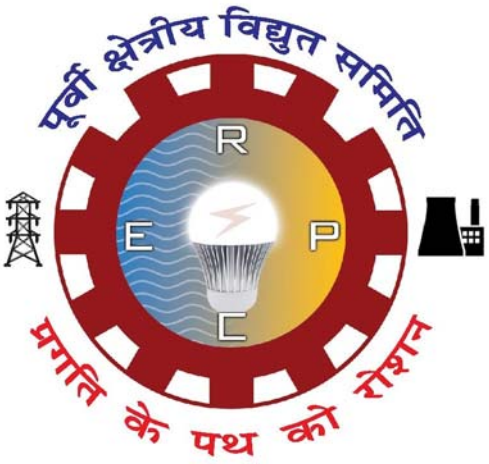

Agenda

for

125th OCC Meeting

Date: 20.09.2016

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700 033

Eastern Regional Power Committee

Agenda for 125th OCC Meeting scheduled to be held on 20th September, 2016 at ERPC, Kolkata

Item no. 1: Confirmation of minutes of 124th OCC meeting of ERPC held on 23.08.2016

The minutes of 124th OCC meeting were uploaded in ERPC website and circulated vide letter dated 09.09.2016 to all the constituents.

ERLDC vide mail dated 12.09.2016 requested for amendments of last two paras of minutes under Item No. "B14.2: Status of construction of 400kv Sterlire-Jharsuguda D/c" as follows:

"ERLDC informed that Vedanta is not maintaining its schedule and generating 200 MW less on continuous basis from last week.

OCC advised Vedanta to maintain the schedule; otherwise, the NOC will be reviewed."

With the above amendments members may confirm the minutes.

PART A

(List of Items to be discussed for which the details are given at "Part B")

B.1. Commissioning of new transmission elements in Eastern Region
B.2. Status of projects funded under PSDF schemes
B.3. Operational load flow study for Off-peak period
B.4. Data for Electricity Generation Targets for the year 2017-18
B.5. Maintenance (AMC) of RTU panel installed at Rangit Power Station for Data Telemetry
B.6. Power Evacuation from Teesta-III generation project in Sikkim
B.7. Persistent under-generation and inappropriate operational methodologies vis-à-vis Grid requirements in operation of Vedanta, Jharsuguda
B.8. Persistent under-generation in NTPC plants
B.9. Persistent over drawl by West Bengal
B.10. Planning regarding frequency and voltage/reactive power control considering onset of the Winter season
B.11. Collapse of four towers in Ganga river of 400kV Punea-Biharshariff line 1& 2 due to heavy flooding on 23rd August ,2016 at 06:51 Hrs
B.12. Furnishing of data by Transmission Licensees for calculation of various indices
B.13. Status of UFRs healthiness installed in Eastern Region
B.14. Healthiness of SPS existing in Eastern Region
B.15. Status of Islanding Schemes of Eastern Region
B.16. Restoration of PLCC system of important lines
B.17. Status update of previous decisions/follow up actions
B.18. Third Party Protection Audit
B.19. Inspection of UFR relays
B.20. Preparation of crisis management plan for Cyber Security in Power Sector in line with CERT-IN
B.21. Certification through BIS as per IS 18001:2007 to all generating/ transmission units
B.22. Formulation of a Skill Plan for Power Sector based on the assessed skill gap in the sector
B.23. Energy Generation data management from Renewable Energy Sources

B.24. Compilation of data for meeting Renewable Energy targets of 175 GW by 2020 -- Reference from MNRE
B.25. Data of Peak Demand – Submission of hourly power cut data
B.26. Oscillations on 26.07.16 in ER Grid
B.27. Recovery Procedures of ER Constituents – ERLDC
B.28. Dynamic data of Generator Models required in PSSE for Simulations
B.29. Implementation of Automatic Demand Management Scheme (ADMS)
B.30. Long outage of important transmission lines
B.31. Transfer capability determination by the states -- Agenda by NPC
B.32. Reasons for demand –supply gap and its variation -- Agenda by NPC
B.33. Update on status of telemetry
B.34. Interruption of real time data due to all control centres in ER
B.35. Installation of PMUs in Eastern Region under URTDSM project
B.36. Status of Disturbance Recorder, Stand alone Event Logger and Time Synchronization equipment.
B.37. Status of Emergency Restoration System (ERS Towers) for Eastern Region constituents
B.38. Pollution mapping for Eastern Region
B.39. Mock Black start exercises in Eastern Region
B.40. Restricted Governor Mode of Operation
B.41. Reactive Power performance of Generators and GT tap position optimization
B.42. Erroneous recording/Non-receipt of data by Interface Meters

PART B: ITEMS FOR DISCUSSION

(Items to be discussed as listed in "Part A")

Item No. B.1: Commissioning of new transmission elements in Eastern Region

In 118th OCC, it was informed that the network diagram of eastern region needs to be updated on regular basis on account of commissioning of new elements in the CTU as well as STU networks.

OCC advised all the constituents to update the list of newly commissioned power system elements to OCC on monthly basis so that ERLDC/ERPC can update the network diagram on regular basis.

The list of new Transmission Elements commissioned/charged during **August, 2016** as informed by ERLDC is given below:

1. Bay 425 and 426 (Main and Tie bay of 400kV Muzaffarpur-Darbhanga-I at Muaffarpur) first time charged at 19:18hrs of 14/08/16.
2. Bay 422(Main bay of 400kV Muzaffarpur-Dharbnaga-II at Muzaffarpur) first time charged at 19:31hrs of 14/08/16.

Other constituents may update (if any).

Item No. B.2: Status of projects funded under PSDF schemes

In the PSDF review meeting held on 29.04.16 at N. Delhi, it was advised to RPCs to monitor the status of all the projects funded by PSDF. Therefore, constituents are requested to update the status of projects which are being funded by PSDF in the desired format. The latest status as updated by WBSETCL, OPTCL & ERPC is as given below:

SN	Name of Constituent	Name of Project	Date of approval from PSDF	Target Date of Completion	Amount approved (in Rs.)	Amount drawn till date (in Rs.)	Status as updated in 122nd OCC
1	WBSETCL	Renovation & up-gradation of protection system of 220 kV & 400 kV Substations in West Bengal	31-12-14		120.67 Cr	11.04 Cr.	95 % Supply Completed
2	WBSETCL	Transmission System Improvement of WBSETCL					
3	OPTCL	Renovation & Up-gradation of protection and control systems of Sub-stations in the State of Odisha in order to rectify protection related deficiencies.	11.05.15	10.05.17	162.5 Cr.	4.91 Cr.	Erection work of the already procured equipment is going on. LOA for eight different types of Testing equipment already placed worth about Rs.4 Cr. Placement of LOA for balance equipment is under process. Tender for Sub-station automation will be floated in July-2016.
4	ERPC	Creation & Maintenance of web based protection database and desktop based protection calculation tool for Eastern Regional Grid	17.03.16		20 Cr.	4.94 Cr.	1st Milestone completed

In 124th OCC, OHPC informed that they have also applied for PSDF funding for Renovation and up-gradation of protection and control system of OHPC in 2014 and resubmitted again.

It was informed that Bihar has not submitted the details of projects being funded by PSDF. BSPTCL agreed to share the information.

OCC also advised JUSNL to prepare a DPR for renovation and up-gradation of Protection & control system as per the recommendations of ERPC team report and submit their proposals to PSDF appraisal committee.

Other constituents may update.

Item No. B.3: OPERATIONAL LOAD FLOW STUDY FOR OFF-PEAK PERIOD

Under PSDF funded project for Creation of protection database M/s PRDC have carried out an operational load flow study based on peak data of 26.05.2016. The report is available in ERPC website. During discussions on the study a need was felt for a similar study based on Off-peak conditions.

In 124th OCC, after detailed deliberation, OCC decided that all constituents should provide the relevant data as per the format available in ERPC website for two instances:

- *13:00hrs on 27th August, 2016 &*
- *03:00hrs on 28th August, 2016*

OCC advised all the constituents to update the Network Data format with network augmentation from 31st May 2016 to 31st of August 2016 in the given format.

Constituents noted and assured to provide the requisite information.

PRDC/ Members may update.

Item No. B.4: Data for Electricity Generation Targets for the year 2017-18

The annual exercise of assessment and finalization of the generation targets and the planned maintenance schedules of the generating units for the year 2017-18 is being initiated by CEA. **As decided by Ministry of Power and CEA, this activity needs to be preponed by two monthsfor some Planning and Managerial activity**. Although the generation performance of the various stations and their planned & forced outages are regularly monitored in CEA but for a more realistic projection of month-wise generation targets the respective Station Authorities are requested to tweak their maintenance schedule.

While monitoring the generation performance during the current financial year, it has been observed that power utilities are facing the problem of loss of generation due to no / low schedules, high fuel costs and other technical and commercial and transmission etc. issues. Accordingly, it is requested that the following inputs may kindly be submitted to this office as per the enclosed **formats (given at Annexure-B.4)**:

i) The unit wise yearly generation (with unit -wise monthly breakup) proposed during 2017-18 as per the format given along with the fuel availability, the anticipated loss of generation on account of various reasons such as grid constraint, low schedule/ reserve shut down due to high cost, poor quality coal/lignite etc, if any, may also be furnished (**Annex-I (2 to 6))**

ii) Utilities who have their Power Purchase Agreement (PPA) with various Discoms, Trader, States etc, details may be furnished in MW for Long, Medium and Short term to enable us to assess the expected generation for next year (**Annex –I (point no 7)**).

iii) The details of coal linkage from coal agencies and availability of secondary fuel oil/gas/ liq fuel may also please be furnished (**Annex- I (point no 8 (a) and (b)**). Production cost, Unit wise cost of generation and rate of sale of power may also be furnished. **(Annex – I (point 9))**

iv) Details of unit-wise schedule of Planned Maintenance as approved by the respective RPCs (Regional Power Committees), unit-wise R&M planned to be carried out during 2017-18, may also be considered for deciding the generation targets (**Annex- II**).

The information may please be furnished electronically at the email address **targetopmcea@gmail.com** with a copy to ERPC (e-mail: **mserpc-power@nic.in**).

For the convenience of the generating utilities, the input formats are also being made available at CEA website **http://www.cea.nic.in**. For any other query/ clarification any of the following officers may be approached.

1. Sarita Sewak, Director, sewak_sarita@nic.in - 9810506491
2. Anil Kawrani, Deputy Director, anilkawrani@nic.in -01126732650

ERPC vide fax message dated 31.08.16 has requested all the respective utilities to submit the desired information.

Members may note for compliance.

Item No. B.5: Maintenance (AMC) of RTU panel installed at Rangit Power Station for Data Telemetry

NHPC vide letter dated 28.07.16 submitted that Rangit Power Station has one no.RTU panel (Make-Alstom, Model-S900) which is being used for telemetering of generation data from Rangit Power Station to ULDC & ERLDC Control Rooms. M/s. PGCIL supplied this RTU panel at Rangit Power Station under ULDC Project at ISGS Station in year 2004. Presently, maintenance of RTU

panel is being carried out by M/s PGCIL (owner of said panel) which is going to be expired by July, 2016.

As per 33rd TCC meeting M/s PGCIL has informed that they are not going to do maintenance of above RTU and NHPC has to take care of maintenance / procurement of RTUs. However, M/s PGCIL is agreed to extend the AMC of these RTUs for further one year. Therefore, NHPC has requested Powergrid to extend the AMC of these RTUs for further one year till the issue gets resolved bilaterally

NHPC/Powergrid may update.

Item No. B.6: Power Evacuation from Teesta-III generation project in Sikkim

A meeting was held in CEA on the subject on 05.07.2016. In this connection enclosed herewith please find the minutes of meeting issued by CEA vide letter under reference. Vide Para No. of the minutes 11.5(iii) it has been decided that till a Special Protection Scheme (SPS) is installed at Rangpo the loading on 400kV D/C line from Rangpo-Siliguri shall be limited to 750 MW only. This shall hinder any power evacuation from Teesta-III HEP under normal operation conditions. It has been further proposed vide Para no. 11.5(i) of the minutes that in order to evacuate Power more than 750 MW for generation projects pooled at Rangpo, a SPS may be installed at Rangpo 400kV S/s. Relevant paragraph is reproduced below:

Quote

" *11.5 After deliberation, following decisions were taken:*
(i) In view of constraint of Rangpo-Siliguri 400kV D/C line during N-1 contingency, a *special protection scheme (SPS) may be installed at Rangpo 400kV S/s in consultation with ERPC and ERLDC for evacuation of Power more than 750 MW for generation projects pooled at Rangpo. "*

Unquote

Teesta–III project is in advanced stage of completion and first unit is likely to be ready for synchronization by 22nd Sept, 2016. Subsequently, it is planned to commission all six units (200MW each) by April,2017.

In view of the above commissioning schedule and to ensure that Teesta generation is not bottled up, we seek your help in getting the SPS scheme finalized and implemented at Rangpo sub-station at an earliest.

Powergrid may update.

Item No. B.7: Persistent under-generation and inappropriate operational methodologies vis-à-vis Grid requirements in operation of Vedanta, Jharsuguda

It has been observed Vedanta is operating in a manner not consistent with Grid requirements by resorting to the following:

a) Persistent under-generation below schedule.
b) Shifting of units from CTU Bus to STU Bus in an inappropriate manner, by incorrect declaration regarding reasons for tripping of the units(at CTU side) and hence getting the STOA revised and immediately thereafter re-synchronizing the unit back to the STU side.

The following points hence need to be noted by Vedanta in the process of daily operations:

i) Vedanta may ensure that there is no deviation from schedule under any circumstances. No shifting of units from CTU Bus to STU Bus would be allowed in case the same would lead to deviation from the schedule given to Vedanta by ERLDC. Also, for any such shifting/changeover of units from CTU to STU side or vice-versa, priorconsent of ERLDC needs to be taken.

ii) In case any revision of STOA is done for ISTS side units citing unit tripping/forced de-synchronization, the unit going out of bar/tripped cannot be re-synchronized back to the STU side.
iii) As per OERC order, Vedanta U#2 is dedicated to GRIDCO as an IPP while Units#1,3,4 are converted to CGP with exportable surplus. A scrutiny of the actual injections to the ISTS Grid indicates less or at times nil injection to the Grid for significant periods of time. However, as Vedanta has sold power through Power Exchange during these periods, the schedule cannot be revised leading to under-generation. Considering the above situations, it is essential that Vedanta clearly declares the quantum of exportable surplus(maximum and minimum) stating the smelter loads and the commitments to GRIDCO. This is essential to ensure that the NOC(for ISTS injection) given to Sterlite is not more than theexportable surplus capacity of the CGPs, which if allowed would lead to undesired gaming by Vedanta. Hence, a revision of NOC is required more from the viewpoint of actual available exportable surplus, rather than from the view point of transmission constraints(which is on the greater side).
iv) Also, after obtaining the smelter loads and the GRIDCO commitments, there is a need of re-assessment of the control area jurisdiction of Vedanta, in case the consumption of exportable surplus by GRIDCO is more than 50%. In case of the affirmative, benefits in terms of keeping both the Buses coupled could be obtained.
v) Presently, the configuration of bays and the position of the Bus sectionalizer bays at Vedanta switchyard are such that for enabling split Bus mode of operation with CTU and STU side Buses segregated, the following main bays are out of service:

- Main bay of 400kV Vedanta-Raigarh(Vedanta-Rourkella in same dia with main bay in service)
- Main bay of 400kV Vedanta-Meramundali-II(Vedanta-Meramundali-I in same dia with main bay in service)

Hence, in case of shutdown/outage of any main or tie bays for the above lines, the inter-regional link of one circuit of 400kV Rourkella-Raigarh goes under outage. Also, in case of outage of 400kV Vedanta-Meramundali-II, Vedanta-Meramundali D/C goes under outage. All of the above pose a threat to Grid security. Accordingly, these are suggested:

- The LILO could be removed positively wef 01/12/16 which would take care of the negative impact of the LILO on realibility of 400kV Rourkella-Raigarh-II(now LILOedat Vedanta).
- Sterlite may explain(with SLD) how after removal of the LILO and keeping the segregation of the CTU and STU Buses, the problem of reliability of 400kV Vedanta-Meramundali D/C could be solved. It needs to be noted that the dedicated lines to Jharsuguda also need to be commissioned with full reliability in a manner such that their complete dia is commissioned. Vedanta may also explain(with the SLD) how they propose to charge the complete dia of 400kV Vedanta-Meramundali D/C by October,16(as proposed in the last OCC meeting) with the present configuration of the Buses remained segregated. However, in case of feasibility i.r.o changeover of control area jurisdiction, the Buses may be kept coupled with metering being done considering Vedanta-Jharsuguda D/c as ISTS interchange tie-lines.

It may be noted that the operational methodologies resorted to by Vedanta could be construed as gaming and in case of persistent inaction, ERLDC may be constrained to file a petition before CERC in this regard.

Instances depicting the above would be presented by ERLDC for discussions/suggestions and for conclusion regarding the corrective actions. Vedanta may reply adequately alongwith SLD so as to arrive at a conclusion to the problems.

Members may discuss.

Item No. B.8: Persistent under-generation in NTPC plants

It has been observed that NTPC stations(specially FSTPP/KhSTPP) in ER are resorting to persistent under-generation with no generation increase even after issual of messages. At times even when the full DC was scheduled, NTPC has continued under-generation and has hence failed to demonstrate DC even after messages from ERLDC Control room. Also, in several occasions, there was failure in achieving scheduled generation even when schedule of the NTPC stations was increased vide Regulation Up Ancillary services. It may be noted that the above matters had already been brought to the notice of the OCC forum in the 123rd OCC meeting and it was confirmed that NTPC would need to follow the schedule strictly. However, NTPC has continued such under-generation and in case of failure to generate uptoDC(when full DC is scheduled), NTPC is resorting to downward revision of DC stating reasons as wet coal,etc. Instances depicting above violations would be presented by ERLDC for discussions/suggestions and for conclusion regarding the corrective actions. It may be noted that in case of such continued under-generation, ERLDC may be constrained to resort to classifying such cases as incorrect declaration of DC and proceed as per Clauses of 6.4.19 and 6.4.20 of IEGC. ERLDC may also be compelled to file a petition before CERC in this regard.

NTPC may respond.

Item No. B.9: Persistent over drawl by West Bengal

It has been observed since last few days,West Bengal isover drawing continuously to the tune of 3 to 5 mu per day. In the month August – 2016 West Bengal drawl was 1427 mu against drawl schedule of 1334 mu, overdraw of around 93 mu for the month. Numbers of instructions were also issued from ERLDC Control Room during real time operation to West Bengal regarding the same issue. However the response of West Bengal was not commensurate with criticality of the situation. Details of above violations would be presented by ERLDC for discussions/suggestions.

WBSETCL may update.

Item No. B.10: Planning regarding frequency and voltage/reactive power control considering onset of the Winter season

Winter preparedness/planning for frequency and voltage/reactive power needs to be undertaken imminently considering the lead time required for the preparatory activities. Accordingly, ERLDC would present in OCC the details of the points of actions and the compliances required from the various stakeholders. All are requested to comply with the action points to enable smooth functioning of the Grid.

Members may discuss.

Item No. B.11: Collapse of four towers in Ganga river of 400kV Punea-Biharshariff line 1& 2 due to heavy flooding on 23rd August ,2016 at 06:51 Hrs

As informed by ENICL, due to unprecedented flash flood in Ganga river, One tower at location 47/4 situated in the main stream of the river (at the Ganga river crossing near Begusarai) has apparently uprooted collapsed and washed away. Adjacent three towers (47/2,47/0 and 46/9) are severely damaged. The area is still unapproachable as it is completely submerged into water and flow of the water is very high.

The site of collapsed tower is fully submerged with water and very difficult to reach at the affected area. The entire area is inundated with water. The flood situation in that area is worsen due to incessant rain in Nepal. The restoration of the said line shall be taken immediately after receding the water at site.

In view of the above ENICL requested that the said outage of the line may be treated as force majeure condition i.e. beyond the control of ENICL.

Members may discuss.

Item No. B.12: Furnishing of data by Transmission Licensees for calculation of various indices in compliance of CERC (Standards of Performance of Inter-State transmission licenses Regulations), 2012

As per Para-IV of the CERC (Standards of Performance of Inter-State transmission licenses Regulations), 2012,all intra-state transmission license are required to furnish data to POSOCO for calculation of various indices and regarding number of trippings of each of the element in a month. The relevant extract from Para- IV of the above CERC regulations are quoted below:

IV. Data to be furnished by the inter-State Transmission Licensees to POSOCO

(1) The Dependability Index defined as $D = \frac{N_c}{(N_c+N_f)}$

where N_c is the number of correct operations during the given time interval and N_f is the number of failures to operate at internal power system faults.

(2) The Security Index defined as $S = \frac{N_c}{(N_c+N_u)}$

where N_u is the number of unwanted operations.

(3) The Reliability Index defined $R = \frac{N_c}{(N_c+N_i)}$

where N_i is the number of incorrect operations and is the sum of N_f and N_u.

(4) From above $\frac{1}{S} + \frac{1}{D} = \frac{1}{R} + 1$

(5) The number of trippings of each transmission element. Five or more trippings of a transmission element in a month to be put on the website by the inter-State Transmission Licensees and reported to the Commission by POSOCO

Note:

1. The data for these indices are presently prescribed for collection by the System Operator.
2. These indices shall be computed by the POSOCO and furnished to the Commission on monthly basis.

A letter has already been written by ERLDC to the various transmission licensees in this regard, enclosing alongwith a copy of the letter received from NLDC mandating necessary actions for compliance of the Regulations (copy of the letter from ERLDC is attached at **Annexure-B.12**). However, no data has been received till date. It is requested that the above data may be sent to POSOCO with a copy to ERLDC in compliance of the regulations.

ERLDC may update.

Item No. B.13: Status of UFRs healthiness installed in Eastern Region

UFR Healthiness Certification for the month of August, 2016 has been received from JUSNL and CESC only.

Other constituents (West Bengal, DVC, BSPTCL & OPTCL) may submit.

Item No. B.14: Healthiness of SPS existing in Eastern Region

CESC, JITPL, & GMR have submitted the healthiness certificate for the month of August, 2016.

Vedanta, Chuzachen, Powergrid-Odisha & Powergrid ER-II & NTPC may submit the healthiness certificate for August, 2016.

Respective members may update.

Item No. B.15: Status of Islanding Schemes of Eastern Region

B.15.1: Status of commissioned Islanding Schemes in Eastern Region

At present, the following islanding schemes are in service:

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

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

The healthiness certificate for Islanding Scheme for August, 2016 has been received from BkTPS, Tata Power, CESC and CTPS, DVC.

Members may note.

B.15.2: FSTPS Islanding Scheme, NTPC

In 33rd TCC, JUSNL informed that the required materials/works will be completed by 1st July 2016 and PGCIL will be informed accordingly.

TCC advised JUSNL to send an official letter to PGCIL confirming their readiness with a copy to ERPC.

PGCIL informed that they would mobilize the vendor within 10 days after receiving the official communication from JUSNL.

In 123rd OCC, NTPC informed that cable laying completed and interfacing is pending. Interfacing will be done after completion of the PLCC installation work by PGCIL at JUSNL sub-stations.

In 124th OCC, Powergrid informed that PLCC installation work is in progress and commissioning will be done after completion of the PLCC installation.

NTPC/Powergrid may update.

B.15.3: Bandel Islanding Scheme, WBPDCL

In 33rd TCC, WBPDCL informed that DPR has been submitted to NLDC on 22-06-2016 for funding from PSDF.

In 124th OCC, it was informed that PSDF appraisal committee meeting will be held in September, 2016.

WBPDCL may update the latest status.

Item No. B.16: Restoration of PLCC system of important lines

In 119th OCC, JUSNL informed that the following:

a) In 220 KV Chandil –Ramchandrapur line auto-reclosure has been enabled and linked with PLCC panels on 09.03.16.
b) In 220 KV Chandil –Ranchi line auto-reclosure has been enabled and termination done in PLCC panels (Auto-reclosure will be in service after testing of PLCC scheduled on 22.03.16)
c) In 220 KV Chandil –Santaldih line auto-reclosure has been enabled and termination done in PLCC panels at Chandil end but due to non-availability of PLCC panels at Santaldih(WBPDCL) end the A/R and PLCC scheme could not be activated.
d) In 220 KV Ramchandrapur-Joda line auto-reclosure has been enabled and termination done in PLCC panels at Ramchandrapur end but due to non-availability of PLCC panels at Joda (OPTCL) end the A/R and PLCC scheme could not be implemented.

Further, it was informed that JUSNL is ready to share their standby PLCC panels (BPL make) with WBPDCL (for Snataldih end) and OPTCL (for Joda end) to complete the PLCC schemes of both the above lines.

In 33rdERPC Meeting, WBPDCL and OPTCL agreed to settle the issue bilaterally with JUSNL. JUSNL was advised to resolve the AMC related issues with West Bengal & Odissa. All are requested to inform the development to CERC .

However ERPC advised JUSNL, OPTCL and WBPDCL to get the PLCC system restored for both the lines by July 2016 positively.

Subsequently, a special meeting was convened by JUSNL on 11.07.2016 at Ranchi to resolve the issue at the earliest.

In 123rd OCC, OPTCL informed that they received the invoice from BPL and they are charging Rs. 1.8 lacs/year for AMC, which is not reasonable as the AMC charges for 5 years is more than the panel cost of Rs. 5.1 lacs.

In 124th OCC, WBPDCL informed that PLCC panels will be delivered by BPL in September, 2016.

OPTCL informed that they agreed to the BPL estimate and placing the order.

JUSNL may update.

Item No. B.17: Concerned members may update the latest status.

B.17.1. Commissioning of 400 kV Ind-Bharath to Jharsuguda D/C (dedicated line)

In 121st OCC, IBEUL updated the status as follows:

- All the 125 towers foundations have been completed and 125 have been erected.
- Due to route alignment one tower (i.e. 126th tower) has been increased which is under construction.
- Stringing work of 36.81 km out of 39.74 km line has been completed.
- The bay work at 400 kV Jharsuguda (Kenapalli) S/s has also been completed.
- The line will be commissioned by end of June, 2016.

In 33rd TCC/ERPC it was decided that in line with the direction from CERC (in CERC vide order dated 07.I0.2015 on Petition No. 112/TT'/2013) the LILO may be removed if the target (i.e. July, 2016) is not adhered by Ind-Barath on and from 1st August, 2016 IBEUL will not be permitted to do any transaction—Infirm or firm through the LILO.

IBEUL vide mail dated 11.07.16 informed that they have lighted up Boiler #1 at 18.30 hrs on 11.07.16 and they are going to synchronise unit #1 at 04.00 Hrs on 12.07.16 and the tests to be performed along with the schedule of injection of infirm power in 15 min blocks were submitted.

Further, IBEUL vide mail dated 15.07.16, 16.07.16, 17.07.16 & 19.07.16 intimated that they have attained 353 MW at 20.56 hrs of 15.07.16 and are continuing for MCR test at 350 MW load from 15.07.16, to 19.07.16.

In 123rd OCC, Ind-Bharath informed that stringing of around 1 km line is pending due to ROW problem.

OPTCL informed that MCR test of Ind-Bharath generator was not satisfactory and they will communicate their observations.

OCC decided that as per CERC order and 33rd ERPC decision, IBEUL will not be allowed to inject firm/infirm power through LILO arrangement on and after 31st July 2016.

Subsequently, IBEUL vide letter dated 10.08.16 declare COD of their unit based on the trial run from 15th July to 19th July, 2016 as mentioned above.

However, ERPC vide mail dated 10.08.2016 and letter dated 12.08.16 informed that ERPC will consider the COD of unit #1 of IBEUL only on full compliance of clause 5 of IEGC (4th amendment).

In 124th OCC, Ind-Bharath informed that ROW problem has been resolved and the stringing of the remaining 1 km stretch of dedicated line is in progress. The dedicated line will be commissioned in another one month after necessary testings and Inspectorate's approval of the line & associated bays.

OCC, in line with the ERPC directions decided that the IBEUL will not be allowed to inject any power though LILO of 400 kV D/C Raigarh-Rourkela Ckt-I

Subsequently, GRIDCO vide letter dated 19.08.16 informed that the MCR test of the 350 MW unit #1 of IBEUL has failed for its Name Plate capacity. However, IBEUL may go for de-rating of their unit capacity or repeat trial run as per the provisions of IEGC.

IBEUL vide letter dated 02.09.2016 had declared their unit under COD with derated capacity of 339.6 MW w.e.f. 19th August, 2016.

Ind-Bharath may update the latest status.

B.17.2. Status of construction of 400 kV Sterlite-Jharsuguda D/C sections

In 31st TCC/ERPC followed by 115th OCC Vedanta informed that out of 66 tower foundations, 21 have been completed and rest is expected to be completed by December, 2015. Commissioning of line is expected by 15 April, 2016.

32nd TCC advised Vedanta to strictly adhere to the schedule.

In 118th OCC, advised Vedenta to adhere the decision of 32nd TCC/ERPC and complete the line by April, 2016.

In 121st OCC, Vedanta updated that 46 out of 66 foundations and installation of seven towers have been completed. OCC referred the issue to 33rd TCC.

In 122nd OCC, Vedanta updated that 51 out of 66 foundations and installation of nine towers out of 64 have been completed.

33rd ERPC extended the dead line for removal of LILO till November, 2016 as a last extension.

As a final measure, ERPC decided that Vedanta should give an undertaking in affidavit form to CTU and ERPC stating that the dedicated line will be completed by 30.11.2016. Failing which, CTU/ERLDC is authorized to open the LILO with effect from 01.12.2016. No further discussion would be entertained in ERPC forum on extension/disconnection of LILO after 01.12.2016 and then onwards no power transaction will be allowed through LILO on commercial purpose.

In 123rd OCC, *Vedanta updated that 56 out of 66 foundations and installation of nine towers out of 64 have been completed.*

It was informed that a reminder letter was also issued to Vedanta regarding submission of Affidavit. by ERPC.

OCC noted that Vedanta failed to furnish the affidavit and advised Vedanta to submit the undertaking in affidavit form immediately as agreed in 33rd ERPC meeting.

Vedanta agreed to submit the affidavit within a week.

In 124th OCC, Vedanta updated that 56 out of 66 foundations and installation of 17 towers out of 64 have been completed.

ERLDC informed that Vedanta is not maintaining its schedule and generating 200 MW on continuous basis from last week.

OCC advised Vedanta to maintain the schedule; otherwise, the NOC will be reduced to 200 MW.

Vedanta may update.

Regarding charging of 400kV Meramundali-Vedanta line I&II through one main & tie CB from Vedanta end due to incomplete dia, TCC felt that this is violation of CEA regulations.

Vedanta informed that bay extension work is in progress and dia would complete by November, 2016. TCC advised the Secretariat to review the progress in monthly OCC meetings.

In 123rd OCC, Vedanta informed that the scheme was approved by CEA and bay extension work would be complete by November, 2016.

OCC advised Vedanta to submit a copy of the CEA Inspectorate's approval.

Vedanta vide mail dated 26.07.2016 submitted a copy of CEA approval but without the list of equipment for which the approval was granted.

In 124th OCC, Vedanta informed that bay extension work is in progress and dia would be completed by October, 2016.

Vedanta may update the latest status.

B.17.3. Status of construction of Chuzachen bay at Rangpo S/s.

In 124th Powergrid informed that tender was not yet floated and Sikkim has asked for some modifications in the tender document. The tender will be floated by 15th September, 2016.

Sikkim/Powergrid may update.

B.17.4. Status of Bus Splitting schemes in Eastern Region

A. Bus Splitting of Powergrid Sub-stations

In 11th SCM held on 20.09.2010 the bus-splitting arrangement with tie line breaker for the following 400kV substations in Eastern Region was agreed to contain the short circuit level below 40kA.

- Maithon
- Durgapur
- Biharshariff
- Kahalgaon

In 118th OCC, Powergrid updated the status as follows:

- Maithon ---Completed
- Durgapur--Completed
- Biharshariff—Foundation work has been completed but shutdown are yet to be received to complete the work.

In 121st OCC, Powergrid informed that they are not getting shutdown to complete the work at 400kV Biharshariff S/s.

BSPTCL informed that shutdown for 400kV Biharshariff S/s is not possible before September, 2016.

In 124th OCC, Bihar informed that Biharshariff shutdown can be given after the argumentation of Patna and Purnea ICTs.

Bihar agreed to allow the shutdown for Patna S/s in 1st week of September, 2016.

Powergrid/BSPTCL may update.

In 33rd TCC/ERPC, ERLDC informed that the bus splitting schemes were planned in 2011-12 considering 400kV Durgapur-Jamshedpur and 400kV Durgapur-Maithon connectivity but these lines are getting delayed.

On query, PGCIL informed that the implemented bus splitting schemes could be made operational with immediate effect.

ERLDC requested CTU to carryout detailed study on bus splitting schemes to verify operational constraint with the present connectivity.

TCC advised CTU to carry out a final study post bus-splitting and inform ERLDC and ERPC.

In 124th OCC, Powergrid informed that CTU has done the study and they will submit the report soon.

CTU/Powergrid may update.

B. Bus Splitting of Kahalgaon STPS Stage I&II, NTPC

In 24th ERPC meeting held on 27.04.2013, ERPC advised NTPC to go ahead with the bus-splitting scheme as it is a technical requirement for safe, secure operation of the grid.

In 32nd TCC, NTPC informed that they are going ahead with the implementation of Bus Splitting of Kahalgaon STPS Stage I&II and the implementation is expected to be completed by December, 2018.

In 33rd TCC, NTPC has given the present status as follows:

- 400/132kV Switchyard package - bid opened on 14.03.16. Awarded on 04.05.2016.
- Site levelling – Site levelling package awarded, expected to be completed by August, 2016.
- Transformer package and Shunt reactor– Will be awarded by July, 2016.

In 123rd OCC, NTPC updated that transformer package and Shunt reactor will be awarded within 10 to 15 days.

In 124th OCC, NTPC updated that transformer package and Shunt reactor have been awarded.

NTPC may update.

B.17.5. 220 kV inter-connecting lines of OPTCL with 400/220 kV Bolangir (PG), Keonjhar & Pandiabil S/s

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

In 124th OCC, OPTCL updated the completion schedule of inter-connecting system as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x315MVA 400/220kV Bolangir S/s**	
a.	LILO of one circuit of Sadeipalli-Kesinga220 kV D/C line at Bolangir S/S	Only 7 towers left (Severe ROW problem). By Dec, 2016.
b.	LILO of one circuit of Katapalli-Sadeipalli220 kV D/C line at Bolangir S/S	**Charged on 04.05.16**
2.	**400/220 kV Keonjhar S/S**	
a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	By 2017.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019.

3.	**400/220kV Pandiabil Grid S/s: Expected by June'16**	
a.	Pratapsasan(OPTCL)-Pandiabil (PG) 220 kV D/C line	Dec, 2017.
b.	LILO of one circuit of Atri-Puri (Samangara) 220 kV D/C line at Pandiabil (PG)	**December, 2016**

OPTCL may update.

B.17.6. 220 kV inter-connecting lines of JUSNL with 2x315 MVA, 400/220 kV sub-stations at Chaibasa, Daltonganj & Dhanbad

In 124th OCC, JUSNL updated the latest status as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**Chaibasa 400/220kV S/s**	
a.	Chaibasa (POWERGRID) – Chaibasa (JUSNL) 220kV D/c	Completed.
b.	Chaibasa (POWERGRID) – Ramchandrapur (JUSNL) 220kV D/c	**December, 2016**
2.	**Daltonganj 400/220/132kV S/s: Expected by Mar'17**	
a.	Daltonganj (POWERGRID) – Latehar 220kV D/c	By 2017.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	**Matching with S/s**
C	Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/c	**Matching with S/s**
D	Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c	**Matching with S/s**
3.	**Dhanbad 400/220 kV S/s: Awarded under TBCB**	
a.	Dhanbad – Dhanbad (Govindpur) (JUSNL) 220kV D/c	**Matching with S/s**

JUSNL may update.

B.17.7. 220 kV inter-connecting lines of WBSETCL with 400/220 kV, 2x315 MVA Alipurduar & 2x500 MVA Rajarhat sub-stations

In 124th OCC, *WBSETCL updated the latest status as follows:*

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x315MVA, 400/220kV Alipurduar sub-station**	
a.	Alipurduar (POWERGRID) – Alipurduar (WBSETCL) 220kV D/c (HTLS)	**Oct, 2016**
2.	**2x500MVA, 400/220kV Rajarhat West Bengal S/S- Expected by Oct, 2016**	
a.	Rajarhat-N. Town-3 (WBSETCL) 220 kV D/C line	Matching
b.	Rajarhat-N. Town-2 (WBSETCL) 220 kV D/C line	*June, 2018*
c.	Rajarhat- Barasat (WBSETCL) 220 kV D/C line	*June, 2018*

WBSETCL may update.

Item No. B.18: Third Party Protection Audit

1. Status of 1st Third Party Protection Audit:

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

Name of Constituents	Total Observations	Complied	% of Compliance
Powergrid	54	37	68.52
NTPC	16	14	87.50
NHPC	1	1	100.00

DVC	40	26	65.00
WB	68	27	39.71
Odisha	59	38	64.41
JUSNL	34	16	47.06
BSPTCL	16	5	31.25
IPP (GMR, Sterlite and MPL)	5	5	100.00

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

In 118th OCC, all the constituents were advised to comply the pending observations at the earliest. All the STUs informed that most of the observations are related to funding from PSDF. DPRs have been submitted to PSDF committee.

OCC advised all specially JUSNL and BSPTCL to send the revised DPRs at the earliest after clarifying the queries if any.

Members may comply.

2. Schedule for 2nd Third Party Protection Audit:

The latest status of 2nd Third Party Protection audit is as follows:

1)	Jeerat (PG)	Completed on 15th July 2015
2)	Subashgram (PG)	Completed on 16th July 2015
3)	Kolaghat TPS (WBPDCL)-	Completed on 7th August 2015
4)	Kharagpur (WBSETCL) 400/220kV -	Completed on 7th August 2015
5)	Bidhannagar (WBSETCL) 400 &220kV	Completed on 8th September, 2015
6)	Durgapur (PG) 400kV S/s	Completed on 10th September, 2015
7)	DSTPS(DVC) 400/220kV	Completed on 9th September, 2015
8)	Mejia (DVC) TPS 400/220kV	Completed on 11th September, 2015
9)	400/220/132kV Mendhasal (OPTCL)	Completed on 2nd November, 2015
10)	400/220kV Talcher STPS (NTPC)	Completed on 3rd November, 2015
11)	765/400kV Angul (PG)	Completed on 4th November, 2015
12)	400kV JITPL	Completed on 5th November, 2015
13)	400kV GMR	Completed on 5th November, 2015
14)	400kV Malda (PG)	Completed on 23rd February, 2016
15)	400kV Farakka (NTPC)	Completed on 24th February, 2016
16)	400kV Behrampur(PG)	Completed on 25th February, 2016
17)	400kV Sagardighi (WBPDCL)	Completed on 25th February, 2016
18)	400kV Bakreswar (WBPDCL)	Completed on 26th February, 2016

The list of observations for the above sub-stations is already available at ERPC website (www.erpc.gov.in). Respective constituents are requested to comply and submit the report to ERPC for regular update.

The protection team of ERPC is scheduled to visit the BSPTCL sub-stations tentatively from 26th to 30th September, 2016. Therefore it is proposed that the protection team will carry out the Third Party Protection audit of following sub-station:

SL. NO.	SUB - STATION	OWNERSHIP
1	BIHARSHARIFF	POWERGRID
2	PATNA	POWERGRID
3	NEW PURNEA	POWERGRID
4	BIHARSHARIFF	BSPTCL
5	MADHEPURA	BSPTCL

Members may decide the schedule for Sept/Oct, 2016.

Item No. B.19: Inspection of Under Frequency Relays (UFR)

In 124th OCC, DVC informed that the UFR relays will be delivered by August, 2016 and the UFRs at 220/132/33 KV Ramgarh S/s will be replaced by next month.

DVC may update the status.

The proposed UFR audit schedule for second quarter of 2016-17 is placed below:

Sl No	Proposed Date	Substation/feeder inspected by the sub-group
1	Sep/Oct, 2016	132/33 KV Bari Pahari (Bihar Sharif) of BSPTCL
2		132/33 KV Purnea of BSPTCL
3		220/132/33 KV Sampatchak of BSPTCL
4	Nov, 2016	220/132/33 KV Kalyaneswari of DVC
5	NOV, 2016	220/132/33 KV New Bishnupur of WBSETCL
6		132/33 KV Old Bishnupur of WBSETCL
7	Dec , 2016	BRS (Liluah S/Stn.) of CESC

The protection team of ERPC is scheduled to visit the BSPTCL sub-stations tentatively from 26th to 30th September, 2016. Therefore it is proposed that the protection team may carry out the UFR audit of BSPTCL sub-station listed at Sl No. 1 to 3.

Members may decide the schedule for September/October, 2016.

Item No. B.20: 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 113th OCC, Member Secretary informed that during interaction with consultants of Grid Study Committee, NLDC agreed that they will plan for conducting workshops on crisis management plan for Cyber Security and few workshops will also be held in Eastern Region.

CESC vide letter dated 22.08.15 had furnished their status of the preparation of Crisis Management Plan (CMP) for Cyber attacks in their system.

Members may note and comply.

Item No. B.21: Certification through BIS as per IS 18001:2007 to all generating/ transmission units.

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.

In 104th OCC, WBPDCL informed that Bandel TPS is certified with IS 18001.

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

In 113th OCC, CESC informed that Budge-Budge Generating station (3x250 MW) has renewed their certification of BS 18001:2007.

In 121st OCC, it was informed that Kolaghat Generating station of WBPDCL has also received certification of IS 18001:2007 from BIS on 29.04.2016.

In 124th OCC, WBPDCL informed that Bakreswar Generating station is also received certification of IS 18001:2007 from BIS.

Members may note and update the status.

Item No. B.22: FORMULATION OF A SKILL PLAN FOR POWER SECTOR BASED ON THE ASSESSED SKILL GAP IN THE SECTOR

CEA vide letter dated 04.07.16 intimated that a meeting on the above subject was held in the Ministry of Power, New Delhi on 1st July,2016. The meeting was Chaired by the Additional Secretary Shri B.P.Pandey. Power Sector Skill Council (PSSC) made a presentation on the subject. The meeting was attended by the representatives of BEE, PSUs, CEA, PGCIL, NPTI, PFC etc.

The main emphasis made by the Additional Secretary are as follows:

- The Report has to be submitted by PSSC by 10th of July, 2016 clearly indicating the needs of training and sill gaps in power sector.
- All the data captured, analysis made and other facts in the draft skill plan have to be validated by CEA before finalization of the Report.

In this regard officials from PSSC may visit various formations of CEA and / or circulate the Draft Report for obtaining the relevant inputs and validation of the data gathered by them. Chairperson CEA has been appraised of the same.

Further to this, MoP vide their letter No.7/5/2015-T&R dated 01.07.2016 have sought information in the matter. Based on the letter of MoP a proforma has been prepared. It is requested that the relevant information pertaining to the sector/sub-sector as per the attached proforma (Attached at **Annexure-B.22**) may please be sent to CEA (by mail: ceahrd@gmail.com).

124th *OCC advised all the constituents to send the relevant information as per the proforma.*

Constituents may note and comply.

Item No. B.23: Energy Generation data management from Renewable Energy Sources

RES development Division, CEA has been receiving monthly generation details and installed capacity of Renewable Energy Sources from respective SLDCs and other authorized agencies. Some discrepancies has been found in the data as received by CEA and MNRE.

Constituents are requested to reconcile/confirmed the correct information at the earliest.

In 120th OCC, all the SLDCs were advised to submit the data to CEA as per the format given in **Annexure- B.23** with a copy to ERPC Secretariat.

In 121st OCC, SLDC West Bengal and SLDC Odisha informed that they have submitted the relevant data to CEA.

SLDCs may update.

Item No. B.24: Compilation of data for meeting Renewable Energy targets of 175 GW by 2020 -- Reference from MNRE

CEA vide letter dated 29.03.16 has referred Ministry of Power letter no. 23/2/2005-R &R(Vol-XI), dated 22.03.2016 & MNRE letter dated 02.03.2016 regarding compilation of data for meeting Renewable Energy targets of 175 GW by 2020.

In 120th OCC, Concerned State Utilities /Generating companies are requested to submit data of their respective control areas by 1st week of May, 2016.

Members may update.

Item No. B.25: Data of Peak Demand – Submission of hourly power cut data

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

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

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

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

In 110th OCC meeting, OCC advised all the concerned utilities (BSPTCL, JUSNL, OPTCL, WBSETCL & Sikkim) to send the data of hourly scheduled and unscheduled power-cuts / load shedding by mail to mserpc-power@nic.in latest by first week of each month.

For the month of August, 2016 data has been received from WBSETCL, CESC & BSPTCL*.*

DVC, JUSNL OPTCL may furnish the data.

Item No. B.26: Oscillations on 26.07.16 in ER Grid

At 16:30 hrs of 26.07.16, oscillations were observed in Durgapur and Farakka PMUs. Nearby generating stations where asked to submit data from their unit DCS. Till now ERLDC has received data from KhSTPP, BKTP, Mejia'B', DSTPS, RTPS, MPL, HEL, KTPS. It is requested that other Generating Stations viz. FSTPP, Sagardighi, PPSP, DPL, ANPL, Budge-Budge may also share the details i.r.o the above incident along with unit DCS data.

In 124th OCC, ERLDC explained the oscillations with a presentation and informed that oscillations were observed in voltage as well as MW & MVAR. Further during deliberation OCC felt that for further analysis data on load behavior of industrial loads in and around Durgapur and generators data of Sagardighi, Adhunik and other generators are required..

OCC advised DVC, WB, WBPDCL and Adhunik to share the details with ERLDC.

ERLDC may update.

Item No. B.27: Recovery Procedures of ER Constituents – ERLDC

As per IEGC clause 5.8 (b) "Detailed plans and procedures for restoration after partial/total blackout of each user's/STU/CTU system within a Region, will be finalized by the concerned user's/STU/CTU in coordination with the RLDC. The procedure will be reviewed, confirmed and/or revised once every subsequent year".

In 117th OCC, ERLDC informed that all STUs have to develop their own restoration plan and procedure of their state in coordination with ERLDC/ERPC.

If such restoration plans are already available, it may be shared with ERLDC.

The restoration procedure received from DVC, JUSNL and WBPDCL.

In 122nd OCC, ERLDC requested DVC & West Bengal to include restoration plan for priority loads mentioning quantum of load and restoration procedure.

In 123rd OCC, *West Bengal, OPTCL and BSPTCL agreed to submit the restoration procedure within 15 days.*

In 124th OCC, ERLDC informed that OPTCL has submitted the restoration procedure.

Bihar informed that they are preparing the restoration procedure.

ERLDC may update.

Item No. B.28: Dynamic data of Generator Models required in PSSE for Simulations

Requisite data received only from NTPC Kahalgaon & Barh, NHPC Teesta-V, GMR, CESC NTPC Farakka, WBPDCL, JITPL and Vedanta Ltd.

In 119th OCC, it was informed that DVC, JUSNL and OPTCL were yet to submit the data.

OCC advised the above constituents to submit the requisite data at the earliest.

Latest status is enclosed at **Annexure-B28**.

Other Generators may ensure submitting the data.

Item No. B.29: Implementation of Automatic Demand Management Scheme (ADMS)

Regulation 5.4.2 (d) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (Grid Code) provides for implementation of demand management schemes by State Load Despatch Centre through their respective State Electricity Boards/Distribution Licensees. This is a basic measure towards ensuring grid security. Due to non-implementation of this scheme so far, CERC vide order dated 31-12-15 on **Petition No. 5/SM/2014** had directed all constituents as follows:

*"However, considering the request of the respondents to grant time to implement ADMS, we grant time till **30.6.2016** to the respondents to implement ADMS, failing which they will be liable for action under Section 142 of the Act for noncompliance of the Regulation 5.4.2 (d) of the Grid Code and order of the Commission. RLDCs are directed to submit the report in this regard by 31.8.2016."*

In 120th OCC meeting, *Powergrid informed that it is possible to implement in new SCADA system. After detailed deliberation, OCC referred the issue to 7th PRM meeting for further course of action.*

In 7th PRM meeting, m*ember Secretary, ERPC briefed the members about the need for compliance of the CERC directive for implementing Automatic Demand Management scheme (ADMS) in their respective systems.*

While discussing the issue in detail, it emerged that this feature can be implemented in ER constituent systems (WB, DVC, BSPTCL, JUSNL and Sikkim), upto 33 kV side as the telemetry of 33kV side has also been included in the SCADA project just implemented.

Regarding implementation of the ADMS in OPTCL, OPTCL informed that they will discuss the matter with appropriate management and will intimate the same at the earliest.

In special PRM held on 7th June, 2016, Chemtrols provided the following status of DO implementation:

Constituent	Target by June end	Actual
Bihar	50	67
DVC	12	17
WBSETCL	10	65**
Jharkhand	2	2

(**As per the WB instruction, In all RTUs of WB the DO cable has been terminated in the C&R Panel TBs. WBSETCL testing Team to further extend the connections to the trip relays)

In 123rd OCC, *OPTCL informed that they are interacting with Gujarat and also contacted Chemtrol. Chemtrol is ready to provide hardware and software for additional cost.*

124th OCC advised all the utilities to give the latest status to ERLDC so that a report could be submitted to CERC.

*The latest status as submitted to CERC is enclosed at **Annexure-B.29.***

Members may update.

Item No. B.30: Long outage of important transmission elements

a) Non availability of both line Reactor-1 of 400KV Malda-Purnea D/C

In 123rd OCC, Powergrid informed that order has been placed for Reactor-1 and it will be commissioned by September, 2016.

Powergrid may update.

b) 400kV Meramundali-Mendhasal S/C

Tower collapsed near Mendhasal at 3 Locs, viz.Locs.180,181 & 182.

In 123rd OCC, *OPTCL informed that tower 181 and 182 were restored. Restoration of tower 180 will take time due to water logging and the tower would be restored by September, 2016.*

In 124th OCC, OPTCL informed that restoration of tower 180 will take time due to water logging and the tower would be restored by December, 2016.
OPTCL may update.

c) 400kV Sterlite-Meramundali D/c

Tower at Loc.No35 twisted(near Sterlite).

In 124th OCC, OPTCL informed that the line would be charged by 15th October, 2016.

OPTCL may update.

d) 220kV Gaya-Dehri

Tower collapsed at loc. No275 from Gaya end.

In 122nd OCC, BSPTCL informed that the line will be in service after 4 months.

In 124th OCC, BSPTCL informed that the line will be in service by November 2016.

BSPTCL may update.

e) 400kV Patna-Kishengunj D/C

Tower collapsed at Loc.51.

Powergrid informed that due to water logging problem the work is getting delayed however work is expected to be completed by 15th October, 2016.

Powergrid may update.

f) 400kV Purnea-Biharshariff D/C(under outage wef 23/08/16)

Three Nos.Tower(mid river) collapsed.

ENICL may furnish the latest status.

g) 400kV Barh-Patna-IV(under outage wef 02/08/16)

Under outage due to isolator problem at Patna end.

Powergrid may update.

h) Main bay of 315MVA ICT at Farakka(Tie element-400kV FSTPP-Malda-I)

The main bay is under s/d for upgradationwef 06/05/16.Powergrid may update stating status of the upgradation.

Powergrid/NTPC may update.

i) Main bays at Maithon of 400kV Maithon-Durgapur I & II(Tie elements-Maithon-MPL-I&Maithon-Ranchi respectively)

Powergrid had taken initially shutdown of the bays reportedly due to induction effect in process of commissioning of GIS bay for 3rd 125MVAR Bus Reactor. However, the bays have remained under outage for a significantly long time. Non availability of the bays is leading to tripping/outage of the above mentioned lines in case of shutdown/outage of the lines in the same dia.

Powergrid may update.

j) 50MVAR Bus Reactor-I at Farakka(alongwith main and tie bays)

Under shutdown wef 31/05/16 for dismantling from old bay and re-installation in new bay in the dia of FSTPP GT#3.

Powergrid may indicate the expected date of re-commissioning.

k) Tie bay of 125MVAR Bus reactor and 400kV Indravati-Indravati and Indravati(PG):

Under outage wef 18/03/16 due to R-Ph pole bursting of Tie CB. Due to non-availability of the tie bay, the Buses are coupled only via the tie bay of 400kV Rengali-Indravati and 400kVIndravati-Jeypore at Indravati and any outage of the lines would result in decoupling of the Buses.

Powergrid may update.

Item No. B.31: Transfer capability determination by the states -- Agenda by NPC

In order to ensure, safe and secure operation of the grid, the states should carry out the power system study for operational planning and power transfer capability through their respective transmission links with the rest of the grid.

It was decided in the NPC meeting that to begin with, power system study for assessment of operational limits / power transfer capability for each state will be done by the concerned RLDC in association with concerned SLDC. Monthly TTC /ATC will be uploaded by the SLDCs at their respective websites and also communicated to concerned RLDC & NLDC subsequently.

In 120th OCC, DVC informed that they are providing the monthly TTC/ATC on their website.

WBSETCL informed that they are calculating the TTC/ATC but their website is under construction.

Bihar and OPTCL agreed to implement.

JUSNL informed that they are unable to compute the TTC/ATC for their state.

OCC advised JUSNL to interact with ERLDC to get acquainted with the ATC/TTC calculation.

In 33rd TCC Meeting, respective members updated the status as follows:

- All the states are computing TTC/ATC except Sikkim and JUSNL.
- DVC is calculating and uploading in DVC website.
- BSPTCL is calculating and uploading through a link in BSPHCL website.
- WBSLDC is calculating but they could not upload due to non-readiness of website.
- OPTCL is calculating and uploading in website.

TCC felt that grid operator should have the information on how much power they can export and import and they should restrict to that figures in order to avoid major grid disturbances.

Accordingly, TCC advised all the constituents to place the details in monthly OCC meetings till they upload the information in their respective websites.

TCC advised JUSNL to send their representatives to ERLDC so that they could get acquainted with the ATC/TTC calculation procedure. Representative from JUSNL informed that they are ready to send three officers to ERLDC, the names of officers would be shared in tomorrow's ERPC meeting.

123rd OCC *advised all the SLDCs to mention the constraints along with ATC/TCC figures.*

124th OCC *advised all the SLDCs to mention the constraints along with ATC/TCC figures.*

Members may note and update.

Item No. B.32: Reasons for demand –supply gap and its variation -- Agenda by NPC

It was deliberated in the 4th NPC meeting that monthly power supply position prepared & published by CEA based on the data furnished by the states reflected shortages in almost all the states. However, a number of those states intimated adequate availability of power. This meant that the deficit / shortage in such states was actually not the deficit in true sense but demand - supply gap due to reasons other than shortage of power. The other reasons for the demand - supply gap could be inadequate availability of power, transmission constraint, distribution constraint, financial constraint etc. The reason for demand –supply gap needed to be clearly mentioned to reflect true picture of power supply position in different states and also to invite attention of various agencies including policy makers to the specific problem areas in the power sector for suitable solution.

It was agreed by all the RPCs to advise the states in their respective regions to intimate broad break-up of demand –supply gap due to various reasons, or at least, the main reason(s) for demand supply in each month.

124th OCC advised all the constituents to comply.

Members may update.

Item No. B.33: Update on status of telemetry

CERC vide order dated 28.02.2016 on Petition No. 007/SN/2014 directed NLDC and respective RLDCs to update the status of telemetry every month at their respective websites and take up the issue of persistent non-availability of data from Generating Stations/substations at RPC meetings for appropriate action.

In 120th OCC, ERLDC informed that every month they were updating the status and posting at ERLDC website.

In 124th OCC, ERLDC presented the updated telemetry status and informed that every month they were posting the updated status at ERLDC website. The updated status is enclosed at **Annexure-B.33**.

OCC advised all the respective constituents to ensure the availability of telemetry data to ERLDC.

Members may update.

Item No. B.34: Interruption of real time data due to all control centres in ER

There was a total failure of real time SCADA data to all control centres from 05:53 Hrs of 08-August-16. As an interim arrangement, real time SCADA data was restored on 10-August-16 at 03:19Hrs. The root cause is yet to be arrived and fixed. We always talking about the route redundancy in the communication links but it is noticed that redundancy to the communication equipment is also not available.

Presently, with the implementation of new SCADA systems at all the control centres, RTUs has to report to both the control centers i.e. Main as well as Backup control centre.
At a time, only one control centre will act as main and other will be on standby (Hot/Standby architecture)

All communication link i.e. RTU links as well as ICCP data link with constituents may be provided at backup control centre also at the earliest so that real time SCADA data could be available to Backup ERLDC in case of any communication / machine failure at Main Control centre.
It is being requested POWERGRID to provide the redundancy for communication equipment system / route diversity of communication link / redundancy at both the control centres.

In 124th OCC, Powergrid informed that there was some problem in Patna SLDC due to which one ICCP link failed which caused the interruption of data.

OCC advised Powergrid to provide redundancy for communication equipment system / route diversity of communication link / redundancy at both the control centres. Powergrid was also advised to submit a report on the incident and action taken.

ERPC vide Fax message No 612 dated 09.09.16 has also requested Powergrid to submit the report at the earliest

POWERGRID may give the status.

Item No. B.35: Installation of PMUs in Eastern Region under URTDSM project

LOA for installation of PMUs in Eastern Region under URTDSM project was awarded to M/s Alstom on 15th January 2014. The contract has to be completed in all respect within 24 months from the award. The status of implementation may be informed since PMU data is very much important to real time shift operator for analyzing the security of the grid.

In 124th OCC, it was informed that out of 247 PMUs 46 have been installed.

OCC advised Powergrid to submit a report on latest status of implementation and advised to update the status on every OCC.

Subsequently, ERPC vide Fax message No 613 dated 09.09.16 has requested Powergrid to submit the report on latest status oo URTDSM implementation but the response is still awaited

POWERGRID may update the status.

Item No. B.36: Status of Disturbance Recorder, Stand alone Event Logger and Time Synchronization equipment.

The status of DR/EL and GPS as updated in previous OCCs is enclosed at **Annexure-B.36**.

Constituents are also requested to furnish their list of new DR/EL which are not included in the list.

Members may update.

Item No. B.37: Status of Emergency Restoration System (ERS Towers) for Eastern Region constituents

The latest status of Emergency Restoration System (ERS towers) as well as the future plan of procurement was given at **Annexure- B.37**.

Members may update the latest status.

Item No. B.38: Pollution mapping for Eastern Region

The Pollution Mapping work in ER was started with on-site measurement of ESDD and NSDD.

OCC advised all the respective constituents to coordinate with Powergrid for online filling of measurement data.

In 123rd OCC, members updated the latest status as follows:

Utility	Scope	Installed Locations	Number of locations where 1st set of Measurements Completed	Number of locations where 2nd set of Measurements Completed
JUSNL	67	27	**21**	**19**
BSPTCL	59	52	**52**	**40**
WBSETCL	73	70	**43**	
OPTCL	164	102	**102**	**42**
Sikkim	12	9	**6**	**6**
Powergrid ER 1	99	99	**99**	**47**
Powergrid ER 2	40	40	**40**	**40**
Powergrid Odisha	42	42	**42**	**42**

OCC advised all the constituents to complete the measurements as per the schedule.

Members may update.

Item No. B.39: Mock Black start exercises in Eastern Region – ERLDC

i) <u>The status of black start exercises</u>

The schedule of the proposed black-start exercises for F.Y 2016-17 is as follows:

Sl no	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I		Test-II	
1	U.Kolab	Last week of May, 2016	***Completed on 16th July 2016***	Last Week of January 2017	

2	Maithon (To be tested in islanded mode)	1st week of June 2016	*July 2016*	1st Week of February 2017	
3	Rengali	2nd week of June 2016	*28th August 2016*	Last week of November 2016	
4	U. Indarvati	3rd week of June 2016	***Completed on 16th July 2016***	2nd week of February 2017	
5	Subarnarekha	1st week of October 2016	*Sep, 2016*	1st week of January 2017	
6	Balimela	3rd week of October 2016		1st week of March 2017	
7	Teesta-V	2nd week of Nov 2016		Last week of February 2017	
8	Chuzachen	Last Week of May 2016		January 2017	
9	Burla	Last Week of June 2016	*28th August 2016*	Last week of February 2017	
10	TLDP-III	1st Week of June 2016	Nov, 2016	2nd Week of January 2017	
11	TLDP-IV	Last Week of June 2016	Nov, 2016	1st Week of February 2017	

Members may update.

ii) Testing of DG sets meant for Black start

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

Constituents may kindly ensure compliance.

Item No. B.40: Restricted Governor /Free Governor Mode Operation of generators in ER

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

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

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

In 115th OCC, ERLDC informed that for effective monitoring of unit wise governor response, ERLDC proposes to create a web-group wherein SCADA data recorded by ERLDC following an event of sudden load-generation imbalance would be posted within 2-3 days of occurrence of the event. The login id and password to access the web-group would be duly intimated by ERLDC to all concerned.

Coordinators from all the concerned generating stations would post the unit wise MW response as recorded at their respective ends, for a period +/- half-an-hour of the instant, within two days of posting by ERLDC. For the purpose of analysis, wherever significant variation would be observed w.r.t. to SCADA data, generator`s data would be adopted for detailed analysis.

In this connection, SLDCs of E. Region are requested to extend cooperation by coordinating with nodal officers of generators under their respective jurisdiction, in data collection and posting in webgroup.

OCC requested all the constituents to provide their respective e-mails which can be added to the web group.

E-mails can be provided by all SLDCs, Hydro generators of having capacity 10 MW & above and Thermal generators of having capacity 200 MW & above.

SLDCs will co-ordinate with their IPPs of 10 MW & above Hydro generation and 200 MW & above Thermal generation.

Thereafter, ERLDC informed that one web group was formed for sharing governor response of various generators in ER. The url of the group is

https://in.groups.yahoo.com/neo/groups/er_gov_respons/info

ERLDC requested to send email ids where invitation will be sent. Yahoo mail ids are preferable.

In 118th OCC, it was informed that WBSETCL, JUSNL, Bihar, NTPC and NHPC are yet to join the group.

OCC advised all the other constituents to join the web group at the earliest by providing their e-mail ids (preferably yahoo ids).

ERLDC had uploaded the unit wise responses in the group "er_gov_respons@yahoogroups.co.in." i.r.o the following events for monitoring of RGMO response of generator:

(1) At 14:27 hrs of 09/06/16 Due to CT blast of 220 kV Samaypur-Palwal-I at Samaypur(BBMB) all four 400/220 kV ICTs of Ballabhgarh(PG) tripped.
(2) At 09:41 Hrs of 05-07-16 the grid frequency dips to 49.8 Hz from 50.07 Hz due to sudden loss of 1400MW wind generation in Rajasthan (NR).

Based on SCADA data available at ERLDC, the frequency response characteristics (MW/Hz) and MW response provided by governors of various generating units in ER, has been analysed at our end. In this regard ERLDC vide letter ERLDC/SS/FGMO/2016/1633-61 dated 7th July 2016 requested all SLDCs and eligible regional entity generators to share the responses captured by respective unit DCS and offer their valuable observations, if any. OCC decided that all the generators should put FGMO in service from 15th August, 2016.

ERLDC may update.

In 123rd OCC, ERLDC added that this is the best time to put all the generators in RGMO/FGMO mode as the grid frequency is stable and almost close to 50 Hz.

OCC decided that all the generators should put RGMO/FGMO in service from 15th August, 2016.

All generators agreed.

In 124th OCC, DVC informed that all units are in RGMO.

WBPDCL informed that Santaldih U#5 is in RGMO from 16th Aug 2016 and U#6 will be kept in RGMO after overhauling. WBPDCL added that other units are old and not capable to run in RGMO.

In such cases, OCC advised the respective generators to approach CERC for exemption.

Members may update.

Item No. B.41: Reactive Power performance of Generators and GT tap position optimization

In 124th OCC, ERLDC informed that the performance of DSTPS, Mejia-B, JITPL, GMR and APNRL need improvement.

Generating stations have been monitored for certain sample dates in the month of August,16.

ERLDC may present the status/observations.

a) Schedule for reactive capability tests

The following was status of regarding reactive capability testing:

a. Adhunik TPS(both units) –Yet to be confirmed by Adhunik
b. DSTPS (Unit#2 only pending) – done
c. Koderma TPS Unit#1 -- done on 08.08.2016
d. JITPL(both units) – Procedure given. Not yet done
e. Barh TPS – In June 2016
f. Raghunatpur (both units)
g. GMR (Three units)
h. *Haldia TPS (Unit #4)*

Members may update.

Item No. B.42: Erroneous recording/Non-receipt of data by Interface Meters

A. Erroneous recording of data by Interface Meters

i. Patratu(DVC)

SEM data received from Patratu(DVC)of 132 KV Patratu(DVC) – Patratu (JUVNL) line showing erroneous(around 50% recording Less as compared to JUVNL end) since charging of the line on 16.05.16. Accounting of DVC is being done by Standby meter at JUVNL end. The above matter was last discussed in 33rd TCC/ERPC. The said line is Idle charged since last one and half months and the necessary rectification if any done can't be checked until Power flow through the line.

In 123rd OCC, it was informed that appropriate correction has been done and meter will be checked when the line is in service.
In 124TH OCC, It was informed that appropriate correction has been done and meter will be checked when the line is in service.

DVC may update the status.

ii. Joda(OPTCL)

SEM data received from Joda(OPTCL)endof 220 KV Joda(OPTCL) – Ramchandarpur (JUVNL) line is showing erroneous(15-20% Less recording as compared to Ramchandarpur end) since 14.01.16. Matter was intimated to official of Joda OPTCL. In 119th OCC, OPTCL informed that SEM at Joda end needs to be checked and corrected. OPTCL informed that there is no line CT,

so 2 nos SEM for the bus-coupler at Joda end is required. In 121st OCC, ERLDC suggested to place one meter at B/C and to check healthiness of existing SEM at Joda end of Ramchandarpur Line. In the last Commercial Sub Committee meeting, PGCIL informed that SEMs have been arranged and the metering at B/C ofJoda would be completed subject to S/D allowed by OPTCL. OPTCL may confirm the S/D of 220 KV Joda-Jindal Line so that the meter of the said line may be shifted at B/C.

In 124th OCC, it was informed that the meter is yet to be replaced.

OPTCL informed that the shutdown will be allowed in this week.

PGCIL and OPTCL may please respond.

B. By passing of SEMs of Tie Lines

i. Kendiposi at JUSNL

SEM is installed at both end of 132 KV Kendiposi(JUSNL)-Joda (OPTCL) Line. As per the SEM data received from 132 KV Kendiposi(JUSNL), readings of meter (Serial No. NP-6117-A) installed at Kendiposi end of 132 KV Kendiposi-Joda Line is not recording any flow compared to Joda end since long. It was gathered from Kedniposi that line is feeding load to Naumundi (JUSNL) regularly through Transfer Bus of Kendiposi by passing the SEM at Kendiposi.

Further Power from Joda is occasionally received at Main Bus of Kendiposi. In that case Meter installed at Kendiposi end of Joda Line records the energy flow through the line. In absence of non-recording of data by SEM installed at Kendiposi end of the aforesaid Tie line, data validation and energy accounting is being affected. Presently energy accounting is being done considering Joda OPTCL end meter.

Bypassing of SEM installed at Tie line is violation of CEA metering regulation 2006 and the same is needed to be restored**.** One meter at Transfer Bus is required to be installed to record energy flow through the line. The above matter was last discussed in 33rd TCC/ERPC. Till now the details of SEM installed at Transfer Bus is not received by ERLDC.

In 123rd OCC, It was informed that one meter is to be installed at transfer bus and PGCIL informed that they will install the meter by 31st July 2016.

In 124th OCC, it was informed that JUSNL has to install CVT.

OCC advised JUSNL to install CVT at the earliest.

Powergrid/JUSNL may update the status.

C. Non Receipt of SEM data from Various Locations

i. Forbisganj at BSPTCL

Kishanganj(BSPTCL) end meter of 132 KV Purnea(PG) Line is not recording any flow compared to Purnea PGCIL end since 14:00 hrs of 29th June 2015. It was gathered that line is feeding load to Farbisganj at BSPTCL regularly through Transfer Bus of Kishanganj bypassing the SEM at Kishanganj. It was decided to place 02 nos of SEM at Forbesganj. In 31st CCM, BSPHCL representative informed that meter has been placed at Farbesgunj on 03.02.2016. In 121st OCC PGCIL informed that DCD for downloading the data has been handed over to BSPHCL. The matter was last discussed in 33rd TCC/ERPC and it was assured that the matter would be resolved at the earliest. However ERLDC has not received the SEM data till now.

In 123rd OCC, BSPHCL informed that software was not updated and they are not able to collect the meter data.

OCC advised PGCIL to look into. PGCIL agreed to look into.

BSPHCL may update.

ii. Kudra at BSPTCL

SEM data of Kudra end of 132 KV Kudra –Pusauli line is not being sent by BSPTCL since last one month. Further the Kudra end meter is not connected in AMR system which is supposed to be covered in AMR 3rd phase. In absence of Kudra end meter, end to end Validation of SEM data at ERLDC end is not done. The matter is already informed to BSPTCL.

BSPHCL may please respond.

PART C:: OPERATIONAL PLANNING

Item no. C.1: Shutdown proposal of transmission lines and generating units for the month of October'16

Members may finalize the Shutdown proposals of the generating stations for the month of October'16 as placed at **Annexure-C.1**.

ERLDC may place the list of line shutdown. Members may confirm.

Item no. C.2: Anticipated power supply position during October'16

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of October'16 were prepared by ERPC Secretariat on the basis of Provisional LGBR for 2015-16 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc. is at **Annexure-C.2**.

Members may confirm.

Item no. C.3: Prolonged outage of Power System elements in Eastern Region

(i) Generating units:

Generating Station	UNIT	CAP(MW)	REASONS FOR OUTAGE	OUTAGE DATE
KAHALGAON	3	210	ANNUAL O/H	21-Aug-16
BARH	4	660	Desynchronised for wet coal and	26-Aug-16
MPL	2	525	BOILER TUBE LEAKAGE	25-Sep-16
ADHUNIK	2	270	TURBINE VIBRATION HIGH	4-Sep-16
STERLITE	1	600	DESYNCHRONISED DUE TO	4-Sep-16
MEJIA	4	210	LOW DEMAND	24-Mar-16
MEJIA	1	210	LOW DEMAND	7-Aug-16
MEJIA	2	210	BOILER TUBE LEAKAGE	29-Aug-16
BOKARO B	2	210	LOW DEMAND	3-Jul-16
BOKARO B	3	210	LOW DEMAND	10-Aug-16
WARIA	4	210	ROTOR PROBLEM	30-Apr-16
WARIA	3	210	ROTOR PROBLEM	1-May-16
RAGHUNATHPUR	1	600	COAL MILL PROBLEM	11-Aug-16
KODERMA	1	500	FLAME FAILURE	1-Sep-16
DPL	8	250	BOILER TUBE LEAKAGE	28-Jun-16
TENUGHAT	1	210	LOW VACUUM	9-Jul-16

(ii) Transmission elements

Name of the Line/Element	Outage	Reason
400 KV MEERAMANDALI-	23/05/16	TOWER COLLAPSED NEAR TO
220 KV GAYA-DEHRI-D/C	27/05/16	TOWER COLLAPSED AT LOC NO 275
400 KV PATNA-KISHANGANJ D/C	26/07/16	TOWER COLLAPSED AT LOC NO 51
400 KV BARH-PATNA-IV	02/08/16	DUE TO ISOLATOR PROBLEM AT PATNA
400 KV BIHARSARIFF-PURNEA-I	23/08/16	Three numbers of tower are badly damaged
400 KV BIHARSARIFF-PURNEA-II	23/08/16	Three numbers of tower are badly damaged

Members may update.

Item no. C.4: Status of commissioning of generating station and transmission elements

New generating units:

S.No.	Power Plant	Plant Size	Expected date
1	Sagardighi Unit #3	500 MW	

New transmission elements:

Sl No.	Name of Element	Expected date
1	400kV Rajarhat-Purnea D/C (with LILO of one circuit each at Farakka and Gokarno)	
2	Augmentation of 400kV Farakka-Malda D/C with HTLS conductor	
3	400kV Ind-Bharath-Jharsuguda D/C	
4	400kV Talcher-Bramhapur-Gazuwaka D/C	
5	400kv Talcher-Rourkella(2nd D/C-Quad)	
6	400kV Sterlite-Jharsuguda D/C	
7	765kv Anugul-Srikakulum D/C	
8	400kV Sasaram-Daltonganj D/C &Daltonganj S/Stn	
9	400 kV Ranchi-Raghunathpur D/C	
10	220 kV TLDP-IV – NJP ckt-2	
11	220 kV Bidhansai-Cuttack D/C	
12	220kV Gola- Ranchi	

Members may update.

PART D:: OTHER ISSUES

Item no. D.1: UFR operation during the month of July'16

System frequency touched a maximum of 50.35Hz at 13:03Hrs of 10/08/16 and a minimum of 49.65Hz at 00:08Hrs of 21/08/16 and again at 19:22 Hrs of 22/08/16. Accordingly, no report of operation of UFR has been received from any of the constituents.

Members may note.

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

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

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

No report from any constituent has yet received. Hence, ERLDC would be considering 'Nil' report for all constituents for July'16.

Members may note.

Item no. D.3: Grid incidences during the month of August, 2016

Sl no	Disturbance Place	Date	Time	Generation loss (MW)	Load loss (MW)	Remark	Category
1	Bakreswar (WBPDCL)	19/08/16	13:39	370 MW	NIL	At 13:39hrs fault occurred in 220kV BkTPP - GokarnaCkt # 1. Due to non-opening of B phase breaker at Bakreswar, all feeders connected to Bus - I tripped in LBB operation	GD1
2	Purnea (BSPTCL & PG)	19/08/16	17:11	NIL	240 MW	At 17:12hrs 132KV Supaul-Kataiya –D/c tripped on Y - B - N fault. At the same time 132kV Purnea(PG)- Purnea(BSEB) -T/C, 132kV Purnea(PG)-Kishangunj tripped on O/C causing power failure at Purnea, Forbisgunj, Katihar, Khagaria, Naugachia. Power flow to Nepal (Duhabi) via Kataiya got interrupted.	GD1
3	Sasaram (PG & BSPTCL)	28/08/16	10:54 & 11:10 Hrs	NIL	50 MW	At 10:40hrs, 220kV Sasaram- Nadokhar Line tripped from Sasaram end due to Y-N fault under Z-3 (Fault was in 132kVKudra - Nadokhar), At 11:10 Hrs the above mentioned line tripped again during charging attempt from Sasaram end (line was opened from Sasaram End only) along with 220kV Arrah –Nadokhar.	GD1
4	Khagul (BSPTCL)	30/08/16	19:18	NIL	250 MW	At 19:18hrs all ICT at Khagaul tripped due to snapping of Y phase jumper of 132 kV main bus at Khagul	GD1
5	Purnea (BSPTCL & PG)	31/08/16	19:53	NIL	350 MW	At 19:53hrs, after tripping of all 220/132kV ICT at Madhepura, load at Nepal, Kataiya, supoul&Madhepura was supplid through 132kV Purnea(B)- Forbisganj S/C & 132kV Purnea(PG)-Kishanganj- Forbisganj S/C which tripped on overload.	GD1
6	Purnea (BSPTCL & PG)	31/08/16	22:12	NIL	310 MW	At 22:12hrs, 220KV Purnea-Madhepura-II & I tripped on R-N fault & overload respectevely. After tripping of 220kV Purnea - Madhepura D/C, load at Nepal, Kataiya, supoul&Madhepura was supplid through 132kV Purnea(B)- Forbisganj S/C & 132kV Purnea(PG)- Kishanganj- Forbisganj S/C which tripped on overload.	GD1

Members may note.

Item no. D.4: Any other issues.

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Annexure- B.4

Unit wise yearly generation target for the year 2017-18

Organisation:

1. Details of two contact persons:

Sr. no	Name	email	Phone no.	Fax no.
1				
2				

2. **Units existing on 31.03.2016**

Station name	Unit No.	Capacity	Date of commissioning	2016-17 generation details (MU)						2017-18 generation details (MU)		Remarks
				Target	Actual till last month	%PLF till last month	% Availability till last month	Total Anticipated during the year	Reason for low generation(if any)	Expected Target Generation (MU)	Reason for variation in target	

3. **Units Commissioned during 2016-17**

Station name	Unit No.	Capacity	Date of commissioning	2016-17 generation details (MU)						2017-18 generation details (MU)		Remarks
				Target	Actual till last month	%PLF till last month	% Availability till last month	Total Anticipated during the year	Reason for low generation	Expected Target Generation (MU)	Reason for variation in target	

4. Units likely to be commisioned during 2017-18

Station name	Unit No.	Capacity	Expected date of commissioning	2017-18 generation details (MU)	Remarks
				Expected Target Generation (MU)	

Note: Please furnish the month-wise break-up of yearly generation in a separate Sheet keeping the similar format.

5. Details of Units commissioned/likely to be commissioned*

Unit Wise Details	Unit No.	Capacity	Date of commissioning	Date of commercial Operation/ Stablisation	Boiler make / Country	Turbine Make / Country	Boiler Effeciency (design)	Turbine Heat Rate (Design)	Unit Design Heat Rate	Type of cooling Tower	Type of BFP (motor/ Turbine) Driven	Type of FGD
	1											
	2											

**Formats may be modified as per CCGT/ Nucler Power Plant*

6. Loss of Generation due to Grid Constraints/ Low schedules /high fuel cost during 2016-17

Transmission Constraints/ power evacuation problems/ low schedule/high fuel cost

S No.	Details of the Constraint	Loss so far (Apr'16-Aug'16)		during 2016-17	
				Anticipated Period of constraint	Anticipated loss of generation (MU)

7. PPA details

Annex-I(2 of 2)

Capacity (MW)	With DISCOM			With State Trading Cos.				With PTC / other trading cos.				Untied (MW)
	State of Discom	Quantum (MW)	Duration (Yrs)	Quantum (MW)	b/b PPA with Discom (name of Discom)	quantum of b/b PPA in MW	Duration of b/b PPA (Years)	Quantum (MW)	b/b PPA with Discom (name of Discom)	quantum of b/b PPA in MW	Duration of b/b PPA (Years)	

8(a)Coal Linkage for coal based plants

Unit No	Domestic linkage (MT)	Source	%PLF from this coal linkage during the year

8(b)Gas availibility for gas based stations

Varoius sources	Figures in MMSCMD	%PLF from this gas availibility during the year

9. Cost of Generation:

Unit No	Cost of Gen. (Paise/kwh)	Rate of Sale of Power (Paise/kwh)

Annex-II

Planned maintenance Schedules including R&M activities

A) **R&M of Units likely to be completed during 2016-17 & 2017-18**

Station name	Unit No.	Capacity (MW)	R&M Schedule	
			From date	To date

B) **Annual Overhaul/ Boiler overhaul**

Station name	Unit No.	Capacity (MW)	AOH Schedule	
			From date	To date

C) **Capital Overhaul**

Station name	Unit No.	Capacity (MW)	COH Schedule	
			From date	To date

D) **Other maintenance if not included above such as PG tests (new units) and Boiler inspection**

Station name	Unit No.	Capacity (MW)	Schedule		Reason
			From date	To date	

Power System Operation Corporation Limited
(A wholly owned subsidiary unit of Powergrid Corporation of India Limited)
Eastern Regional Load Despatch Centre
14, Golf Club Road, Tollygunge, Kolkata – 700033
CIN: U40105DL2009GOI188682
www.erldc.org Email-ID:erldc.cal@gmail.com Tel:033-24235875 Fax: 033-24235809

Ref: ERLDC/Oprn/2016/9 **Dated: 02nd Sept, 2016**

To:

1) **The General Manager (O&M), Eastern Region-II, CF 17, Action area-IC, New Town, Rajarhat, Kolkata– 7000156**
2) **The General Manager (O&M), ERTS-I, Alankar Place, Boring Road, Patna-800001 (Bihar),**
3) **Chief Executive officer, ENICL Transmission Networks, Sterlite Grid Limited, C-2, The Mira Corporate Suits, Ishwar Nagar, New Delhi-110065**
4) **General Manager (P&O), Powerlinks transmission limited, Vidyut nagar, Siliguri, West bengal-734015**

Sub: Regarding compliance of CERC (Standards of Performance of Inter-State transmission licenses Regulations), 2012.

Sir,

Please find attached letter from the ED, NLDC dtd:17/08/16 at Annexure-II regarding the subject mentioned above.

As per Para-IV of the CERC (Standards of Performance of Inter-State transmission licenses Regulations), 2012, all intra-state transmission license are required to furnish data for calculation of various indices and regarding number of trippings of each of the elements in a month. The relevant extract from Para-IV of the above CERC regulation is attached at Annexure-II.

It is requested that the above data may be sent to POSOCO with a copy to ERLDC to ensure compliance of the regulation.

Thanking You,

Yours faithfully,

02-09-2016

(P.P.Bandyopadhaya)
DGM (SO), ERLDC

Copy: The Executive Director, NLDC, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi -110016

CIN No.: U40105DL2009GOI188682

पावर सिस्टम ऑपरेशन कॉरपोरेशन लिमिटेड

(पावरग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कंपनी)

POWER SYSTEM OPERATION CORPORATION LIMITED

(A wholly owned subsidiary of POWERGRID)

पंजीकृत एवं केन्द्रीय कार्यालयः बी-9, प्रथम तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली-110 016
Registered & Corporate Office : B - 9, Ist Floor, Qutub Institutional Area, Katwaria Sarai, New Delhi - 110 016
Website : www.posoco.in, www.nldc.in, Tel: 011-26536832, 26524522, Fax: 011-26524525, 26536901

853
29/8/16

NLDC/SO/Compliance/SOPR/ 589

Date: 17th August, 2016

सेवा में

महाप्रबंधक
NRLDC/ERLDC/NERLDC/SRLDC/WRLDC

Subject: Regarding compliance of CERC (Standards of Performance of inter-State transmission licensees Regulations), 2012.

Sir,

This has reference to the Standards of Performance of Inter-State Transmission Licensees Regulations-2012, issued by CERC. Para IV of the 'Schedule' of the said regulations specifies the "Data to be furnished by the inter-State Transmission Licensees to POSOCO".

The regulation mandates that the data for calculation of Dependability Index, Security Index and Reliability Index shall be submitted by the ISTS Licensees to POSOCO. These indices shall then be computed by POSOCO and reported to the Commission on monthly basis. Further, five or more trippings of any element within a month shall be reported by POSOCO to the Commission.

It is requested that the reporting to the Commission in compliance to the above mentioned regulation may please be ensured.

What happened to this direction? Have we taken up Transmission Licensees? Pl. apprx.
29/8/2016.

भवदीय,

17/8/16

(के. वी. एस. बाबा)
कार्यपालक निदेशक

DGM(GM)
AGM(GM)

प्रतिः

1. मुख्य कार्यपालक अधिकारी , पोसोको

31-08-16
SR P.S. Das

IV. Data to be furnished by the inter-State Transmission Licensees to POSOCO

(1) The Dependability Index defined as $D = \frac{N_c}{(N_c+N_f)}$

where N_c is the number of correct operations during the given time interval and N_f is the number of failures to operate at internal power system faults.

(2) The Security Index defined as $S = \frac{N_c}{(N_c+N_u)}$

where N_u is the number of unwanted operations.

(3) The Reliability Index defined $R = \frac{N_c}{(N_c+N_i)}$

where N_i is the number of incorrect operations and is the sum of N_f and N_u.

(4) From above $\frac{1}{S} + \frac{1}{D} = \frac{1}{R} + 1$

(5) The number of trippings of each transmission element. Five or more trippings of a transmission element in a month to be put on the website by the inter-State Transmission Licensees and reported to the Commission by POSOCO

Note:

1. The data for these indices are presently prescribed for collection by the System Operator.
2. These indices shall be computed by the POSOCO and furnished to the Commission on monthly basis.

Annexure-B.22

Manpower Engaged in Power Sector (Separately for Central, State and Private sector)

As on 31st March	Regular						Non-Regular				Grand Total (Regular+ Non Regular)
	Managerial and higher executive	Technical/ scientific officers	Technical Supervisory Staff	Technicians & operating Staff	Non-Technical	Total (Regular) {col 2 to 6}	Technical Trainees and apprentices	Work charged staff	Casual/ Temporary/ Out sourced	Total (Non-Regular) {col 8 to 10}	
1	2	3	4	5	6	7	8	9	10	11	
Actual											
2012											
2013											
2014											
2015											
2016											
Projected/ Estimated											
2017											
2018											
2019											
2020											
2021											
2022											
2023											
2024											
2025											
2026											
2027											

Details Regarding No. of Consumers and Connected Load etc.

(A) Utilities

As On 31st March of Financial year end	No. of Consumers	Connected Load (kW)	Consumption (MU)	Energy Available for Supply	T&D losses(%)	Per Capita Electricity Consumption(kWh)
1	2	3	4	5	6	7
2011-12						
2012-13						
2013-14						
2014-15						
2015-16						
2016-17						
2017-18						
2018-19						
2019-20						
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						
2025-26						
2026-27						

(B) Non Utilities

As On 31st March of Financial year end	No. of Consumers	Connected Load (kW)	Consumption (MU)	Energy Available for Supply	T&D losses(%)	Per Capita Electricity Consumption(kWh)
1	2	3	4	5	6	7
2011-12						
2012-13						
2013-14						
2014-15						
2015-16						
2016-17						
2017-18						
2018-19						
2019-20						
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						
2025-26						
2026-27						

(C) Utilities + Non Utilities

As On 31st March of Financial year end	No. of Consumers	Connected Load (kW)	Consumption (MU)	Energy Available for Supply	T&D losses(%)	Per Capita Electricity Consumption(kWh)
1	2	3	4	5	6	7
2011-12						
2012-13						
2013-14						
2014-15						
2015-16						
2016-17						
2017-18						
2018-19						
2019-20						
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						
2025-26						
2026-27						

Details Regarding Installed Capacity, No. of Consumers and Connected Load etc.

(A) Installed Capacity (MW) - Utilities

As On 31st March	Hydro	Thermal				Nuclear	Renewable					Grand Total
		Steam	Gas	Diesel	Total (Thermal)		Wind	Solar	Biomass etc	Mini/Micro Hydel	Total (Renewable)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
2026												
2027												

(B) Installed Capacity (MW) - Non Utilities

As On 31st March	Hydro	Thermal				Nuclear	Renewable					Grand Total
		Steam	Gas	Diesel	Total (Thermal)		Wind	Solar	Biomass etc	Mini/Micro Hydel	Total (Renewable)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
2026												
2027												

(C) Installed Capacity (MW) - (Utilities + Non Utilities)

As On 31st March	Hydro	Thermal				Nuclear	Renewable					Grand Total
		Steam	Gas	Diesel	Total (Thermal)		Wind	Solar	Biomass etc	Mini/Micro Hydel	Total (Renewable)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
2026												
2027												

Annexure-B23

Installed Capacity (MW) and Generation (MU) from renewable Resources (Injected into the Grid)

1. State/Centre :
2. Month :
3. Year :

Renewable Resources/Organizations	Installed Capacity (MW) as on last date of the month			Generation (MU) during the month : ~~January~~			Cumulative Generation (MU) during the 1st April ~~2015~~ to end of month		
Renewable Energy Resources	Central Sector	State Sector	Private Sector	Central Sector	State Sector	Private Sector	Central Sector	State Sector	Private Sector
1. Wind									
2 a. Solar (1 MW & above)									
2 b. Solar (Less than 1 MW)									
3. Biomass									
4. Bagasse									
5. Small Hydro (1 MW to 25 MW)									
6. Any Other (Please Specify the resources)									
Total									

Annexure-B28

Dynamic data of Generator Models required in PSSE for Simulations

- **Data received from**
  - **NTPC Kahalgaon & Barh, Farakka, Talcher STPS, TTPS**
  - **NHPC Teesta-V,**
  - **WBPDCL, CESC**
  - **GMR, JITPL,MPL and Vedanta Ltd. Including Vedanta (135 MW units)**
  - **DVC**
  - **OHPC, OPGC**
  - **IMFA CPP Odisha**
- **Data not received from**
  - **Kanti TPS**
  - **NHPC Rangit**
  - **JUVNL,**
  - **DVC**
    - **Maithon, Panchet HEP**
  - **Adunik TPS**
  - **Jorthang HEP, Chujachen HEP**

पावर सिस्टम ऑपरेशन कॉरपोरेशन लिमिटेड

(पावर ग्रिड की पूर्ण स्वामित्व प्राप्त सहायक कम्पानी)

POWER SYSTEM OPERATION CORPORATION LIMITED

(A wholly owned subsidiary company of Power Grid Corporation of India Limited)

पूर्वी क्षेत्रीय भार प्रेषण केन्द्र, 14, गोल्फ क्लब रोड, टालिगंज, कोलकाता – 700 033
EASTERN REGIONAL LOAD DESPATCH CENTRE, 14, Golf Club Road, Tollygunge, Kolkata - 700 033
दूरभाष : 033 2423 5867 फेक्स : 033 2423 5809 Tel. 033 2423 5867, Fax 033 2423 5809

ERLDC/SS/ADMS/2016/2705

26th August, 2016

The
Secretary,
Central Electicity Regulatory Commission
3 rd & 4 th Floor, Chanderlok Building,
36, Janpath, New Delhi- 110001

Sub: **Submission of report regarding implementation of ADMS by constituents of Eastern Region**

Sir,

Vide order dated 31-12-2015 in Petition No. 5/SM/2014 regarding Non-compliance of Regulation 5.4.2 (d) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, Hon'ble Commission had inter-alia directed all RLDCs as follows:

Quote -

However, considering the request of the respondents to grant time to implement ADMS, we grant time till 31.6.2016 to the respondents to implement ADMS, failing which they will be liable for action under Section 142 of the Act for noncompliance of the Regulation 5.4.2 (d) of the Grid Code and order of the Commission. RLDCs are directed to submit the report in this regard by 31.8.2016.

-Unquote

In compliance to the above directions, enclosed please find herewith a report on the subject matter, for kind perusal and information of the Hon'ble Commission.

Thanking you,

Yours faithfully,

26/8/2016.

(U. K. Verma)
General Manager

Encl: As stated above

Copy for kind information:

1. Member Secretary, ERPC, 14, Golf Club Road, Kolkata- 700 033
2. Executive Director, POSOCO, B-9, Qutab Institutional Area, Katwaria Sarai, N. Delhi-110016

Report on status of implementation of ADMS in Eastern Region

The status of implementation of ADMS in Eastern Region as on date is as follows:

1. DVC

Vide affidavit dated 27-06-16, DVC apprised CERC that Automatic Demand Management Scheme using digital outputs of their SCADA, has been established in DVC system w.e.f. 17-06-16. Seven different blocks of load, each having 33kV domestic feeders aggregating to around 50MW in off-peak and 60MW in peak, have been covered within the purview of ADMS. Copy of the affidavit submitted by DVC describing the automatic demand management scheme as implemented, is enclosed in Annex-1

2. OPTCL

OPTCL vide letter no. CLD(SLDC)/6-375/3386 dated 19-08-16 (copy enclosed at Annex-2) have informed that they intend to cover 36 grid substations, where Chemtrols make new RTUs have been installed, within the ambit of ADMS. The DISCOMS of Odisha have been requested to identify 33kV feeders on priority basis (in 6 priority levels) for inclusion in the scheme of automatic demand management. In line with the automatic demand management scheme implemented in some other states, OPTCL is preparing tender specification document for their own state.

3. BSPTCL, JUSNL and WBSETCL

During deliberations in the 7th SCADA Project Review Committee meeting of ER held on 09-05-16, it emerged that ADMS can be implemented in ER constituent systems (WB, DVC, BSPTCL, JUSNL and Sikkim), upto 33 kV side, as telemetry of 33kV side has also been included in the SCADA project implemented by M/s Chemtrols. Cables from the digital outputs (DO) of RTUs have already been laid and terminated in C&R panel wherever constituent's testing team facilitated.
After detailed deliberation the following schedule was given to Chemtrols for wiring of DO in BSPTCL, DVC, WB and JUSNL systems till 30.06.2016.

BSPTCL: 50 stations
WB: 10 stations (where New RTUs are under commissioning)
DVC: 12 stations (where work is already in progress)
JUSNL: 2 stations

Relevant extracts of the minutes of the meeting is enclosed at Annex-3

Subsequently, in the special Project Review Meeting held on 07-06-16, M/s Chemtrols submitted the status of wiring of DO cables as follows:

Constituent	Target by June end	Actual
Bihar	50	67
DVC	12	17
WBSETCL	10	65 **
Jharkhand	2	2
		(**As per the WB instruction, In all RTUs of WB the DO cable has been terminated in the C&R Panel TBs. WBSETCL testing Team to further extend the connections to the trip relays)

Relevant extracts of the minutes of the meeting is enclosed at Annex-4

Annexure-B33

Generating Station

- Nabinagar NTPC : No telemetry and voice communication.
- Sterlite IPP : No data from New switch yard since 3rd Feb 2016. No VOIP/Express voice. Alternate Data channel yet to be provided.
- MPL : Data is highly intermittent.
- TLDP (III) & (IV) : No telemetry data
- Haldia (2 x 300MW) : Bus Voltage, Isolator Status, SOE, LV side data.
- GMR (3 x 350 MW) :Express voice and VOIP integration with ERLDC.
- JITPL (2 x 600MW) – Express voice and VOIP yet to be provided. Alternate Data channel yet to be provided.

Contd…

Generating Station:

- IBEUL (2 x 350 MW) – VOIP/Express Voice. Alternate Channel. Unit Side data not available. Alternate Data channel yet to be provided.
- Farakka NTPC: Unit #4 and Unit # 6 LV side not available.
- Sagardighi : Unit 3 HV side (GT) data not available.
- Patratu and Tenughat : data is highly unstable due to communication link instability.
- TISCO: Highly intermittent.
- JSPL(Meeramundali) : CB and Isolator status not available since last 2 years.

Sub Station (data not avaiable at ERLDC):

- POWERGRID : Arrah 220 (not reporting since May 2016).
- NTPC: Lalmatia (No data since Jan 2016).
- BSPTCL : Sonenagar , Darbhanga, Valmikinagar and koshi (Connected with Nepal)
- JUSNL : Hatia New 220, Dumka 220.
- OPTCL : Paradeep and Bolangir (GR), Vedanta.

Sub Station (highly intermittent data):

- POWERGRID : RANCHI, Purnea 400, Baripada, Gaya, Biharshariff, Angul, Muzaffarpur.
- WBSETCL:Bantala ,Laxmikantapur ,New Town , Subhasgram.
- BSPHCL : Dumraon, Khagaul ,Darbhanga ,Dehri , sultangaunj , Lakhisarai, Karmanasa, Kahalgaon ,Jamaui ,Banka ,Gopalganj, Kisanganj, Arrah ,Rajgir ,Sipara ,Hajipur (New), Pusauli
- JUSNL : Entire data is highly intermittent due to communication link instability.
- DVC : Parulia , Barhi.

VOIP/Express Voice not available

- GMR
- JITPL
- Sterlite
- IBEUL
- Nabinagar
- Bolangir
- Indravati
- Jeypore
- Kalabadia
- Keonjhar
- Gazuwaka HVDC
- Unit Control of ISGS and IPP/MPP.

Details of Eastern Region

A. Telemetry not provided

A.1 Generating Stations

Sl. No.	User Name	Name of Generation Stations	Date of first sysnchonisation	Total Generation Capacity (in MW)	Remarks by constituentes / ERLDC 26.07.16
1	WBSETCL	Haldia (2 x 300)	Jan-15	600	ERLDC is not getting any real time ISOLATOR status ,SOE from HEL except Line, Unit site MW /MVAR. No response.
2		Sagardighi			Unit 3 HV side not available
1	IPP	400 KV GMR (3X 350 MW)	Apr-13	1050	As per ERLDC guidelines no express voice /VOIP phones.
2		400 JITPL (600 x 2)		1200	Data Are highly instable . No alternate data channel and express voice commuincation integrated with ERLDC New Exchange
3		IBEUL (2 x 350 MW)		700	No alternate data channel and as per ERLDC guidelines no express voice /VOIP phones provided . LV side data not available
		Total (Non-telemetered stations)	**4**	**3550**	

A.2 Sub - Stations (765 & 400 kV)

Sl. No.	User Name	Name of sub-Stations	Voltage level	Date of first sysnchonisation	Remarks by constituentes / ERLDC 26.07.16
1	OPTCL	JSPL (Meramundali -400)	400 kV	Sep'10	Status are not reporting.

A.3 Sub - Stations (220 kV & 132 kV)

Sl. No.	User Name	Name of sub-Stations	Voltage level	Target date as per User	Remarks by constituentes / ERLDC 26.07.16
1	OPTCL	OPTCL CPP : 220 KV BPSL,CONCAST,BSL,JSL,TSIL,VISSA	220 / 132 kV	Dec-13	CONCAST NO DATA , JSL NO KV/HZ. BSL NO HZ .BPSL NO Bus Kv .
1	WBSETCL	Foundary Park	220		data not integrated
2		Hura	220		data not integrated
1	BSEB	Darbhanga	220 kV		RTU under commissioning under upgradation project.
2		Jagdishpur	132 KV		RTU under commissioning under upgradation project.
1	JSEB	Hatia New	220 kV	No Time Schedule	No Data available .No response .
2		Japla	132 KV		No Data available .No response .
3		Dumka	220 KV		No Data available .No response .

B. Telemetry provided but not working / working intermittently

B.1 Generating Stations

Sl. No.	User Name	Name of Generation Stations	Total Generation Capacity (in MW)	Target date as per User	Remarks by constituentes / ERLDC 26.07.16
1	OPTCL	220 KV Vedanta (9X 135 MW)	1215	Dec-13	Some CB / Isolators and KV / HZ point yet to be provided.No response .
	WBSETCL	TLDP (III)			Data not available
		TLDP (IV)			Data not available
1	JSEB	220 KV Tenughat (2X 210 MW)	420	Time Schedule not submitted	Data highly intermittent
2		220 KV Patratu (4x 50 + 2x100 + 4x110)	840	Time Schedule not submitted	Data highly intermittent
1	NTPC	400 kV Farakka : (3x 200 + 2 x 500 MW + 600) Unit-6 and Unit -4 LV side MW/MVAR not available	2100	Time Schedule not submitted	No response .
2		BRBCL/Nabinagar TPP (4x250 MW)	1000	Time Schedule not submitted	No data available. As per ERLDC guidelines no express voice /VOIP phones provided .
1	Vedanta	SEL (4 x550 MW)	2200		All data stopped reporting since March 2016
			5575		

B.2 Sub - Stations

Remarks by constituentes / ERLDC 26.07.16

Sl. No.	User Name	Name of sub-Stations	Voltage level	Target date as per User	Data not reporting
1	BSPTCL	Barauni	132 kV		Under rennovation and modernization . Target July 2016
2		Dumraon	132 kV		Data stopped reporting
3		Khagaul	132 kV		Data intermittent
4		Darbhanga	220 kv &132 kV		RTU under commissioning under upgradation project.
5		Dehri	220 KV		presently not reporting due to RTU problem. M/s chemtrols RTU vendor directed to rectify problem. Target- May-16
6		Sonenagar	220 kV		Under rennovation and modernization . Target July 2016
7		sultangaunj	132 kV		Under rennovation and modernization . Target July 2016
8		Lakhisarai	132 KV		Data Intermittent
9		Karmanasa	132 KV		Under rennovation and modernization . Target July 2016
10		Kahalgaon	132 kV		Data Intermittent
11		Jamaui	132 KV		Data Intermittent
12		Banka	220 kv		Data Intermittent
13		Valmikinagar	132 kV		Under rennovation and modernization . Target July 2016
14		Koshi	132 kV		Under rennovation and modernization . Target July 2016
15		Gopalganj	220 kV		Data highly intermittent
16		Kisanganj	132 KV		Data highly intermittent
17		Arrah	132 KV		Data highly intermittent
18		Rajgir	132 KV		Data highly intermittent
19		Sipara	220 KV		Data highly intermittent
20		Hajipur (New)	220 KV		Data highly intermittent
21		Pusauli	220 KV		Data highly intermittent
1	GRIDCO	Paradeep	220		Data not Available
2		bolangir new	220		Data not Available
1	JSEB (COMMUNICATION link is highly instable)	Jamtara	132 kV	Time Schedule not submitted	Data not available
2		Deoghar	132 kV	Time Schedule not submitted	Data not available
3		Garwah	132 kV	Time Schedule not submitted	Data not available
4		Goelkera	132 kV	Time Schedule not submitted	Data not available
5		Jaduguda	132 kV	Time Schedule not submitted	Data not available
6		Kendposi	132 kV	Time Schedule not submitted	Highly Intermittent
7		Ramchandrapur	220 KV		Highly Intermittent
	WBSETCL	Asansol	220		Highly Intermittent
		Haldia NEW	220		Highly Intermittent
		bantala	220		Highly Intermittent
		Laxmikantapur	220		Highly Intermittent
		New Town	220		Highly Intermittent
		Subhasgram	220		Highly Intermittent
		EM Bypass(CESC)	220		Bus Voltage and Frequency Not Available
1	POWERGRID	RANCHI	400		Highly Intermittent
2		Purnea 400	400 kV		Highly Intermittent
3		Baripada	400 kV		Highly Intermittent
4		Gaya	765 kV		Highly Intermittent
5		Biharshariff	400 KV		Highly Intermittent
6		Angul	765 KV		Highly Intermittent
7		Muzaffarpur	400 KV		RTU is getting Hanged frequently
1	DVC	TISCO	400 KV		DATA HIGHLY INTERMITTENT
		Parulia	220 kV		Data Not available
1	IPP	MTHRB	400 KV		Data highly intermittent
1	NTPC	Lalmatia	220 kV		Data stoppped reporting since Jan 2016

A. Station

S. N	S/s Name	Orange Analog Phone	OrangeVOIP	Main ERLDC Kolkata data Link	Back Up ERLDC Delhi Data Link
1	Angul	Not Available	20330057	Available	Not Available
2	Ara	20330539	20330039	Available	Not Available
3	Baharampur	Not Available	20330031	Available	Not Available
4	Banka CS	Not Available	20330044	Available	Not Available
5	BARH NTPC	Not Available	20330051	Available	Not Available
6	Biharsarif 400kv	Not Available	20330034	Available	Not Available
7	Birpara	Not Available	20330053	Available	Not Available
8	Bolangir	Not Available	Not Available	Available	Not Available
9	Chaibasa CS	Not Available	20330041	Available	Not Available
10	Chandwa	20330559	20330059	Available	Not Available
11	Dalkhola	20330549	20330049	Available	Not Available
12	Daltonganj	Not Available	20330056	Available	Not Available
13	Durgapur	20330528	20330028	Available	Not Available
14	FSTPP	Not Available	20330054	Available	Not Available
15	Gangtok	Not Available	20330022	Available	Not Available
16	Gaya	Not Available	20330037	Available	Not Available
17	Indravati	Not Available	Not Available	Available	Not Available
18	Jamshedpur CS	20330533	20330033	Available	Not Available
19	Jeypore	Not Available	Not Available	Available	Not Available
20	Jharsugura	Not Available	20330040	Available	Not Available
21	Jorthang Power House	20330141		Available	Not Available
22	Kalabadia	Not Available	Not Available	Available	Not Available
23	Kahalgaon NTPC	Not Available	20330043	Available	Not Available
24	Keonjhar	Not Available	Not Available	Available	Not Available
25	Kishanganj	Not Available	20330061	Available	Not Available
26	Lakshisarai	Not Available	20330042	Available	Not Available
27	Maithon	Not Available	20330026	Available	Not Available
28	Malda	20330529	20330029	Available	Not Available
29	MTHRB	Not Available	20330027	Available	Not Available
30	Mujaferpur	Not Available	20330050	Available	Not Available
31	New Malli	Not Available	20330021	Available	Not Available
32	New Malli	20330140		Available	Not Available
33	Pandiavali	Not Available	20330067	Available	Not Available
34	Patna	Not Available	20330038	Available	Not Available
35	Purnia 220 KV	20330530	20330030	Available	Not Available
36	Purnia 400 KV	Not Available	20330025	Available	Not Available
37	Ranchi 400 KV	Not Available	20330032	Available	Not Available
38	Ranchi 765 KV	Not Available	20330035	Available	Not Available
39	Rangit	Not Available	20330058	Available	Not Available
40	Rangpo	20330139	20330020	Available	Not Available
41	Rengali	Not Available	20330045	Available	Not Available
42	Rourkela	20330536	20330036	Available	Not Available
43	Sasaram	Not Available	20330046	Available	Not Available
44	Siliguri 220	20330523	20330023	Available	Not Available
45	Siliguri 400/220 (Binaguri)	20330524	20330024	Available	Not Available
46	Subashgram	Not Available	20330015	Available	Not Available
47	Teesta NHPC	Not Available	20330062	Available	Not Available
48	TSTPP, Talcher NTPC	Not Available	20330052	Available	Not Available

Note :* Phone at Unit Control room is yet to provided.

B. SLDC /NLDC to ERLDC protection path not provided.

S.N.	Link	Main ERLDC Delhi		Backup ERLDC Delhi	
		Main Channel	Std By Channel (Route Diversity)	Main Channel	Std By Channel (Route Diversity)
1	OPTCL -ERLDC	Yes	Not Available	Not Available	Not Available
2	BSPTCL -ERLDC	Yes	Not Available	Not Available	Not Available
3	JUSNL -ERLDC	Yes	Not Available	Not Available	Not Available
4	WBSETCL -ERLDC	Yes	Not Available	Not Available	Not Available
5	DVC -ERLDC	Yes	Not Available	Not Available	Not Available
6	Sikkim -ERLDC	Yes	Not Available	Not Available	Not Available
7	NLDC -ERLDC	Yes	Not Available	Yes	Not Available

Annexure – B.36

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	No	New EL would be implemented in BCU under NTAMC project by March'2015
12	Indravati (PGCIL)	Yes	Yes	Yes	Yes	Yes	No	EL is old one(model-PERM 200), provision for time synchronisation is not available. New EL would be implemented in BCU under NTAMC project by March'2015
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	Yes	
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	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	
51	765kV 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	765kV Jharsuguda	Yes	Yes	Yes	Yes	Yes	Yes	All are in working condition. However a dedicated DR for 765KV Lines; make TESLA is not working. M/s Siemens has assured to commission the same by 31.01.15
57	Beharampur	Yes	Yes	Yes	Yes	Yes	Yes	
58	Keonjhar	Yes	Yes	Yes	Yes	Yes	Yes	

Eastern Regional Power Committee

The status of ERS towers in Eastern Region as submitted during ERS meeting held on 10.11.14 taken by Member (Power System), CEA is given below:

1) As per 100th OCC meeting held on 22.08.2014, the status of ERS towers as available in Powergrid is as given below:

Sl. No.	Name of S/S	No. of ERS towers available	ERS towers in use
1	Durgapur, ER-II	1 Set (8 towers)	
2	Rourkela, ER-II	3 towers incomplete shape	
3	ER-I (located at Jamshedpur)	15 towers (10 nos Tension tower and 5 nos suspension tower)	

2) As informed by OPTCL, the present status of ERS towers in OPTCL system is as follows:

- 220 kV ERS towers: 42 nos located at Mancheswar, Chatrapur & Budhipadar
- 400 kV ERS towers: 2 nos located at Mancheswar.
- 12 nos. of new 400 kV ERS towers have been approved by Board of Director for procurement in the current financial year. Purchase order has been placed.
- Another, 16 nos of 400 kV towers accompanied with 6 sets of T&P are required.

3) WBSETCL informed that they have placed order for 2 sets of ERS towers on 31.10.2014 and expected by June, 2015.

4) The 25th ERPC meeting held on 21.09.2014, the board concurred to the proposal of procurement of four sets of ERS and it was also informed that, the proposed four sets of ERS will be kept at Sikkim, Siliguri, Ranchi and Gaya and will be used by all constituents of ER during emergencies.

   Powergrid informed that four sets of ERS for Eastern Region will be procured.

5) Bihar informed that they have 10 sets of 220 kV ERS towers and 2 sets are under process of procurements.

6) DVC informed that they are in process of procuring two (2) sets of 400 kV ERS towers.

Annexure-C.2

Anticipated Power Supply Position for the month of Oct-16

SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	3700	2238
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	436	337
		- Central Sector	2463	1734
	iii)	SURPLUS(+)/DEFICIT(-)	-801	-167
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1200	780
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	500	388
		- Central Sector	579	356
	iii)	SURPLUS(+)/DEFICIT(-)	-121	-35
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	2810	1715
	ii)	NET POWER AVAILABILITY- Own Source	4912	2690
		- Central Sector	509	355
		Long term Bi-lateral (Export)	1300	967
	iii)	SURPLUS(+)/DEFICIT(-)	1311	362
4		**ORISSA**		
	i)	NET MAX DEMAND	4250	2492
	ii)	NET POWER AVAILABILITY- Own Source	3209	2001
		- Central Sector	1083	741
	iii)	SURPLUS(+)/DEFICIT(-)	42	250
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	5789	3270
	ii)	CESC's DRAWAL	0	0
	iii)	TOTAL WBSEDCL's DEMAND	5789	3270
	iv)	NET POWER AVAILABILITY- Own Source	3844	2241
		- Import from DPL	211	109
		- Central Sector	1951	1229
	v)	SURPLUS(+)/DEFICIT(-)	217	309
	vi)	EXPORT (TO B'DESH & SIKKIM)	10	7
5.2		**DPL**		
	i)	NET MAX DEMAND	300	212
	ii)	NET POWER AVAILABILITY	511	321
	iii)	SURPLUS(+)/DEFICIT(-)	211	109
5.3		**CESC**		
	i)	NET MAX DEMAND	1930	880
	ii)	NET POWER AVAILABILITY - OWN SOURCE	860	533
		FROM HEL	546	301
		FROM CPL/PCBL	0	0
		Import Requirement	524	46
	iii)	TOTAL AVAILABILITY	1930	880
	iv)	SURPLUS(+)/DEFICIT(-)	0	0
6		**WEST BENGAL (WBSEDCL+DPL+CESC) (excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	8019	4362
	ii)	NET POWER AVAILABILITY- Own Source	5215	3095
		- Central Sector+Others	3021	1530
	iii)	SURPLUS(+)/DEFICIT(-)	217	263
7		**SIKKIM**		
	i)	NET MAX DEMAND	85	35
	ii)	NET POWER AVAILABILITY- Own Source	10	7
		- Central Sector+Others	132	91
	iii)	SURPLUS(+)/DEFICIT(-)	57	63
8		**EASTERN REGION At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	19479	11621
		Long term Bi-lateral by DVC	1300	967
		EXPORT BY WBSEDCL	10	7
	ii)	**NET TOTAL POWER AVAILABILITY OF ER (INCLUDING C/S ALLOCATION)**	22070	13324
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER (ii)-(i)**	1280	729

Annexure- C.1

Maintenance Schedule of Thermal Generating Units of ER for October-2016

System	Station	Unit	Size (MW	period		No. of Days	Reason
				From	To		
JUSNL	PTPS	6	90	Oct-16	Nov-16	61	Maintenance
DVC	BTPS'B	3	210	22.10.16	06.11.16	16	Burner Replacement
ODISHA	TTPS	3	60	14.10.16	28.10.16	15	Boiler Overhaul
CESC	ITAGARI	3	60	30.10.16	02.11.16	4	Hydraulic Test
NTPC	TSTPS	2	500	20.10.16	18.11.16	30	Boiler