form.

VOLTAGE (KV) FROM: 01.12.2014 to 07.12.2014

HOURS	1.12.14	2.12.14	3.12.14	4.12.14	5.12.14	6.12.14	7.12.14
01:00	239	239	238	239	240	236	240
02:00	239	239	238	238	240	237	240
03:00	239	239	238	237	240	237	239
04:00	237	238	238	236	239	237	240
05:00	239	239	239	236	236	238	239
06:00	239	239	238	235	236	233	236
07:00	240	238	239	237	236	237	235
08:00	240	236	237	237	238	235	235
09:00	239	235	237	238	235	238	235
10:00	240	236	238	232	234	236	236
11:00	237	235	238	235	233	237	236
12:00	234	233	238	235	235	237	231
13:00	233	233	239	236	235	232	231
14:00	233	234	235	237	235	238	229
15:00	233	239	233	238	233	237	232
16:00	234	237	239	238	233	238	232
17:00	234	237	238	237	241	235	231
18:00	234	235	235	235	240	236	240
19:00	234	233	235	236	240	233	240
20:00	235	238	236	236	239	238	240
21:00	236	240	236	235	238	238	241
22:00	237	236	234	237	234	239	241
23:00	238	237	238	237	234	243	243
00:00	238	236	238	241	236	241	242

Annexure-C.1

Proposed Maintenance Programme of thermal units during January, 2015.

SYSTEM	POWER STATION	Unit NO.	Effective Capacity	Maintenance Programme	Remarks	No.of Days
DVC	CTPS	Unit No 1	130	20.01.2015 to 01.03.2015	COH	40
WBDCL	BTPS	Unit No 4	60	17.01.2015 to 20.02.2015	Boiler O/H	35
WBDCL	KTPS	Unit No 1	210	26.12.2014 to 08.02.2015	Blr. O/H	45
CESC	Budge-Budge TPS	Unit No 3	250	01.01.2015 to 30.01.2015	Insp Boiler+Turbine	30
NHPC	Rangit HEP	Unit No 2		20.01.2015 to 05.03.2015	Annual Maint	45
NHPC	Rangit HEP	Unit No 3		15.12.2014 to 19.01.2015	Annual Maint	35
NHPC	Teesta V	Unit No 3		01.01.2015 to 21.01.2015	Annual Maint	20
NHPC	Teesta V	Unit No 1		22.01.2015 to 11.02.2015	Annual Maint	20

**EASTERN REGIONAL LOAD DESPATCH CENTRE
KOLKATA**

TRANSMISSION ELEMENTS OUTAGE APPROVED IN 104TH OCC MEETING OF ERPC

S/D APPROVED IN OCC									
Sr. No	NAME OF THE ELEMENTS	DATE	TIME	DATE	TIME	REMARKS	S/D availed BY	Reason	SUBJECT TO CONSENT FROM AGENCY
1	400 Kv Binagudi-Rangpo	24/01/2014	08:00	24/01/2015	16:00	ODB	ER-II (KOL)	OPGW STRINGING WORK	TEESTA
2	A/R 400 Kv Baripada-Jamshedpur	24/01/2014	08:00	24/01/2015	16:00	ODB	ER-II (KOL)	OPGW STRINGING WORK	
3	A/R 220 Kv Dalkhola -Malda	24/01/2014	08:00	24/01/2015	16:00	ODB	ER-II (KOL)	OPGW STRINGING WORK	
4	A/R 400 KvBolangir - Angul	24/01/2014	08:00	24/01/2015	16:00	ODB	ER-II (KOL)	OPGW STRINGING WORK	NLDC
5	132 KV S/C PURNEA - SAHARSHA LINE OF BSPTCL	25/12/2014	08:00	26/12/2014	17:00	ODB	ER - I	FOR STRINGING OF 400 KV D/C (QUAD) KISHANGANJ-PATNA LINE	BIHAR
6	132 KV D/C BARH-BSF LINE OF BSPTCL	25/12/2014	08:00	26/12/2014	18:00	OCB	ER - I	FOR STRINGING OF 400 KV D/C KISHANGANJ-PATNA LINE	BIHAR
7	220 KV BUS-1 AT GAYA	26/12/2014	10:00	26/12/2014	18:00	ODB	ER - I	FOR AMP WORK	BIHAR
8	400 KV RANCHI-RANCHI-1 & 2	26/12/2014	07:00	29/12/2014	18:00	ODB	ER - I	FOR CONDUCTOR REPAIR AT LOC. 24/0, 27/0, 32/0, 34/0 OF LINE-1, DAMAGED BY MISCREANTS	
9	400 KV BUS-2 AT MUZ	26/12/2014	10:00	27/12/2014	16:00	ODB	ER - I	FOR AMP WORK	
10	50 MVAR B/R-2 AT JSR	26/12/2014	09:00	26/12/2014	17:00	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT & AMP WORK	
11	315 MVA ICT-2 AT JSR	26/12/2014	10:30	26/12/2014	11:30	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT	JHARKHANDA
12	400 KV JSR-DURGAPUR LINE	26/12/2014	14:00	26/12/2014	15:00	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT	
13	400 KV JSR-MEJIA LINE	26/12/2014	15:00	26/12/2014	16:00	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT	
14	400 KV JSR-MAITHAN LINE	26/12/2014	16:00	26/12/2014	17:00	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT	
15	765/400 KV 1500 MVA ICT-2 AT NRNC	26/12/2014	08:00	28/12/2014	17:00	ODB	ER - I	FOR AUXILIARY BUS EXTENSION WORK	NLDC
16	400 KV SEL - Raigarh # 2	26/12/2014	08:00	26/12/2014	17:00	ODB	ER-II (OD)	For tightening of Jumpers, Corona Ring tightening at various locations	NLDC
17	765/400KV 1500MVA ICT-2 at Sundergarh	26/12/2014	08:00	02/01/2015	17:00	OCB	ER-II (OD)	Fire fighting Pylon support erection	NLDC
18	220 KV BUS-2 AT GAYA	27/12/2014	10:00	27/12/2014	18:00	ODB	ER - I	FOR AMP WORK	BIHAR
19	315 MVA ICT-1 AT JSR	27/12/2014	09:00	27/12/2014	14:00	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT & SWEEP FREQUENCY TAN DELTA OF TRANSFORMER BAY CT	JHARKHANDA
20	400 KV JSR-CHAIBASA-I	27/12/2014	11:30	27/12/2014	17:00	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT	
21	220 KV Siliguri- Birpara Ckt-1	27/12/2014	08:00	29/12/2014	16:00	ODB	ER-I (KOL)	Attending defects like conductor cut, VD & Isolator replacement	shutdown may be rescheduled to May 15
22	400 KV Bus II at subhasgram	27/12/2014	08:00	27/12/2014	17:00	ODB	ER-II (KOL)	Isolator maintenance , CRM of isolator connectors	
23	50 MVAR B/R-1 AT JSR	28/12/2014	09:00	28/12/2014	17:00	ODB	ER - I	FOR OIL SAMPLING OF ALSTOM MAKE CT TO BE CARRIED OUT, AMP WORK & SWEEP FREQUENCY TAN DELTA OF REACTOR BAY CT	
24	220KV Main Bus-I , Main Bus-II and Transfer Bus (Simultaneous Shut Down) at Subhasgram	28/12/2014	06:00	28/12/2014	22:00	ODB	ER-II (KOL)	For Jack bus stringing for ICT#5 under ERSS-VIII and Isolator maintenance , CRM of isolator connectors	WBSEB
25	220 KV BUS-2 AT MUZ	29/12/2014	10:00	29/12/2014	18:00	ODB	ER - I	FOR AMP WORK	BIHAR
26	400 KV Sundergarh - Raigarh # 2	29/12/2014	08:00	29/12/2014	17:00	ODB	ER-II (OD)	For tightening of Jumpers, Corona Ring tightening at various locations	NLDC
27	400KV Rourkela- Sundargarh Ckt-1	29/12/2014	08:00	30/12/2014	17:00	OCB	ER-II (OD)	For Rectification of Mechanical Interlock in 400 KV Isolator	NLDC
28	400KV Malda-Farakka-II	29/12/2014	09:00	30/12/2014	18:00	ODB	ER-II (KOL)	CVT replacement at Farakka end.	NLDC
29	400 KV Bus I at subhasgram	29/12/2014	08:00	29/12/2014	17:00	ODB	ER-II (KOL)	Isolator maintenance , CRM of isolator connectors	
30	400 KV RANCHI-RANCHI-3 & 4	30/12/2014	07:00	02/01/2015	18:00	ODB	ER - I	FOR CONDUCTOR REPAIR AT LOC. 25/0, 31/0, 38/0, OF LINE-2, DAMAGED BY MISCREANTS	
31	132KV KONAR-HAZARIBAGH ROAD (DVC)	30/12/2014	09:00	31/12/2014	17:00	ODB	ER - I	FOR CROSSING WORK OF 400KV BOKARO-KODERMA T/L BETWEEN LOC NO. 62-63	DVC
32	132 KV SIWAN - GOPALGANJ OF BSPTCL	30/12/2014	08:00	31/12/2014	18:00	ODB	ER - I	FOR POWERLINE CROSSING OF 400 KV BARH - GORAKHPUR LINE	BIHAR
33	400 KV Rourkela - Sundargarh # 2	30/12/2014	08:00	30/12/2014	17:00	ODB	ER-II (OD)	For tightening of Jumpers, Adjustment of VD's, Corona Ring tightening at various locations & AMP work.	NLDC
34	220 KV Siliguri- N. Siliguri Ckt-1	30/12/2014	08:00	30/12/2014	16:00	ODB	ER-II (KOL)	AMP	
35	400 KV Jeerat - Subhasgram Line	30/12/2014	09:00	02/01/2015	18:00	ODB	ER-II (KOL)	400 KV Air Blast Circuit Breaker replacement at Jeerat	NLDC
36	400 KV BSF-MUZ-2	01/01/2015	06:00	31/01/2015	19:00	ODB	ER - I	FOR OPGW INSTALLATION WORK	NLDC
37	A/R OF 400 KV BARH - KAHALGAON -2	01/01/2015	06:00	31/01/2015	19:00	ODB	ER - I	FOR OPGW INSTALLATION WORK	NLDC
38	A/R OF 400 KV KHLG - MTN - II	01/01/2015	06:00	31/01/2015	19:00	ODB	ER - I	FOR OPGW INSTALLATION WORK	
39	A/R OF 400 KV JSR - BARIPADA	01/01/2015	06:00	31/01/2015	19:00	ODB	ER - I	FOR OPGW INSTALLATION WORK	
40	132kv Malda-Malda(PGCL)#2	01/01/2015	06:00	26/01/2015	16:00		WBSETCL	Conductor replacement job	
41	400KV Rourkela- Sundargarh Ckt-2	02/01/2015	08:00	03/01/2015	17:00	OCB	ER-II (OD)	For Rectification of Mechanical Interlock in 400 KV Isolator	NLDC
42	SgTPP: 400KV TIE-BAY I.r.o. Parulia(PGCL)#2	02/01/2015	07:00	02/01/2015	16:00		WBSETCL	Maintenance work	
43	220 KV DVC-2 at Durgapur	02-01-2015	10:00	02-01-2015	18:00	ODB	ER-II (KOL)	Maintenance work	DVC
44	400 KV RANCHI-RANCHI-1 & 3	03/01/2015	07:00	05/01/2015	18:00	OCB	ER - I	FOR REPLACEMENT OF INSULATORS OF MC-2 & MC-4, DAMAGED BY MISCREANTS	
45	132 KV S/C PURNEA - SAHARSHA LINE OF BSPTCL	03/01/2015	08:00	04/01/2015	18:00	ODB	ER - I	FOR STRINGING OF 800 KV HVDC ISLAMPUR-SAHARSHA SECTION	BIHAR

46	220 KV ICT-1 at Siliguri	03/01/2015	08:00		03/01/2015	16:00	ODB	ER-II (KOL)	AMP	WBSETCL
47	SgTPP: 400KV Parulia(PGCL)#2 Line & Bay	04/01/2015	07:00		04/01/2015	16:00		WBSETCL	Maintenance work	
48	400 KV Jeerat - Behrampore Line	05/01/2015	09:00		08/01/2015	18:00	ODB	ER-II (KOL)	400 KV Air Blast Circuit Breaker replacement , LA replacement	NLDC
49	63 MVAR L/R OF NPRN-MUZ-2	05/01/2015	09:00		05/01/2015	13:00	ODB	ER - I	FOR AMP WORK	
50	765 KV 80*3 MVAR B/R-2 AT NRNC	05/01/2015	08:00		07/01/2015	17:00	ODB	ER - I	FOR AUXILIARY BUS EXTENSION WORK	
51	400 KV KAHALGAON-BARH - I & II	05/01/2015	08:00		06/01/2015	18:00	OCB	ER - I	FOR STRINGING OF 400 KV D/C KISHANGANJ-PATNA LINE	NLDC
52	400 KV RNC -RAGHUNATHPUR -1	05/01/2015	10:00		05/01/2015	14:00	ODB	ER - I	AMP WORK.	
53	50 MVAR Bus Reactor at Rourkela	05/01/2015	10:00		05/01/2015	17:00	ODB	ER-II (OD)	AMP Work	
54	80 MVAR Bus Reactor	05/01/2015	09:00		05/01/2015	19:00	ODB	ER-II (OD)	Erection of FF Detection Line	
55	765kV, 240MVA Bus Reactor-1 at Sundergarh	05/01/2015	08:00		10/01/2015	17:00	OCB	ER-II (OD)	Fire fighting Pylon support erection	NLDC
56	220 KV Siliguri- Birpara Ckt-2	05/01/2015	08:00		07/01/2015	16:00	ODB	ER-II (KOL)	Attending defects like conductor cut, VD & Insulator replacement	shutdown may be rescheduled to May 15
57	80 MVAR Bus-Reactor at Barh	05/01/2015	09:30		10/01/2015	17:30	OCB	NTPC	Oil filtration & PM works & Relay Testing.	
58	400kV Rengali - Baripada (Loc.1 to Loc.602)	05/01/2015	07:00		08/01/2015	17:00	ODB	OPTCL	Maintenance work	May please confirm the line
59	400 KV BSF- LAKHISARAI -2	04/01/2015	09:00		05/01/2015	18:00	ODB	ER - I	TO FACILITATE LILO OF OPGW AT LAKHISARAI	NLDC
60	400 KV RANCHI-RANCHI-2 & 4	06/01/2015	07:00		08/01/2015	18:00	OCB	ER - I	FOR REPLACEMENT OF INSULATORS OF MC-2 & MC-4, DAMAGED BY MISCREANTS	
61	765 KV NRNC-DHRAMJAIGARH LINE	06/01/2015	07:00		09/01/2015	18:00	OCB	ER - I	FOR MAINTENANCE OF DAMAGED TOWER PARTS, DAMAGED BY MISCREANTS (NAXALITE AREA).	NLDC
62	400 KV PATNA- BARH-1	06/01/2015	10:00		06/01/2015	16:00	ODB	ER - I	BALANCE DISMANTALING WORK OF REACTOR BAY EQUIPMENT AT PATNA	NLDC
63	400 KV BUS-1 AT MUZ	06/01/2015	10:00		07/01/2015	16:00	ODB	ER - I	FOR AMP WORK	
64	400 KV BUS-1 AT NPRN	06/01/2015	09:00		06/01/2015	13:00	ODB	ER - I	FOR AMP WORK	
65	220 KV D/C PURNEA - SINGHESHWAR LINE OF BSPTCL	06/01/2015	08:00		07/01/2015	18:00	ODB	ER - I	FOR STRINGING OF 800 KV HVDC ISLAMPUR-SAHARSHA SECTION	BIHAR
66	400 KV KAHALGAON- LAKHISARAI -2	06/01/2015	09:00		07/01/2015	18:00	ODB	ER - I	TO FACILITATE LILO OF OPGW AT LAKHISARAI	NLDC
67	Line Reactor of Jaypore - Bolangir	06/01/2015	09:00		06/01/2015	17:00	ODB	ER-II (OD)	Erection work of NGR bypass system of L/R of Jaypore Line.	
68	3 x 105 MVA ICT-I at Jaypore	06/01/2015	09:30		06/01/2015	17:30	ODB	ER-II (OD)	AMP works	OPTCL
69	400 KV Sundargarh-Indo Bharat Ckt-1	06/01/2015	08:00		07/01/2015	17:00	OCB	ER-II (OD)	For Rectification of Mechanical Interlock in 400 KV Isolator	NLDC
70	400KV BUS-I at Anugul	06/01/2015	08:00		07/01/2015	18:00	OCB	ER-II (OD)	Stringing of 400kv side conductorfor incoming 765/400 KV ICT-II	Total power interruption at GMR & JITPL. Subject to GMR & JITPL consent
71	400KV REACTOR-1 at Anugul	06/01/2015	08:00		07/01/2015	18:00	OCB	ER-II (OD)	Stringing of 400kv side conductorfor incoming 765/400 KV ICT-II	Total power interruption at GMR & JITPL. Subject to GMR & JITPL consent
72	ANGUL-JITPL LINE1	06/01/2015	08:00		07/01/2015	18:00	OCB	ER-II (OD)	Stringing of 400kv side conductorfor incoming 765/400 KV ICT-II	Total power interruption at GMR & JITPL. Subject to GMR & JITPL consent
73	ANGUL-JITPL LINE2	06/01/2015	08:00		07/01/2015	18:00	OCB	ER-II (OD)	Stringing of 400kv side conductorfor incoming 765/400 KV ICT-II	Total power interruption at GMR & JITPL. Subject to GMR & JITPL consent
74	400 KV Malda - N. Purnea-I	06/01/2015	09:00		06/01/2015	17:00	ODB	ER-II (KOL)	AMP for 2014-15 & Replacement of broken insulator strings damaged by miscreants	NLDC
75	KTPP: 400KV KGP#2 Line & Bay	06/01/2015	06:00		07/01/2015	16:00	ODB	WBSETCL	Maintenance work	
76	400 kv ICT#1 at Durgapur	06-01-2015	10:00		06-01-2015	18:00	ODB	ER-II (KOL)	Maintenance work	DVC
77	400 KV PATNA- BARH-2	07/01/2015	10:00		08/01/2015	16:00	ODB	ER - I	BALANCE DISMANTALING WORK OF REACTOR BAY EQUIPMENT AT PATNA.	NLDC
78	400 KV Rourkela - Jamshedpur # 2	07/01/2015	09:00		07/01/2015	17:00	ODB	ER-II (OD)	AMP Work	NLDC
79	315MVA ICT #1 at Baripada	07/01/2015	09:00		07/01/2015	17:00	ODB	ER-II (OD)	AMP and Oil sampling of Bushings	OPTCL
80	400 KV BUS-2 AT NPRN	07/01/2015	09:00		07/01/2015	13:00	ODB	ER - I	FOR AMP WORK	
81	400 KV Sundargarh-Raigarh Ckt-2	09/01/2015	08:00		10/01/2015	17:00	OCB	ER-II (OD)	For Rectification of Mechanical Interlock in 400 KV Isolator	NLDC
82	220 KV BUS-1 AT MUZ	08/01/2015	10:00		08/01/2015	18:00	ODB	ER - I	FOR AMP WORK	BIHAR
83	220 KV NPRN-PRN-2	08/01/2015	10:00		08/01/2015	16:00	ODB	ER - I	FOR AMP WORK	BIHAR
84	315 MVA ICT - I AT RNC	08/01/2015	09:00		08/01/2015	15:00	ODB	ER - I	AMP WORK.	JHARKHANDA
85	LINE Reactor of Bolangir - Anugul	08/01/2015	09:00		08/01/2015	17:00	ODB	ER-II (OD)	Erection work of NGR bypass system of L/R of AnugulLine.	
86	400 KV Keonjhar-Rengali Line	05/01/2015	09:00		06/01/2015	19:00	ODB	ER-II (OD)	Erection of Beam , Stringing of Jack Bus in Future bay	
87	400 KV Keonjhar-Baripada Line	05/01/2015	09:00		06/01/2015	19:00	ODB	ER-II (OD)	Erection of Beam , Stringing of Jack Bus in Future bay	
88	400 KV Main Bus-I at Keonjhar	05/01/2015	09:00		06/01/2015	19:00	ODB	ER-II (OD)	Extension of 400 KV Bus-I	
89	400 KV Malda - N. Purnea-II	08/01/2015	09:00		08/01/2015	17:00	ODB	ER-II (KOL)	AMP for 2014-15 & Replacement of broken insulator strings damaged by miscreants	NLDC
90	220 KV Siliguri- Dalkhola Ckt-1	08/01/2015	08:00		10/01/2015	16:00	ODB	ER-II (KOL)	Attending defects like conductor cut & Missing VD	
91	220 KV Main Bus-1 along with Bus Sectionalizer-1	08/01/2015	08:00		09/01/2015	16:00	OCB	ER-II (KOL)	AMP	WBSETCL
92	400 KV NPRN- MUZ - I & II	09/01/2015	08:00		10/01/2015	18:00	ODB	ER - I	FOR STRINGING OF 400 KV D/C (QUAD) KISHANGANJ-PATNA LINE	NLDC
93	132 KV S/C SAHARSHA-UDAKISHUNGANJ LINE OF BSPTCL	09/01/2015	08:00		10/01/2015	18:00	ODB	ER - I	FOR STRINGING OF 800 KV HVDC ISLAMPUR-SAHARSHA SECTION	BIHAR
94	400 KV Rourkela - SEL # 2	09/01/2015	09:00		09/01/2015	17:00	ODB	ER-II (OD)	AMP Work	NLDC
95	63MVAR Baripada-Mendhasal Line 2 Reactor	09/01/2015	09:00		09/01/2015	17:00	ODB	ER-II (OD)	AMP	
96	SgTPP: 315MVA ICT	09/01/2015	07:00		09/01/2015	15:00		WBSETCL	Maintenance work	
97	765/400 KV 1500 MVA ICT-1 AT NRNC	10/01/2015	08:00		12/01/2015	17:00	ODB	ER - I	FOR AUXILIARY BUS EXTENSION WORK	NLDC

98	100 MVA ICT-II AT 200/132 KV PRN S/S	10/01/2015	09:00	09/03/2015	18:00	OCB	ER - I	FOR REPLACEMENT OF EXISTING 100 MVA TRANSFORMER BY NEW 160 MVA TRANSFORMER AND OTHER RETROFITTING WORK OF THE ICT-I BAY	BIHAR
99	220 kv BIRPARA -BIRPARA # 1	10/01/2015	08:00	10/01/2015	14:00		WBSETCL	Maintenance work	
100	400 KV BSF-MUZ - I & II	11/01/2015	08:00	12/01/2015	18:00	ODB	ER - I	FOR STRINGING OF 400 KV D/C. BARH-GORAKHPUR LINE	NLDC
101	220 kv BIRPARA -BIRPARA # 2	11/01/2015	08:00	11/01/2015	14:00		WBSETCL	Maintenance work	
102	SqTPP: 400KV Subhasgram Line & Bay	11/01/2015	07:00	11/01/2015	15:00		WBSETCL	Maintenance work	
103	400 KV BUS-1 AT GAYA	12/01/2015	10:00	12/01/2015	18:00	ODB	ER - I	FOR AMP WORK	
104	132 KV D/C BTPS-PURNEA LINE OF BSPTCL	12/01/2015	08:00	13/01/2015	18:00	OCB	ER - I	FOR STRINGING OF 400 KV D/C. KISHANGANJ-PATNA LINE	BIHAR
105	220 KV MAIN BUS - II AT RANCHI	12/01/2015	09:00	12/01/2015	17:00	ODB	ER - I	AMP WORK.	JHARKHANDA
106	400 KV Rourkela - Sundargarh # 1	12/01/2015	09:00	12/01/2015	17:00	ODB	ER-II (OD)	AMP Work	NLDC
107	400KV Bus -I of Bolangir	12/01/2015	09:00	12/01/2015	17:00	ODB	ER-II (OD)	Rectification works on Bus-side Isolator	
108	765kv, 240MVAR Bus Reactor-2 at Sundergarh	12/01/2015	08:00	17/01/2015	17:00	OCB	ER-II (OD)	Fire fighting Pylon support erection	NLDC
109	400 KV BUS-2 at Sundargarh	12/01/2015	08:00	14/01/2015	17:00	OCB	ER-II (OD)	For erection of extra BPI and Rectfication of mechanical interlock problem in 400 KV Isolator	
110	315MVA ICT-III at Malda	12/01/2015	08:00	12/01/2014	18:00	ODB	ER-II (KOL)	Isolators work for NTAMC	
111	220 KV Siliguri- Dalkhola Ckt-2	12/01/2015	08:00	14/01/2015	16:00	ODB	ER-II (KOL)	Attending defects like conductor cut & Missing VD	
112	220 KV Main Bus-2 along with Bus Sectionalizer-2	12/01/2015	08:00	13/01/2015	16:00	OCB	ER-II (KOL)	AMP	WBSETCL
113	BkTPP: 315MVA IBT#1	12/01/2015	08:00	16/01/2015	16:00	ODB	WBSETCL	Maintenance work	
114	220 KV Bus sectionaliser, 220 KV DVC-2, 220 KV ICT#1 incommer & 220 KV Bus Transfer-1 V AT Bidhannagar	12-01-2015	10:00	17-01-2015	18:00	OCB	ER-II (KOL)	Erection of 4 no 220 KV Bus Isolator approved under ADD CAP. GR POWER has awarded fort he work , Isolator has been received and ready to erect. Due to low clearance in the 220 KV yard Shutdown of bus section -1 is required for safety and speedy erection of isolators. approved shutdown could not be availed due to connector problem	DVC
115	400 kv BUS - I & II AT BARH	12/01/2015	08:00	18/01/2015	18:00	ODB	NTPC	REVIEW AND MODIFICATION IN LOGIC, NO POWER INTRUPTION, BUS - 1 & 2 SHUTDOWN WILL BE TAKEN ONE BY ONE	
116	400 KV BUS-2 AT GAYA	13/01/2015	10:00	13/01/2015	18:00	ODB	ER - I	FOR AMP WORK	
117	TIE BAY BETWEEN EASTERN SIDE CONVERTOR TRANSFORMER & FILTER BUS AT SSRM	13/01/2015	09:30	13/01/2015	17:30	ODB	ER - I	FOR AMP WORK	NLDC
118	220 KV TRANSFER BUS AT RANCHI	13/01/2015	09:00	13/01/2015	17:00	ODB	ER - I	AMP WORK.	JHARKHANDA
119	400 KV Rourkela - Talcher # 1	13/01/2015	09:00	13/01/2015	17:00	ODB	ER-II (OD)	Modification of Line Isolator (Hivelm Make) for converting gang operated mechanism to individual operated mechanism.	NLDC
120	400kv 125MVAR Bus Reactor-1 at Sundergarh	13/01/2015	08:00	14/01/2015	17:00	OCB	ER-II (OD)	For Rectification of Mechanical Interlock in 400 KV Isolator	
121	400kv Kahalgaon - Farakka ckt-2	13/01/2015	09:30	13/01/2015	17:30	ODB	NTPC	PM works & Relay Testing.	
122	400kv Rengali - Baripada (Loc.604 to Loc.663)	13/01/2015	07:00	13/01/2015	17:00	ODB	OPTCL	Maintenance work	May please confirm the line
123	MAIN BAY OF EASTERN SIDE CONVERTOR TRANSFORMER AT SSRM	14/01/2015	09:30	14/01/2015	17:30	ODB	ER - I	FOR AMP WORK	NLDC
124	400 KV PATNA - BARH -3 & 4	14/01/2015	08:00	15/01/2015	18:00	ODB	ER - I	FOR STRINGING OF 400 KV D/C. BARH-GORAKHPUR LINE	NLDC
125	400 kv Barh-Patna ckt-2	14/01/2015	09:30	15/01/2015	17:30	ODB	NTPC	PM job of CTs, CVTs, LAs, Isolators, CBs of Main & Tie bays And Relays testing	NLDC
126	BkTPP: 400KV M.B.#1	14/01/2015	08:00	14/01/2015	16:00		WBSETCL	Maintenance work	
127	MAIN BAY OF EASTERN SIDE FILTER BUS AT SSRM	15/01/2015	09:30	15/01/2015	17:30	ODB	ER - I	FOR AMP WORK	NLDC
128	132 KV SIWAN MASRAKH LINE OF BSPTCL	15/01/2015	08:00	16/01/2015	18:00	ODB	ER - I	FOR POWERLINE CROSSING OF 400 KV BARH - GORAKHPUR LINE	BIHAR
129	400 KV Rourkela - Talcher # 2	15/01/2015	09:00	15/01/2015	17:00	ODB	ER-II (OD)	Modification of Line Isolator (Hivelm Make) for converting gang operated mechanism to individual operated mechanism.	NLDC
130	400 KV BUS-1 at Sundargarh	15/01/2015	08:00	17/01/2015	17:00	OCB	ER-II (OD)	For erection of extra BPI and Rectfication of mechanical interlock problem in 400 KV Isolator	
131	BUS REACTOR-I at Anugul	15/01/2015	08:00	15/01/2015	18:00	ODB	ER-II (OD)	New radiator to be erected to avoid leakage in radiator bank of BR-I	NLDC
132	160MVA ICT-I at Malda	15/01/2015	08:00	15/01/2014	18:00	ODB	ER-II (KOL)	Schedule AMP	WBSEB
133	220 KV Siliguri- N. Siliguri Ckt-2	15/01/2015	08:00	15/01/2015	16:00	ODB	ER-II (KOL)	AMP	
134	400/220kv Auto Xmer-1 along with 220kv Fkk-Lalmatia line	15/01/2015	09:30	15/01/2015	17:30	ODB	NTPC	Relay Testing.	JHARKHANDA
135	BkTPP: 400KV M.B.#2	15/01/2015	08:00	15/01/2015	16:00		WBSETCL	Maintenance work	
136	132 KV S/C PURNEA - BIRPUR LINE OF BSPTCL	16/01/2015	08:00	17/01/2015	17:00	ODB	ER - I	FOR STRINGING OF 400 KV D/C (QUAD) KISHANGANJ-PATNA LINE	BIHAR
137	HVDC Pole-1 Talcher - Kolar	16/01/2015	07:00	16/01/2015	17:00	ODB	ER-II (OD)	AMP of the terminal stations	NLDC
138	400kv 125MVAR Bus Reactor-2 at Sundergarh	16/01/2015	08:00	17/01/2015	17:00	OCB	ER-II (OD)	For Rectification of Mechanical Interlock in 400 KV Isolator	
139	160MVA ICT-II at Malda	16/01/2015	08:00	16/01/2015	18:00	ODB	ER-II (KOL)	Isolator Earth switch rectification under ERSS -IV	WBSEB
140	400 KV Bus - I at Rourkela	17/01/2015	09:00	17/01/2015	17:00	ODB	ER-II (OD)	AMP Work	
141	HVDC Pole-1 Talcher - Kolar	17/01/2015	07:00	18/01/2015	19:00	OCB	ER-II (OD)	AMP of the terminal stations, Replacement of disc insulators in highly polluted stretches in the HVDC line.	NLDC
142	HVDC Pole-2 Talcher - Kolar	17/01/2015	07:00	19/01/2015	17:00	OCB	ER-II (OD)	AMP of the terminal stations, Replacement of disc insulators in highly polluted stretches in the HVDC line.	NLDC
143	220 KV SUBHASGRAM - SUBHASGRAM(WB) - I	17/01/2015	09:00	17/01/2015	18:00	ODB	ER-II (KOL)	NTAMC work and AMP	WBSEB
144	132 KV HAJIPUR - SHITALPUR T/L	18/01/2015	08:00	19/01/2015	18:00	ODB	ER - I	FOR STRINGING OF 400 KV D/C. BARH-GORAKHPUR LINE	BIHAR

145	220 KV SUBHASGRAM - SUBHASGRAM(WB) - II	18/01/2015	09:00	18/01/2015	18:00	ODB	ER-II (KOL)	NTAMC work and AMP	WBSEB
146	400 KV PATNA- BALIA-3	19/01/2015	10:00	19/01/2015	14:00	ODB	ER - I	LINE ISOLATOR AND EARTH SWITCH MAINTENANCE WORK AT PATNA	NLDC
147	400 KV JSR-CBS-1	19/01/2015	08:00	19/01/2015	17:00	ODB	ER - I	FOR BUS EXTENSION WORK	
148	400 KV CBS-RKL-1	19/01/2015	08:00	19/01/2015	17:00	ODB	ER - I	FOR BUS EXTENSION WORK	
149	400 KV Bus - II at Rourkela	19/01/2015	09:00	19/01/2015	17:00	ODB	ER-II (OD)	AMP Work	
150	765kV, 240MVA Angul Line Reactor-2 at Sundergarh	19/01/2015	08:00	24/01/2015	17:00	OCB	ER-II (OD)	Fire fighting Pylon support erection	NLDC
151	400KV Baripada-Mendhasal Line 1	19/01/2015	09:00	20/01/2015	17:00	ODB	ER-II (OD)	Jumping nut & Bolts Tightning and Replacement of punctured insulator	OPTCL
152	KTPP: 315MVA IBT#2	19/01/2015	07:00	21/01/2015	16:00	OCB	WBSETCL	Maintenance work	
153	BkTPP: 315MVA IBT#2	19/01/2015	08:00	23/01/2015	16:00	ODB	WBSETCL	Maintenance work	
154	400 KV PATNA- BALIA-4	20/01/2015	10:00	20/01/2015	14:00	ODB	ER - I	LINE ISOLATOR AND EARTH SWITCH MAINTENANCE WORK AT PATNA	NLDC
155	220 KV MAIN BUS-1 AT PRN	20/01/2015	10:00	20/01/2015	17:00	ODB	ER - I	FOR AMP WORK	BIHAR
156	400 KV Rourkela - Raigarh # 2	20/01/2015	09:00	20/01/2015	17:00	ODB	ER-II (OD)	AMP Work	NLDC
157	765/400KV 1500MVA ICT-1 at Sundergarh	20/01/2015	08:00	22/01/2015	17:00	OCB	ER-II (OD)	Fire fighting Pylon support erection	NLDC
158	315 MVA ICT-V and 400KV Bus-I at Malda	20/01/2015	08:00	20/01/2015	18:00	ODB	ER-II (KOL)	CT,CVT replacement under ADDCAP & Bus-I isolator works of 315MVA ICT-V,PRN-D/C,FKK-D/C for NTAMC.	WBSETCL
159	400/132 kv ICT-1 at Kahalgaon	20/01/2015	09:30	23/01/2015	17:30	OCB	NTPC	Oil filtration & PM works & Relay Testing.	BIHAR
160	220 KV NPRN-PRN-1	21/01/2015	10:00	21/01/2015	16:00	ODB	ER - I	FOR AMP WORK	BIHAR
161	80 MVAR B/R AT BANKA	21/01/2015	10:00	21/01/2015	16:00	ODB	ER - I	FOR AMP WORK	
162	400KV Baripada-Mendhasal Line 2	21/01/2015	09:00	21/01/2015	17:00	ODB	ER-II (OD)	Jumping nut & Bolts Tightning and Replacement of punctured insulator	OPTCL
163	315 MVA ICT-V, 400KV Bus-II and 400KV Bus Coupler at Malda	21/01/2015	08:00	21/01/2015	18:00	ODB	ER-II (KOL)	Bus-II isolator works of PRN D/C FKK-II,ICT-III,B/C,TBC under NTAMC.	WBSETCL
164	BkTPP: 400KV M.B.#1	21/01/2015	08:00	21/01/2015	16:00		WBSETCL	Maintenance work	
165	Meramundali 400/220KV ICT-I for conditioning monitoring test of Tfr.eqpt. & Maintenance work.	21/01/2015	07:00	22/01/2015	16:00	ODB	OPTCL	Maintenance work	
166	400 KV BINAGURI - BONGAIGAON - III	21/01/2015	10:00	21/01/2015	16:00	ODB	ENICL	Balance construction work	NLDC
167	220 KV MAIN BUS-2 AT PRN	22/01/2015	10:00	22/01/2015	17:00	ODB	ER - I	FOR AMP WORK	BIHAR
168	400 KV JSR- RKL-2	22/01/2015	08:00	22/01/2015	17:00	ODB	ER - I	CONSTRUCTION WORK RELATED TO LILO OF SAID LINE AT CHAIBASA	
169	BkTPP: 400KV M.B.#2	22/01/2015	08:00	22/01/2015	16:00		WBSETCL	Maintenance work	
170	400 KV BINAGURI - BONGAIGAON - IV	22/01/2015	10:00	22/01/2015	16:00	ODB	ENICL	Balance construction work	NLDC
171	220 KV RAMCHANDRAPUR - JODA S/C LINE OF JSEB	25/01/2015	08:00	25/01/2015	17:00	ODB	ER - I	FOR DIVERSION OF 220 KV S/C RAMCHANDRAPUR -JODA LINE WHICH IS CROSSING CHAIBASA SITE.	JHARKHANDA
172	132 KV Malda - Malda -I	26/01/2015	07:00	26/01/2015	18:00	ODB	ER-II (KOL)	CT change under ADDCAP.	WBSEB
173	132 KV Malda - Malda -II	27/01/2015	07:00	27/01/2015	18:00	ODB	ER-II (KOL)	CT change under ADDCAP.	WBSEB
174	Meramundali 400/220 ICT-II for conditioning monitoring test of Tfr.eqpt. & Maintenance work.	27/01/2015	07:00	28/01/2015	16:00	ODB	OPTCL	Maintenance work	
175	50 MVAR LR of Rengali Line	28/01/2015	09:00	28/01/2015	17:00	OCB	ER-II (OD)	Drying Out Of reactor	
176	400 kv Rengali - Indravati	28/01/2015	9:30 hr	28/01/2015	10:00	ODB	ER-II (OD)	For switching of the Reactor	NLDC
177	400kv Kahalgaon - Biharsharif ckt-1	28/01/2015	09:30	28/01/2015	17:30	ODB	NTPC	PM works & Relay Testing.	NLDC
178	132/33kV Grid S/S Rairangpur	28/01/2015	07:00	28/01/2015	16:00	ODB	OPTCL	Maintenance work	
179	400 KV BIHARSARIFF - PURNEA - I	29/01/2015	11:00	29/01/2015	15:00	ODB	ENICL	Maintenance work	NLDC
180	400 KV BIHARSARIFF - PURNEA - II	30/01/2015	11:00	30/01/2015	15:00	ODB	ENICL	Maintenance work	NLDC
181	400 kv Rengali - Indravati	10/02/2015	10:00 HR	10/02/2015	14:00	ODB	ER-II (OD)	AMP OF Rengali LR & Switching ON the LR	NLDC

Annexure-C.2

Anticipated Power Supply Position for the month of
Jan-15

SL.NO	PARTICULARS	PEAK DEMAND MW	ENERGY MU
1	BIHAR		
	i) NET MAX DEMAND	2570	1338
	ii) NET POWER AVAILABILITY- Own Source	169	62
	- Central Sector	1623	1020
	iii) SURPLUS(+)/DEFICIT(-)	-778	-257
2	JHARKHAND		
	i) NET MAX DEMAND	1100	700
	ii) NET POWER AVAILABILITY- Own Source	510	254
	- Central Sector	580	364
	iii) SURPLUS(+)/DEFICIT(-)	-10	-82
3	DVC		
	i) NET MAX DEMAND (OWN)	2770	1720
	ii) NET POWER AVAILABILITY- Own Source	4497	2978
	- Central Sector	403	282
	Long term Bi-lateral (Export)	2069	1539
	iii) SURPLUS(+)/DEFICIT(-)	61	1
4	ODISHA		
	i) NET MAX DEMAND	3720	2340
	ii) NET POWER AVAILABILITY- Own Source	2571	1563
	- Central Sector	1007	620
	iii) SURPLUS(+)/DEFICIT(-)	-142	-157
5	WEST BENGAL		
5.1	WBSEDCL		
	i) NET MAX DEMAND (OWN)	4875	2586
	ii) CESC's DRAWAL	610	41
	iii) TOTAL WBSEDCL's DEMAND	5485	2627
	iv) NET POWER AVAILABILITY- Own Source	3745	1757
	- Import from DPL	-40	55
	- Central Sector	1725	1133
	v) SURPLUS(+)/DEFICIT(-)	-55	318
5.2	DPL		
	i) NET MAX DEMAND	260	205
	ii) NET POWER AVAILABILITY	220	260
	iii) SURPLUS(+)/DEFICIT(-)	-40	55
5.3	CESC		
	i) NET MAX DEMAND	1350	671
	ii) NET POWER AVAILABILITY - OWN SOURCE	800	600
	FROM WBSEDCL	550	41
	iii) TOTAL AVAILABILITY	1350	641
	iv) SURPLUS(+)/DEFICIT(-)	0	-30
6	WEST BENGAL (WBSEDCL+DPL+CESC) (excluding DVC's supply to WBSEDCL's command area)		
	i) NET MAX DEMAND	6485	3462
	ii) NET POWER AVAILABILITY- Own Source	4765	2617
	- Central Sector	1725	1133
	iii) SURPLUS(+)/DEFICIT(-)	5	288
7	SIKKIM		
	i) NET MAX DEMAND	121	55
	ii) NET POWER AVAILABILITY- Own Source	16	5
	- Central Sector	100	52
	iii) SURPLUS(+)/DEFICIT(-)	-4	1
8	EASTERN REGION		
	At 1.03 AS DIVERSITY FACTOR		
	i) NET MAX DEMAND	16278	9616
	Long term Bi-lateral	2069	1539
	ii) NET TOTAL POWER AVAILABILITY OF ER (INCLUDING C/S ALLOCATION)	15435	9411
	iii) PEAK SURPLUS(+)/DEFICIT(-) OF ER (ii)-(i)	-843	-205