Agenda

for

140th OCC Meeting

Date: 19.12.2017

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700 033

Eastern Regional Power Committee

Agenda for 140th OCC Meeting to be held on 19th December, 2017 at ERPC, Kolkata

Item no. 1: Confirmation of minutes of 139th OCC meeting of ERPC held on 27.11.2017

The minutes of 139th OCC meeting were uploaded in ERPC website and circulated vide letter dated 12.12.2017 to all the constituents.

Members may confirm the minutes.

PART A : ER GRID PERFORMANCE

Item no. A1: ER Grid performance during November, 2017

The average consumption of Eastern Region for November - 2017 was 343 Mu. Eastern Region has achieved record maximum energy consumption of 358 Mu on 04th November-17. Total Export schedule of Eastern region for November - 2017 was 2161 Mu, whereas actual export was 1776 Mu.

ERLDC may present.

Item no. A2: 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.

New Generators/Transmission Elements commissioned/charged during **November, 2017** as follows:

1) 400kV Jhasuguda-Vedanta (Sterlite) DC charged for the first time as follows:
    a. Ckt 1: 18:27Hrs of 06/11/17
    b. Ckt 2: 18:53Hrs of 06/11/17
2) 500MVA ICT II at Pandiabili charged for the first time at 15:46Hrs of 17/11/17. Earlier it was charged on 12/07/16 but failed on 21/09/16 due to internal fault. It was replaced and first time charged at 15:46Hrs of 17/11/17
3) 125 MVAR Bus reactor at Jamshedpur charged on 15th November 2017

Installed capacity of Chuzachen HEP is revised from 99 to 110 MW w.e.f 28.09.2017 (CEA approval is enclosed at **Annexure-B1**).

Constituents may update.

Item no. A3: Persistent over drawl by West Bengal and Odisha

In 139th OCC, West Bengal overdrawl pattern from the October to mid-November month was deliberated. West Bengal informed that corrective measures and arrangement of extra power will be done to mitigate such overdrawl. However, there was no substantial improvement noticed in real time operation.

Odisha overdrawl pattern was also deliberated in 139th OCC. SLDC, Odisha informed that the over drawl was mainly due to forced outage of units at GMR and Vedanta units. GMR Unit – 3 of 350 MW which was out since 15-11-2017 on coal shortage, synchronised on 29-11-17 at 00:26 Hrs. Vedanta all units except Unit – 2 were also in service from 29-11-17 on ward. Vedanta U-2 was out for maintenance work from 28-jun-2017. However, even after synchronization of above units there is no reduction in Odhsa overdrawl.

Overdrawl figure of West Bengal and Odisha from 01-12-2017 to 07-12-2017 are shown below:

State	West Bengal		Odisha	
Date	Over Drawl (MU)	Max. Over Drawl (MW)	Over Drawl (MU)	Max. Over Drawl (MW)
01-12-2017	1.53	287.07	4.09	389.32
02-12-2017	2.35	480.08	3.90	439.26
03-12-2017	2.19	512.66	2.40	404.48
04-12-2017	1.70	365.84	2.07	514.47
05-12-2017	3.38	429.64	3.32	424.48
06-12-2017	2.75	558.04	3.56	439.96
07-12-2017	3.81	489.10	3.16	497.66

West Bengal and Odisha may please deliberate the reason of continuous overdrawl and future action plan to mitigate such contingency situation.

West Bengal and Odisha are also advised to maximize their internal generation and increase their power purchase quantum in STOA/Power Exchange or from any other source to maintain their drawl as per schedule. In case of repetitive non-compliance of ERLDC instruction to curtail overdrawl during real time operation continues in future, ERLDC will have no other option but to approach appropriate commission with respect to erring entities.

ERLDC may present. WBSETCL and Odisha may explain.

Item no. A4: OPERATION OF HYDRO POWER PROJECTS IN PEAKING MODE

CEA vide letter dated 18.07.17 informed that POSOCO has carried out operational analysis of various hydro stations in the country and observed that despite 40.6 GW of peaking hydro capacity only about 33 GW peak generation is carried out on all India basis. According to POSOCO, this is on account of a number of hydro stations, particularly in state sector, which are not being operated in peaking mode. In order to examine the above observation, a Sub-committee has been constituted by the MoP under Chiarperson, CEA with heads of POSOCO, NHPC, SJVN & THDC as members and Director (H), MoP as the Member Convenor. The Sub-Committee has held three meetings with the concerned hydro generating stations and concluded that there is scope for about 2000 MW additional power generation from hydro stations during peak hours.

It has been desired by the Chairperson that the matter of utilization of hydro stations in peaking mode be made a regular agenda item for discussion at the monthly OCC meetings while discussing operational planning for the month ahead and analyzing the operation in the previous month.

ERLDC may present.

Item no. A5: Performance of ISGS generators during RRAS

During July and August 2017, NLDC triggered RRAS UP for ISGSs generators of Easter Region on several occasions. However it is observed that some of the ISGS failed to maintain their generation as per schedule and continuous under-injection was observed during the above mentioned period.

As per section 5.4 of Detailed Operating procedure of RRAS, "The continuity of the RRAS shall be ensured by the RRAS provider over the period of the despatch". However, this was continuously violated by ISGS stations of ER.

As per clause 9.13 of Detailed Operating procedure of RRAS

Quote -

Sustained failure, i.e. failure to provide the RRAS (barring unit tripping) by RRAS Provider(s) more than three (3) times during a month shall be brought to the notice of the CERC

- **Unquote**

Detailed performance of ER ISGS from RRAS point of view would be presented during the meeting.
ISGSs are therefore requested to exercise due care while declaring their respective DCs, so that actual generation as per the total schedule issued, can be maintained by them.

ERLDC may update.

Item no. A6: Reactive Power performance of Generators

Generating stations have been monitored for certain sample dates in the month of November,17.

Power Plant	**Max and Min Voltage observed for Nov 17 (KV)**	**Date for monitoring (Nov 17)**
Farakka STPS	425, 409	11,13
Khalgaon STPS	432, 408	11,13
Talcher STPS	414, 403	23,11
Teesta	415,399	27,29
Bakreshwar TPS	412, 392	10, 11
Kolaghat TPS	430, 401	11,13
Sagardighi TPS	425, 405	11,13
MPL	423, 410	1,23
Mejia-B	426, 411	1,23
DSTPS	429, 414	1,23
Adhunik TPS	428, 409	23,11
Barh	433, 419	1,11
JITPL	420, 409	3,8
GMR	418, 405	3,8
HEL	429,394	10,11
Kodarma	424, 409	5,14

ERLDC may present the reactive performance.

PART B: ITEMS FOR DISCUSSION

Item No. B.1: Status of projects funded under PSDF schemes

In the PSDF review meeting, 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.

SN	Name of Constituent	Name of Project	Date of approval from PSDF	Target Date of Completion	PSDF grant approved (in Rs.)	Amount drawn till date (in Rs.)	Status as updated in 135th OCC
1	WBSETCL	Renovation & up-gradation of protection system of 220 kV & 400 kV Substations in W. Bengal	31-12-14		120.67 Cr	11.04 Cr.	95 % Supply Completed
2		Transmission System improvement of WBSETCL	22-05-17				
3		Renovation & modernisation of transmission system for relieving congestion in Intra-State Transmission System.	22-05-17				
4		Installation of switchable reactor & shunt capacitors					
5	OPTCL	Renovation & Up-gradation of protection and control systems of Sub-stations in the State of Odisha in order to rectify protection related deficiencies.	10.05.15	10.05.17	162.5 Cr.	16.25 Cr + 8.91 Cr	***Total contract awarded for Rs. 51.35 Cr***
6	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. + 9.88 Cr.	1) Hardware supplied and installed. 2) SAT completed for pilot state 3) **Protection database management software (PDMS) put in live w.e.f. 30.03.17.** 4) ***Training on PDMS organised at ERPC, Odisha, Bihar, WBSETCL, Jharkhand and DVC.***
7	BSPTCL	Renovation and up-gradation of 220/132/33 KV GSS Biharsharif, Bodhgaya, Fatuha, Khagaul, Dehri -on-sone & 132/33 kV GSS Kataiya	11/5/2015	Feb'2017	64.22 crore	23.68 crore	Project is on going. ***Contract awarded for Rs.71.37 Cr till date.***
8		Installation of capacitor bank at different 35 nos. of GSS under BSPTCL	5/9/2016		18.88 crore		Approved (triparty agreement among NLDC, Govt. of Bihar & BSPTCL is in under process)
9		Renovation & up-gradation of protection and control system of 12 nos. 132/33 KV GSS under BSPTCL.					Recommendation of appraisal committee is awaited. Estimated cost 54.69 crore.
10	DVC	Renovation and upgradation of control & protection system and replacement of Substation Equipment of 220/132/33 kV Ramgarh Substation	02.01.2017	01.06.2019	25.96 Cr	2.596 Crore	Work awarded for 1.07 crore. Price bid opened for 27.18 crore and is under evaluation.
11		Renovation and upgradation of control & protection system including replacement of substation equipment at Parulia, Durgapur, Kalyaneshwari, Jamshedpur, Giridih, Barjora, Burnpur, Dhanbad and Burdwan Substation of DVC	16.05.2017	24 Months from the date of release of fund.	144.71 Cr.	Nil	First installment is yet to be received. Work awarded for 6.45 crores
12	WBPDCL	Implementation of Islanding			1.39 Cr		***Award placed to ABB.***

		scheme at Bandel Thermal Power Station					***Material delivery by Dec, 17.***
13		Upgradation of Protection and SAS			26.09		Approved by Ministry of Power
14	OHPC	Renovation and up-gradation of protection and control system of 4 nos OHPC substations.			***22.35 Cr***		**Tendering under progress.**
15	Powergrid	Installation of STATCOM in ER			***160.28 Cr***	*63.028 Cr*	**work is in progress, e*expected to complete by June 2018***
16	JUSNL	Renovation and up-gradation of protection system		*138.13 crores*			**Approved by Appraisal Committee.**
17a	ERPC	Training for Power System Engineers					***The proposal was approved by Appraisal Committee. The approval from MoP, GOI is awaited.***
17b		Training on Power market trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents					

In 139th OCC, all the constituents were advised to send the update on work progress and completion target dates to ERPC within 3 days.

Respective constituents may update.

Item No. B.2: PPA details for the years 2017-18 to 2019-20

CEA vide mail dated 21st November 2017 informed that it has been decided to estimate the demand and availability of power (energy and peak), initially for the year 2017-18 and subsequently for the years 2018-19 and 2019-20. In this regard, PPA details for the years 2017-18 to 2019-20 are required as per the format enclosed at **Annexure-B2**.

All the constituents furnish the data as per the format to CEA by email: rk.jena@gov.in.

Constituents may update.

Item No. B.3: Option for handling intra-day load/generation variation due to RE or otherwise.

Sub-Group under FOR Technical Committee on Grid Integration of Renewable Energy (RE), with reference to regional cooperation had a meeting on 18.8.2017 in CERC office, New Delhi. Record of proceedings is placed in **Annexure-B3**.

As decided in the meeting various options for handling intra-day load / generation variation due to RE or otherwise, as discussed in the meeting be circulated and discussed with Members of Regional Power Committees and **feedback on the same may be provided to us to facilitate further deliberations and suitable recommendations by the FOR Technical Committee on Grid Integration of RE.**

In 139th OCC, all the members were advised to submit their comments to ERPC vide mail (mserpc-power@nic.in) within five working days.

Members may discuss and decide.

Item No. B.4: Status of UFRs healthiness installed in Eastern Region

UFR Healthiness Certification for the month of November, 2017 has been received from JUSNL, CESC, WBSETCL, DVC, and BSPTCL.

OPTCL may submit.

Item No. B.5: Healthiness of SPS existing in Eastern Region

GMR, JITPL, CESC, & NTPC (TSTPS) have submitted the healthiness certificate for the month of November, 2017.

In 136th OCC, members felt that healthiness certificate for SPS of 132 kV Muzaffarpur-Dhalkebar D/C line may also be submitted on monthly basis and advised Powergrid to submit the healthiness certificate in every OCC meeting.

In 138th OCC, ERLDC informed that Tashiding HEP is also included under Rangpo SPS, two units of Tashiding HEP will trip on actuation of SPS. However, it will be reviewed in coordination with other generators covered in the SPS.

In 139th OCC, it was decided that testing of Rangpo SPS will be done on 15th day of every month.

Vedanta, Chuzachen and Powergrid may submit the healthiness certificate for November 2017.

Teesta-III, Jorethang & Dikchu may submit the healthiness certificate for Rangpo SPS as decided in special meeting of 21.06.2017.

Item No. B.6: Electricity Generation Targets for the year 2018-19 – CEA

The annual exercise of assessment and finalization of the generation targets and the planned maintenance schedules of the generating units for the year 2018-19 is being initiated by CEA. Although the generation performance of the various stations and their planned & unscheduled outages are regularly monitored in CEA but it is felt that a more realistic projection of month-wise generation in the coming year could be made by the respective Station Authorities.

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.6)**:

i) The unit wise yearly generation (with unit -wise monthly breakup) proposed during 2018-19 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 (1 to 5))**

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 6)**).

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 7 (a) and (b)**).

iv) Production cost, Unit wise cost of generation and rate of sale of power may also be furnished. **(Annex – I (point 8))**

v) 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 2018-19, 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, prathamkumar@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 officer may be approached.

1. Mr Pratham Kumar, Assistant Director, 011-26732666, Mob- 08252697842

CEA vide letter dated 25th October 2017 informed that desired information from many generating stations have not been received till now. The list of such stations is enclosed at **Annexure-B6A**. MoP vide letter no. 5/1/2017-OM informed that Annual generation targets for 2018-19 is to be finalized by 15th December, 2017 and to avert any coal supply crisis during 2018-19, plant wise detailed plan needs to be prepared.

In view of this, it is requested to furnish unit wise outage schedule of generating stations of your region for 2018-19 and month wise, state wise energy requirement for 2018-19 to this division by 15th November, 2017.

Members may furnish the above data at the earliest.

Item No. B.7: Data for preparation Load Generation Balance Report (LGBR) of ER for the year 2018-19

As per the IEGC, RPC Secretariat is responsible for finalization of the Annual Load Generation Balance Report (LGBR) for Peak as well as Off-peak scenarios and the annual outage plan for the respective region

To facilitate the preparation of LGBR of Eastern Region by ERPC Secretariat within the schedule period, the following data/information for the year **2018-19** in respect of the constituents/utilities of Eastern Region is urgently required:

i) The unit wise and station wise monthly energy generation proposed from existing units during 2018-19 (thermal/hydro/RES).
ii) Annual maintenance programme for each of the generating units (thermal and hydro both).
iii) Generating units under R&M / long outage indicating date of outage and reasons of outage and expected date of return (thermal and hydro both).
iv) Partial and forced outage figures (in %) of generating units for the last 3 years.
v) Month wise peak demand (MW) – restricted and unrestricted peak demand.
vi) Month wise off-peak demand (MW).
vii) Month wise energy requirement (in MU).
viii) Month wise & source wise power (both MU & MW) purchase and/or sale plan.
ix) Schedule of commissioning of new generating units during 2018-19 and unit-wise monthly generation programme (in MU).
x) Allocation of power from new generating units.
xi) Month wise and annual planned outage of transmission system (Transmission lines 220kV and above / ICTs / Reactors/ other elements.

Information may please also be submitted in the form of soft copy through email (mail ID: **mserpc-power@nic.in / pkderpc@gmail.com**).

Members may furnish the above data at the earliest.

Item No. B.8: Status of Islanding Schemes of Eastern Region

B.8.1. 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
5. Farakka Islanding Scheme, NTPC

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

In 134th OCC, JUSNL was advised to submit the healthiness certificate of the UFR and PLCC system related to Farakka islanding scheme at their end.

The healthiness certificate for Islanding Scheme for November, 2017 has been received from CTPS, DVC, NTPC, JUSNL, BkTPS, Tata Power and CESC.

NTPC vide letter dated 24.11.2017 informed the following

- *Bay equipment, Auto transformers and protection system at both FSTPS and Lalmatia are healthy. However, bay equipment (CT, CVT, CB, isolators), Auto transformer and protection system are very old. Spares and service support from the OEM are not available due to obsolescence. In case of any equipment failure, defect and relay malfunction, the situation will be difficult to manage.*
- *NTPC, Farakka has already communicated the issue to ECL for urgent hand over of O&M of Farakka-Lalmatia transmission system.*

Members may note.

B.8.2. Bandel Islanding Scheme, WBPDCL

As per the latest status available in PSDF web site the scheme was approved for an amount of Rs.1.39 crore by the Monitoring Committee on 10.04.2017.

In 134th OCC, WBPDCL informed that MoP has issued the sanction letter for grant of PSDF.

In 135th OCC, WBPDCL informed that order has been placed to ABB for implementation of Bandel islanding scheme.

In 137th OCC, WBPDCL informed that the order has to be revised as per new GST guidelines.

In 139th OCC, WBPDCL informed that the material would reach by December 2017.

WBPDCL may update the latest status.

Item No. B.9: Controlling overdrawal of states by disconnection of radial feeders - ERLDC

In accordance with IEGC sections 5.4.2 (c) and 5.4.2 (f), feeders for disconnecting demand of every state in the order of their priority for switching off, were identified in the past. List of these feeders is given in **Annexure-B9**. However, with growth of network interconnection and load as well as change of load distribution (if any) during the intervening period, it is felt that the list needs reviewing.

All constituents are requested to furnish views regarding their respective identified feeders and indicate the expected load (average and peak) that would be disconnected by switching off the feeders, so that the list can be finalized at the earliest.

In 138th OCC, ERLDC informed that the feeders list needs to be reviewed in view of growth of network interconnection and change of load distribution.

SLDC, Bihar updated the feeders list as follows:

- 132kV Banka(PG)-Banka D/C line (60 MW)
- 132kV Banka(PG)-Sultanganj D/C line (80 MW)
- 132kV Ara(PG)-Jagdishpur S/C line (45 MW)

Jharkhand updated the feeders list as follows:

- 132kV Manique-Chandil line (35 MW)
- 132kV Patratu-Basal (32MW)

West Bengal updated the feeders list as follows:

- 220kV Dalkhola(PG)-Dalkhola(WB)
- 220kV Birpara(PG)-Birpara(WB)
- 132kV Malda(PG)-Malda(WB)

DVC vide mail dated 12th December 2017 informed that, for any constituents opening of any tie lines, thru which power is being drawn, may produce countervailing effects on the state remaining tie lines. Such act may further endanger the stability of the state. ERLDC may do, as a first step, that constituent's drawal/injection schedule may unilaterally be revised with the existing regulation of IEGC and may disconnect the radial lines, if any as a 2nd step for reduction of state demand. In case of DVC, it is sometime observed that over-drawal of some tie lines with neighbouring state create over-drawal by DVC and hence, disconnection of such tie lines will give desired affect towards reduction of demand and over-drawal by DVC.

Name of the tie lines are:
1. S/C, 132KV, MHS-Jamtara line.
2. S/C, 132KV, Chandil-Manikui.
3. D/C, 220KV, Waria- Bidhannagar.

OPTCL may update. DVC may explain.

Item No. B.10: Implementation of Automatic Demand Management Scheme (ADMS)-ERLDC

OPTCL has submitted DPR of the ADMS planned by them. The scheme envisaged is summarized as follows:

- Automatic tripping of lower voltage level(33KV)
  The trip signals are initiated from the ADMS Server at SLDC Control Centre and are broadcast to the various substations via OPGW/MPLS/GPRS where appropriate feeder tripping is carried out to balance the grid. Generally the trip signals issued are for covering a relief of 150MW in steps of 40MW.The scope of the project includes the development of logic for initiation of remote trip signals and implementation at 100 Substations. (List of the s/s is not given)
- Redundancy of ADMS server (Both central and back up)
- Input will be taken from SLDC SCADA

Each DISCOM will presently be monitored for 5 Nos. Groups (Configurable up to 8Nos) having 5 Nos. substations (Configurable up to 8Nos) in each Group. End substations equipment i.e. AFTS will be capable to extend signal to minimum 8 different feeders and expendable up to 16 feeders. The tentative logic as per the present regulations is as given below. The logic is software implemented and may be modified from time to time.

1. System Frequency < 49.9 Hz
2. Odisha over-drawl > 150 MW
3. DISCOM over-drawl > (40 MW)

If these conditions get satisfied for more than 5 min, first group will be shed. After shedding of first group, ADMS for any particular DISCOM will be blocked for 30 min. If same condition prevails for the next 5 minutes (i.e. 31 to 35), next group will be shed and so on.

The following points may be clarified:

- Condition for re-connection of disconnected load.
- Remedial action for high O/D at frequency > 49.9 Hz

OPTCL may explain. Jharkhand and Bihar may kindly share the status of implementation.

Item No. B.11: Concerned members may update the latest status.

B.11.1. Commissioning of 220 kV Patna-Sipara third ckt.

Major load of Capital city Patna is fed from 220 kV Sipara Substation, Further Sipara is conneted with Khagaul as well as well as Fatuah at 220 kV level. These are also major load centers normally fed in radial mode from Patna (except Fatuah, which is usually supplied radially from Biharshariff). This causes very high loading of 220 kV Patna-Sipara D/C and it did not satisfy N-1 Contingeny criteria for most of the time in last quarter.

The third circuit of 220kV Patna-Sipara line is expected to be commissioned soon, which will help in relieving the loading on other two lines. Further with commissioning of 220 kV Patna-Sipara T/C 220 kV Khagul-Arrah-Pusauli loop may be kept close, which will help in improving system reliability and maintaining better voltage regulation in and around that area.

In view of above BSPTCL may expedite commissioning of 220 kV Patna-Sipara third ckt.

In 139th OCC, BSPTCL informed that the line will be commissioned by 30th November 2017.

BSPTCL may update the latest status.

B.11.2. Long outage of 400 kV Barh – Motihari D/C

400 kV Barh – Motihari – D/C were out since 14th Aug, 2017 as 24 numbers of towers were submerged in Gandak River due to flood like situation. Right Now Motihari is drawing radial power from Gorakhpur S/S of Northern region through 400 kV Gorakhpur – Motihari D/C. Due to outage of 400 kV Barh - Motihari D/C, one inter regional link between Eastern and Northern region was out, which need to be restored with utmost priority to maintain all India reliable and safe power system operation.

In 138th OCC, It was informed that work for dismantling of bulged towers and establishment of ERSS tower of Barh-Motihari 400kV Line has just been started . As the location is not easily approachable, it would take 2 to 3 weeks to restore power flow through the line.

DMTCL vide letter dated 7th November 2017 informed that the line will be restored using ERS tower and submitted the schedule as follows:

400 kV Barh – Motihari line 1 by 7th December 2017

400 kV Barh – Motihari line 2 by 24th December 2017

DMTCL requested to consider the outage as deemed available as the lines were taken under shutdown due to Natural Calamity.

DMTCL need to submit fort-night progress report to ERLDC and ERPC till restoration.

DMTCL vide letter dated 11th December 2017 informed that the ERS Towers needs to be erected on the river bed for restoration of the line. However due to non-availability of proper anchorage, the erection of ERS towers is taking more than the anticipated time.

Also, there is no approach available for shifting of manpower & material at the locations and the same is being done with the help of boats.

In view of the above specified challenges being faced at site, this is to inform you that both the Ckts of above transmission line will be restored by 31st Dec 2017.

DMTCL may update. Members may discuss.

B.11.3. Repeated tripping of 220kV Chuka-Birpara D/c line

In 60th PCC, meeting Powergrid explained that the line is in lightning prone area. The line is getting tripped due to Insulator failures. Powergrid added that line insulators of part of the line which is belongs to Powergrid have been replaced with polymer insulators. The insulator failures during lightning have been reduced. However, the line is getting tripped due to failure of porcelain insulators in 39.8 km stretch which is belongs to Bhutan.

In 138th OCC, DGPC informed that BPC is the owner of part of the line which is belongs to Bhutan. They have already replaced porcelain insulators of 7 to 8 towers with polymer insulators.

DGPC added that they will discuss the issue with BPC in their coordination meeting scheduled to be held in November 2017 and update the action plan in next OCC meeting.

In 139th OCC, DGPC informed that the insulator replacement work is in progress.

OCC advised DGPC to place the completion schedule in next OCC meeting.

DGPC may update.

B.11.4. Repair/Rectification of tower at location 79 of 132kV Rangpo-Melli D/c line and Chuzachen(Rangpo)-Gangtok transmission lines - Powergrid

Powergrid informed that their patrolling team has observed bent in part of tower no. 79 of 132kV Rangpo-Melli D/c line and Chuzachen(Rangpo)-Gangtok transmission lines which may further degrade the condition of tower.

In 137th OCC, Powergrid informed that tower no. 79 of 132kV Rangpo-Melli D/c line and Chuzachen(Rangpo)-Gangtok transmission lines falls under the jurisdiction of Energy & Power Department, Govt. of Sikkim.

Powergrid added that the issue has been informed to Sikkim vide letter dated 20th September 2017.

Powergrid and Sikkim may update.

B.11.5. Replacement of CT at both ends of 400kV Jeerat-Baharampur Line

In 135th OCC, Powergrid agreed to replace 1000/1A CT by 2000/1 A CT at both ends of 400kV Jeerat-Baharampur Line.

WBSETCL and Powergrid may update.

B.11.6. Status of Installation of STATCOM in Eastern Region

In the 15th meeting of SCM it was agreed to install STATCOM in combination with mechanically switched Reactors (MSR) and Capacitors (MSC) and co-ordinated control mechanism of MSCs and MSRs at Ranchi, Rourkela, Jeypore and Kishanganj substations in Eastern Region.

The matter was again discussed in the 28th ERPC/TCC meeting held on 12th -13th September, 2014 at Goa, wherein, it was decided that POWERGRID may go ahead with implementation of the STATCOM project in Eastern Region with debt – equity ratio of 70:30 funding. The debt part should be refunded through PSDF and Equity Component (30%) to be funded by POWERGRID to be recovered through regulated tariff mechanism. CTU should initiate the process of availing fund from PSDF.

In 137th OCC, Powergrid updated the status as follows:

Sl No	Location /Sub-Station of POWERGRID in ER	STATCOM - Dynamic Shunt Controller (MVAr)	Mechanically Switched Compensation Sl. (MVAr)		Latest status
			Reactor (MSR)	Capacitor (MSC)	
1	Rourkela	±300	2x125		*Expected to complete by Mar 2018*
2	Kishanganj	±200	2x125		*Expected to complete by June 2018*
3	Ranchi(New)	±300	2x125		*Expected to complete by April 2018*
4	Jeypore	±200	2x125	2x125	*Expected to complete by June 2018*

Powergrid may update.

B.11.7. Bus Splitting of Powergrid Sub-stations

As per decision of Standing Committee of ER CTU was entrusted to do Bus splitting at Maithon, Durgapur & Biharsariff S/Ss or ER. The latest status on the same are:

- 400 kV Maithon ---Completed
- 400 kV Durgapur--Completed
- 400 kV Biharshariff— Completed

OCC advised ERLDC to operationalize the bus splitting scheme at Maithon in coordination with NLDC and Powergrid.

In 139th OCC, ERLDC informed that NLDC has given the concurrence to operationalize the bus splitting scheme at Maithon. Now 400kV Maithon-Raghunathpur line is under shutdown. The bus splitting scheme at Maithon will be put in service once all the lines available at Maithon by December 2017.

ERLDC may update.

B.11.8. 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 126th OCC, 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 work has been completed.
- Transformer package and Shunt reactor– have been awarded.

In 35th TCC, NTPC informed that the work is in progress as per the schedule and the bus splitting will be completed by December, 2018.

In 138th OCC, NTPC informed that the bus splitting will be implemented by December, 2018.

NTPC may update.

B.11.9. 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 last 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 June, 2018.***
2.	**400/220 kV Keonjhar S/S**	
a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	By Mar, 2018.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019.
3.	**400/220kV Pandiabil Grid S/s:**	
a.	Pratapsasan(OPTCL)-Pandiabil(PG) 220 kV D/C line	By Mar, 2018.

OPTCL may update.

B.11.10. 220 kV inter-connecting lines of JUSNL with 2x315 MVA, 400/220 kV sub-stations at Chaibasa, Daltonganj & Dhanbad

In last 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 (JUSNL) – Ramchandrapur (JUSNL) 220kV D/c	*By Dec, 2017* *Bays at Ramchandrapur switchyard are not yet ready and the line is idle-charged from Chaibasa(JUSNL).*
2.	**Daltonganj 400/220/132kV S/s:**	
a.	Daltonganj (POWERGRID) – Latehar 220kV D/c	By Dec, 2017.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	May, 2018
C	Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/c	Dec, 2018
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.11.11. 220 kV inter-connecting lines of WBSETCL with 400/220 kV, 2x315 MVA Alipurduar & 2x500 MVA Rajarhat sub-stations

In last 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 (***Twin moose***)	***Dec, 2017***
2.	**2x500MVA, 400/220kV Rajarhat ---**	
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.12: Status of 400 kV IndBharat – Jharsuguda – D/C Chief Electrical Inspector, CEA clearance-ERLDC

400 kV IndBharat – Jharsuguda D/C lines were charged with provisional Chief Electrical Inspector, CEA clearance up to 31st October, 2017, where in M/S IBEUL agreed to complete the diversion of the 400 kV IndBharat – Jharsuguda D/C line for increasing the height of the conductor over the four railway crossing of OPGC proposed railway line within time limit. Till date ERLDC neither have any update from Chief Electrical Inspector, CEA for any further extension after 31st October, 2017 nor any update from M/S IBEUL/ OPGC regarding completion of above diversion work.

Under the circumstances, ERLDC shall have no other option but to open both feeders of IBEUL from Jharsuguda, Powergrid end with effect from 00:00 Hrs 20-12-2017.

IBEUL and OPGC may update. Members may decide.

Item No. B.13: Erection and commissioning of 02 nos. of 220 kV line bays at KBUNL

Despite of several requests and reminders, KBUNL is not taking up this work seriously and it appears that the initiatives of KBUNL for construction of bay, which is essential for making available second circuit with Samastipur(New) and Motipur are far from satisfactory and the work is yet to start. Presently 220 KV KBUNL- Samastipur (new) (D/C) & 220 KV KBUNL - Motipur (D/C) tr. lines have only one 220 KV bays each at KBUNL end since long & due to this one circuit each from KBUNL to Samastipur (new) & KBUNL to Motipur remain unutilised. Due to unavailability of these bays at KBUNL end, BSPTCL is facing difficulties for synchronising 220 KV line at KBUNL and also unable to shift loading of Biharsharif(PG)-Begusarai D/C T/L on MTPS for off loading of Biharsharif(PG) ICTs and in case of any contingency occurs at DMTCL(D)-Motipur D/C T/L, MTPS-Motipur S/C T/L also tripped at overloading. It is evident that the transmission infrastructure developed by BSPTCL in North Bihar could not be fully utilized causing limitations in power flow as well as power interruption.

The unavailability of bays at KBUNL is affecting the evacuation of power from KBUNL (Generating Station 2*110 MW+2*195MW). So, keeping these lines in loop at KBUNL will enhance the quality, reliability and stability of system.

KBUNL may begin the construction and complete commissioning of 2nd bay in minimum possible time in order to avoid crisis arisen due to unforeseen outage of Biharsharif(PG) and DMTCL(Darbhanga).

As such target dates for the start and completion of the above works may kindly be got ensured from KBUNL.

In 139th OCC, KBUNL informed that tender has been floated and the work will be awarded in November 2017. The work will be completed by March 2018.

KBUNL may update.

Item No. B.14: Third Party Protection Audit & Inspection of Under Frequency Relays (UFR)

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	21	61.76
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 & UFR testing

Sl No	Proposed Date	Protection Audit Substations	UFR testing
1	1st week of Jan, 2018	400kV Jaypore(PG)	• UFR Testing at Jeynagar and Sunbedha • UFR Testing at Theruvali
2		220kV Jeynagar (OPTCL)	
3		400kV Indravati (PG)	
4		400kV Indravati (OHPC)	
5		220kV Theruvali (OPTCL)	

The 2nd third party protection audit observations of competed substations are available in the ERPC website in important documents.

PCC advised all the constituents to comply the observations at the earliest.

Members may note.

Item No. B.15: 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.

Item No. B.16: 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.

As per the information received from the constituents the following generators certified with IS 18001:

- All NTPC stations in Eastern Region
- Teesta, NHPC
- All OHPC generating units
- All CESC generating units
- All units of WBPDCL
- DGPC units

Members may note and update the status.

Item No. B.17: 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.

138th OCC advised all the respective constituents to ensure the availability of telemetry data to ERLDC.

ERLDC may present.

a) Frequent failure of JITPL data to ERLDC:

Real time SCADA data from JITPL is frequently failing (*May-17: 24% & June-17 (up to 18th): 62%*). It was observed that

- Microwave terminal equipment at Talcher HVDC end is getting hanged quite frequently causing failure of real time data to ERLDC.
- The direct line from JITPL to Angul 765/400 kV pooling station is available but real time SCADA data is yet to be diverted through this path.
- The voice connectivity from JITPL to ERLDC is yet to be provided / integrated with Hot Line Voice Communication installed by M/s Orange.

In 136th OCC, JITPL informed that presently they are communicating ERLDC with a radio link, which is an interim arrangement and is not reliable and they are trying hard to maintain it. However, they had planned to make PLCC system operational for uninterruptable communication to ERLDC. But Powergrid is not allowing them to shift NSK modem of PLCC system from Bolangir(PG) S/s which is the property of JITPL.

JITPL added that they were in process of settling the commercial issues with Powergrid and requested Powergrid to cooperate.

OCC took serious note of the issue and felt Powergrid should not interrupt in establishing the proper communication system for SCADA/telemetry data to ERLDC. OCC felt that Powergrid should not take up commercial issue by staking the grid security and advised Powergrid to take up the commercial issue separately.

In 36th TCC, Powergrid agreed to allow JITPL to shift their PLCC modem from Bolangir S/s within a week.

JITPL informed that they will shift the modem within a week and they will commission the communication system in another 10 days subject to availability of OEM (ABB) engineers.

TCC advised JITPL to shift the modem as decided and update the status in forthcoming OCC meeting scheduled to be held on 21st September 2017.

In 137th OCC, JITPL informed that they have shifted the PLCC modem from Bolangir to Angul and they will commission the communication system by 15th October 2017.

In 139th OCC, ERLDC informed that JITPL data through PLCC is not yet restored.

JITPL may update.

Item No. B.18: Need for expediting reactors at Subhashgram, Jamshedpur and Behrampur 400KV substations and adequate absorption of reactive power by power stations

Voltage of the following substations was above the allowable upper limit of 420kV for significant duration during October and November 2017:

Sub-station	% Duration >420kV October-17	% Duration >420kV November-17 (upto 19-11-17)
Jamshedpur	99	100
Baharampur	32	49
Subhasgram	25	37
Arambag	92	100
Farakka STPS	27	57
Barh STPS	100	76
Sagardighi TPS	20	21
PPSP	26	44
HEL	20	33

Further, one circuit of the following D/C lines is being frequently switched off to control high voltage during off-peak:

- 400kV Kharagpur – N. Chanditala
- 400kV Kharagpur – Kolaghat
- 400kV N. PPSP – Arambag
- 400kv Alipurduar - Bongaigaon
- 220kV Madhepura – N. Purnea

Therefore, Farakka, SgTPS, PPSP, Barh, HEL are requested to maximize reactive power absorption by their respective generating units. PGCIL may endeavour to commission the 50 MVAR line reactor at Subhasgram end of 400kV SgTPS – Subhasgram line, 2nd 125 MVAR bus reactor along with 50 MVAR old bus reactor which was out for commissioning work at Jamshedpur and new 125MVAR bus reactor at Baharampur at the earliest.

In 139th OCC, ERLDC informed that KTPS units are absorbing 20 MVAR during high voltage but there is a scope for absorbing 80 MVAR as per the capability curve. Sagardhigi units are not giving reactive power support during high voltage. ERLDC advised WBPDCL to provide GT tap position of Sagardhigi units.

Powergrid informed that in view of high voltage at Behrampur they have diverted one 125MVAR reactor to Behrampur and the reactor will be installed by end of December 2017.

Powergrid informed that at Jamshedpur one reactor has been installed on 15th November 2017 and the other reactor will be installed by end of November 2017.

WBSETCL vide letter dated 6th December 2017 requested for opening of lightly loaded 400kV lines during lean hours to control high voltage.

Members may discuss.

Item No. B.19: Updating of GT and ICT Tap position of all EHV transformers

All the generation, transmission and distribution utilities have been requested to go through **Annexure-B19** related to last updated information related to GT/ICT/ATRs available at ERLDC and update the capacity, number, tap details, make (Company name) and other information including addition of new transformers, wherever felt necessary.

Members may update.

Item No. B.20: Checklist for submission of updated data for Protection Database

The network data in Protection Database needs to be updated on regular basis on account of commissioning of new elements in the CTU as well as STU networks. Accordingly, a checklist has been prepared which is enclosed in **Annexure-B20**.

All the constituents are requested to submit the checklist on monthly bases in every OCC/PCC meetings.

In 139th OCC, all the constituents were advised to submit the data to ERPC vide mail (mserpc-power@nic.in) as per the checklist for last three months.

Constituents may update.

Item No. B.21: 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.

ATC/TTC declared by states for the month of December-2017 is given below:

Sl No	State/Utility	TTC import(MW)	RM(MW)	ATC (Import) MW
1	BSPTCL	4665	145	4520
2	JUSNL	980	60	920
3	DVC	1092	52	1040
4	OPTCL	1822	81	1741
5	WBSETCL	4700	300	4400
6	Sikkim			

In 139th OCC, ERLDC informed that the network data should be updated regularly on monthly for realistic calculation of ATC, TTC figures. A procedure has been made as follows:

- Updated Base case of Previous month both for peak and off peak case to be circulated by ERLDC by 2nd day of every month
- States have to update their network changes in the same case circulated by ERLDC till date and then load the LGBR of the upcoming month
- Updated case and calculated TTC of the upcoming month to be sent to the ERLDC by 10th of the current month

OCC felt that one base case should be circulated among the constituents in sequence so that whole ER network will be updated in same file.

ERLDC informed that base case along with network data of Eastern Region as per November, 2017 was circulated on 08-12-17 through mail. States were requested to update the network changes occurred in till date and send TTC along with base case updated with load generation balance as per estimated node wise load and generation pattern in the month of January, 2018.

Members may update. DVC may furnish net export capability.

Item No. B.22: Time correction of SEMs in Eastern Region – Replacement of heavily drifted SEMs

The issue was discussed in 35th TCC/ERPC meetings and it was felt that the meters with severe drift greater than 10 min need to be replaced first and if replacement is done with Genus then readings are to be collected manually using Laptop till interfacing with AMR is completed.

35th ERPC advised Powergrid to replace the 10% of the heavily drifted SEMs with new Genus make meters and monitor the performance of the Genus meters. Powergrid should present this performance before constituents and subsequently the decision on replacement of the other time drifted meters will be taken up.

In 133rd OCC, Powergrid informed that 22 meters were replaced except Purnea. ERLDC informed that the performance of 22 newly installed meters are satisfactory and suggested that all other meters can be replaced.

OCC advised Powergrid to replace next 10% of heavily drifted meters as per the list.

In 137th OCC, Powergrid informed that out of 23 meters time correction has been done for 6 meters and 8 SEMS have been replaced. Rest will be replaced subjected to availability of shutdown.

In 138th OCC, Powergrid informed that 09 SEMs are yet to be replaced.

Further OCC decided to hold the replacement of SEMs till interfacing of Genus meters with AMR is resolved.

So far in Phase-II, 12 Meters has been replaced and Time Correction for 06 meters has been done. Details of meter to be replaced is as follows:

List of drifted meters to be replaced in Phase-II

SNO	LOCATION	METER SNO	FEEDER NAME	Region
1	MUZAFFARPUR(PG)	NP-5074-A	400 KV MUZAFARPUR (PG)-GORAKHPUR(NR)-1	ER-I
2	MUZAFFARPUR(PG)	NP-9981-A	400 KV MUZAFARPUR (PG)-GORAKHPUR(NR)-2	ER-I
3	RANCHI(PG)	NP-5835-A	400 KV RANCHI-SIPAT-1 (WR)	ER-I
4	RANCHI(PG)	NP-5836-A	400 KV RANCHI-SIPAT-2 (WR)	ER-I
5	RANCHI NEW(PG)	NP-7847-A	765 KV RANCHI NEW -DHARAMJAYGARH-1	ER-I
6	RANCHI NEW(PG)	NP-8753-A	765 KV RANCHI NEW -DHARAMJAYGARH-2	ER-I
7	MEJIA(DVC)	NP-5226-A	MEJIA END OF MAITHON(PG)-1	ER-II
8	MEJIA(DVC)	NP-5227-A	MEJIA END OF MAITHON(PG)-2	ER-II
9	BINAGURI(PG)	NP-5884-A	BINAGURI END OF BONGAIGAON (NER)-1	ER-II
10	BINAGURI(PG)	NP-5885-A	BINAGURI END OF BONGAIGAON (NER)-2	ER-II
11	ROURKELLA(PG)	NP-5933-A	ROURKELA END OF TARKERA (GRIDCO)-2	ER-II
12	KHARAGPUR(PG)	NP-7563-A	400 KV KHARAGPUR -BARIPADA(PG)	ER-II
13	MPL	NP-7970-A	MAITHON RB END OF RANCHI (PG)-1 (MAIN)	ER-II
14	MPL	NP-7971-A	MAITHON RB END OF RANCHI (PG)-2 (MAIN)	ER-II
15	MPL	NP-7564-A	MAITHON RB END OF MAITHON (PG)-1 (MAIN)	ER-II
16	MPL	NP-6518-A	MAITHON RB END OF MAITHON (PG)-2 (MAIN)	ER-II
17	STERLITE	NP-7572-A	400 KV STERLITE - RAIGARH(WR)-II(MAIN)	ER-II
18	STERLITE	NP-7372-A	400 KV STERLITE - ROURKELLA(PG)-II(MAIN)	ER-II
19	ROURKELLA(PG)	NP-5928-A	400 KV ROURKELLA(PG)-RAIGARH(WR)	ER-II
20	MIRAMUNDALI(OPTCL)	NP-5977-A	400 KV MIRAMUNDALI-ANGUL-1	ER-II
21	MIRAMUNDALI(OPTCL)	NP-5976-A	400 KV MIRAMUNDALI-ANGUL-2	ER-II
22	SUNDERGARH(PG)	NP-7634-A	765 KV SUNDERGARH-DHARAMJAYGARH-1	ER-II
23	SUNDERGARH(PG)	NP-7638-A	765 KV SUNDERGARH-DHARAMJAYGARH-2	ER-II

In 139th OCC, It was informed that in view of removal of LILO of 400kV Rourkela-Raigarh line 1 at Vedanta, SEMs at Vendanta end are not required to change. Three numbers of SEMs are required to be changed in Phase-II.

OCC decided to change the pending three numbers of SEMs in Phase-II.

OCC decided to hold next phase SEM replacement till interfacing of Genus meters with AMR is resolved.

Powergrid/ ERLDC may update.

Item No. B.23: Meter related Issues-ERLDC

Due to the meter related issues of following locations energy accounting and its validation is being affected.

Issue	Location	Meter No	Line	Responsibility	Problem Since	Present Status
Non receipt of Data	1. NPGC	NP-1282-A NP-1287-A	132 KV Rihand & Sonnagar	BSPTCL	More than 3 month	Not Received. Status is same
Installation of Check/Standby meter	1.Subhashgram(WB)		220 KV Subhasgram(PG) D/C	WBSETCL/PGCIL	Charging of Line	As informed by PGCIL, Meter is available at Subashgram and the same to be collected by WBSETCL and to be put into service.
	2. New Town(CESC)		220 KV Subhasgram(PG) S/C	WBSETCL/PGCIL	Charging of Line	
	3. Bantala(CESC)		220 KV Subhasgram(PG) S/C	WBSETCL/PGCIL	Charging of Line	
	4. EM Bypass(CESC)		220 KV Subhasgram(PG) D/C	WBSETCL/PGCIL	Charging of Line	Meter already connected but time synchronisation yet to be done. SEM data is not

						received by ERLDC

PGCIL/BSPTCL/WBSETCL/may please further update the status.

Item No. B.24: Integration of Genus Make meter in AMR-- ERLDC

In Eastern Region, order for procurement of 965 no of SEM's was placed with M/s Genus Power. First Lot of the meters have already been delivered by Genus and 24 meters of Genus make meter has been installed in different substation in ER. Issue of Integration of Genus make meters in AMR system was discussed in different fora of ERPC since March,17.In 36th ERPC meeting Powergrid informed that a meeting will be held on 20th September 2017 wherein the interfacing issues would be resolved by M/s TCS and M/s Genus.

In 137th OCC, Powergrid informed that a meeting will be held at RHQ Kolkata on 25th September 2017 wherein the interfacing issues would be discussed and resolved by M/s TCS and M/s Genus.

In 25th September 2017 meeting, it was agreed by all concerned that GENUS will implement the required changes at meter level within 15th October 2017 to resolve the pending issues related to Integration of Genus meter with AMR.

In 138th OCC, Powergrid informed that integration of Genus meters with AMR is pending because time block identification problem. This problem will be resolved through software by TCS on payment basis within 15 days.

In 139th OCC, Powergrid informed that integration of Genus meters with AMR will be completed within 20 days. Powergrid added that additional financial implication of 10 Lakhs (approx) has been taken into consideration as per LOA.

Powergrid may please update the status.

Item No. B.25: Accounting of Tertiary Loading Arrangement at PGCIL s/station in ER

Auxiliary consumption of PGCIL EHV AC sub stations are usually met from HT feeders of the state Discom. In few substations of PGCIL, auxiliary consumption is met through tertiary winding (as alternate supply for reliability).

In 35th CCM, It was decided that the drawal of auxiliary power from tertiary winding by Powergrid substations would be treated as state drawl for inter-regional accounting. Powergrid and the states would make back to back commercial arrangements for this power. ERLDC requested Powergrid to submit the requisite information such as meter no, CTR, PTR, etc in respect of those meters and also make meter readings available ontime.

In 138th OCC, ERLDC informed that they are not getting the data of Biharshariff and Rengali.

Powergrid informed that SEMs are to be replaced at Biharshariff and Rengali. They will replace the SEMs and send the data.

It was also decided that the energy through Tertiary as state drawal and the meter reading will be sent to ERPC with immediate effect.
Accordingly Tertiary drawl of PGCIL S/s has been added to the respective state drawl wef 23.10.17.

Status of meter details and receipt of their data at ERLDC from Powergrid ER-I, ER-II and Odisha project is as below:

	List of PGCIL substation with Tertiary Loading in ER & Odhisa Project							
ER-I								
S. No	**S/Station**	**Loc ID**	**Meter No**	**Make**	**CTR**	**PTR**	**Remarks**	**Data Receipt**
1	Banka	ES-88	NP-7458-A	L&T	50	33000/110		Yes
2	Lakhisarai	ES-94	NP-8870-A	L&T	50	33000/110		Yes
3	New Ranchi(765)	ES-87	NP-8752-A	L&T	50	33000/110		Yes
4	New Purnea	ES-98	NP-5249-A	L&T	50	33000/110		Yes
5	Patna	ES-89	ER-1285-A	Genus	50	33000/110		Yes
6	Pusauli	ET-06	NP-8646-A	L&T	50	33000/110		Yes
7	Muzaffarpur	ET-02	NP-5231-A	L&T	1000	415/110		Yes
9	Kishanganj	ES-90	NP-8876-A	L&T	50	33000/110		Yes
11	Ara(220)	ES-99	NP-8893-A	L&T	50	33000/110		Yes
12	Chaibasa	ET-15	ER-1254-A	Genus	50	33000/110		Yes
13	Ranchi(400/220)	ET-14	ER-1251-A	Genus	50	33000/110		Yes
14	Jamshedpur	ET-20	ER-1259-A	Genus	50	33000/110		Yes
15	Gaya(765)	EM-99	ER-1263-A	Genus	50	33000/110		Yes
16	Biharshariff	ET-01	NP-2355-A	SECURE	1000	415/110		No
ER-II & Odhisa Project								
1	Angul	ES-95	NP-5942-A	L&T	1000	415/110		Yes
2	Pandiabili	ES-39	NP-7462-A	L&T	1000	415/110		Yes
3	Rangpo (33 kv TRF)	ES-96	NP-7940-A	L&T	1000	415/110		Yes
4	Rangpo (11 KV AUX TRF)	ES-97	NP-7941-A	L&T	1000	415/110		Yes
5	Sundergarh	ES-93	ER-1019-A	Genus	50	33000/110		Yes
6	Maithon	ET-07	NP-7934-A	L&T	1000	415/110		Yes
7	Baripada	EM-69	NP-5909-A	L&T	1200	400/110		Yes
8	Durgapur	ET-04	NP-6024-B	L&T	200	400/110		Yes
9	Keonjhar	ET-11	NP-7921-A	L&T	50	33000/110		Yes
10	Subhashgram	ET-12	ER-1105-A	Genus	1000	415/110		Yes
13	Jeypore	ET-10	NP-5965-A	L&T	20	430/110		Yes
11	Bolangir	ET-03	NP-7951-A	L&T	1000	415/110		Yes
12	Rengali	ET-05	ER-1020-A	Genus	1000	415/110		Yes

Since Darbhanga and Motihari DMTCL S/S Tertiary is also loaded, Meters at Tertiary Tr/f of above s/s is required to be installed and Drawl should be accounted in BSPHCL net drawl.

ERLDC and Powergrid/DMTCL may update.

Item No. B.26: 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.

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

In 131st OCC, Powergrid submitted the latest status of PMU installation.

The updated status as furnished in 132nd OCC by Powergrid is given at **Annexure-B.26**.

POWERGRID may update the status.

Item No. B.27: 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.27**.

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

Teesta Urja Limited vide letter dated 8th September 2017 informed that Disturbance Recorder, Stand alone Event Logger and Time Synchronization equipments are available at Teesta III HEP.

Members may update.

Item No. B.28: Status of Emergency Restoration System (ERS Towers) for Eastern Region constituents

CEA vide letter dated 21.07.2017 requested to send the status of state-wise availability of ERS towers and requirement of ERS towers.

In 136th OCC, MS, ERPC informed that CEA vide letter dated 21.07.2017 has sought the latest status on ERS. Therefore, OCC advised all constituents to send the updated status to ERPC secretariat vide mail (mserpc-power@nic.in).

Latest status is enclosed at **Annexure- B.28**.

In 138th OCC, WBSETCL informed that they are having total 10 ERS towers, 5 at Arambagh and 5 at Gokharno.

In 139th OCC, JUSNL informed that they are having eight 220/132kV ERS towers at following locations:

- *Hatia – 3 nos*
- *Ranchi – 2 nos*
- *Dumka – 3 nos*

Members may update the latest status.

Item No. B.29: Mock Black start exercises in Eastern Region – ERLDC

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

The tentative schedule of black-start exercises for F.Y 2017-18 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, 2017	*30th May 2017*	Last Week of January2018	
2	Maithon	1stweek of June 2017	Completed on 04.04.17	1stWeek of February2018	
3	Rengali	2ndweek of June 2017	Done on 29.06.2017	Last week of November 2017	30th November 2017
4	U. Indarvati	3rdweek ofJune 2017	November 2017	2ndweek of February2018	December 2017
5	Subarnarekha	1stweek of October 2017	Done on 14th October 2017	1stweek of January2018	
6	Balimela	3rdweek of October 2017	November 2017	1stweek of March 2018	December 2017
7	Teesta-V	2ndweek of Nov 2017		Last week of February2018	
8	Chuzachen	Last Week of May2017	May, 2017	January2018	
9	Burla	Last Week of June 2017	Dec, 2017	Last week of February2018	December 2017

10	TLDP-III	1stWeek of June 2017	After 12the Dec, 2017.	2ndWeek of January2018	
11	TLDP-IV	Last Week of June 2017	After Mansoon	1stWeek of February2018	
12	Teesta-III		December 2017		

OHPC informed that the black start operation of Unit-3 of Rengali P.H. has been successfully completed on 30.11.2017 at 11:54Hrs.

Members may update.

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.30: Restricted Governor /Free Governor Mode Operation of generators in ER

CERC vide their letter dated 05-06-2017 desired to know the present status of RGMO/FGMO response of all eligible thermal and hydro units. Accordingly ERLDC vide letter no.ERLDC/SS/FGMO/2017 dated 07-06-17 requested all concerned power stations and SLDCs to provide updated status of FGMO/ RGMO of units under their control.

The latest status of the RGMO/FGMO of ER generators is enclosed in **Annexure-B35**.

Analysis of governor response for the following event:

(1) On 12.11.17 at 07:14 Hrs, all outgoing lines from Talwandi Sabo TPS (in Punjab) tripped causing loss of 1097 MW generation due to loss of evacuation path. Frequency of the national grid dropped by 0.06Hz.

Members may update. ERLDC my present.

Item No. B.31: Ratification of projected Demand and generation for POC transmission charges and loss calculations for Q4(2017-18)

The projected Demand and Generation of ER constituents to be considered in the base case for POC transmission charge and loss calculations for Q4 (Jan 18-March 18) are attached at **Annexure-B36** for ratification by the constituents.

Members may kindly go through and confirm.

Item No. B.32: 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. JITPL(both units) – After the emergent inspection of OEM(BHEL)
c. Barh TPS – November 2017
d. Raghunatpur – by December 2017
e. GMR (Three units)
f. Haldia TPS –Done in October 2017

Members may update.

Item No. B.33: Non Payment of dues--Powergrid-Odisha

A. **JITPL**: Rs. 1.67 Crore from M/s JITPL (Rs. 1.12 Crore towards bay maintenance + Rs. 52.38 Lakh towards interest charges + Rs. 2.36 Lakh towards project consultancy)
B. **GMR**:Rs.37.99 Lakh is due from M/s GMR towards Bay maintenance charges

C. **Ind-Bharath Energy(Utkal) Ltd(IBEUL):** Rs.74.16746 Lakh is due from M/s Ind-Bharath (Utkal) Energy Limited towards Bay maintenance and Interest charges.

Item No. B.34: Recovery of loss due to schedule revision during flodding of Kishanganj S/S of PGCIL-Teesta Urja Ltd.

Due to flooding at Kishanganj S/S of PGCIL, the IEX schedule of Teesta-III HEP and other Projects was directed to be revised from 10:00 hours to 24:00, hours on 13.08.2017. However, vide subsequent communications, the curtailment of schedule was initially directed to start from 10.00 hrs , which got changed to 10.30 hrs and again to 10.00 a.m. However, the IEX schedule which had got curtailed from 10.30 hrs could not get revised to 10.00 hrs leading to the Teesta-III (and other Projects) being penalized under DSM for two time blocks from 10.00 hrs to 10.30 hrs.

It is requested to deliberate the matter so as to facilitate recovery of such loss to the Generators."

Members may discuss.

Item No. B.35: Revision of final schedule of Dikchu HEP and revocation of UI penalty inflicted on 13.08.2017- Dikchu

On 13.08.2017, Dikchu was advised by ERLDC through mail and phone to back down the generation to Zero w.e.f 10:00 hrs, 13.08.2017, as all STOA & collective transactions were cancelled due to flooded condition at Kishanganj S/s. Dikchu plant was shut down promptly within 10:01 hrs.

The final schedule of Dikchu HEP was revised to Zero w.e.f 10:30 hrs by NLDC. The consequence was that as per final generation schedule data, although Dikchu was able to generate 96 MW in between 10:00 hrs to 10:30 hrs, Dikchu generation was Zero in real time incurring heavy UI penalization.

It is requested to consider the merit of the incidence and accord consent in revision of the final schedule of 13.08.2017 from 10:00hrs to 10:30 hrs to Zero in respect of Dikchu HEP.

Members may discuss.

PART C:: OPERATIONAL PLANNING

Item no. C.1: Anticipated power supply position during January'18

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of January'18 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.1**.

Members may confirm.

Item no. C.2: Shutdown proposal of transmission lines and generating units for the month of January'18

Members may finalize the Shutdown proposals of transmission lines and generating stations for the month of January 18 as placed at **Annexure-C.2**.

- Teesta V Unit #2 shutdown from 23rd December 2017 to 12th January 2018 for Annual Maint.
- Teesta V Unit #3 shutdown from 14th January 2018 to 3rd February 2018 for Annual Maint.

ERLDC may place the transmission line shutdown. Members may confirm.

1. **Requisition of S/D of 400kV D/C Binaguri-Bongaigaon line for Conductor repairing work --Powergrid**

400kV Binaguri-Bongagigaon D/c lines were kept under S/D time to time due to over-voltage constraints as per ERLDC instructions. During this S/D periods, at several locations, outer-layer of conductor has been theft by miscreants. Presently we are planning to rectify all those locations through replacement with fresh conductors where damage is severe and through conductor lapping where few strands have been cut.

In order to carry-out the above work, S/D is required for 10 days each ckt at a time wef 15th Jan-2018.

In 139th OCC, it was informed that shutdown will be available subjected to NLDC approval.

Members may note.

2. **SHIFTING OF TWO NOS. TOWERS OF RAILWAY CROSSING (HOWRAH-NEW DELHI ROUTE) NEAR SHIVSAGAR(LOC NO.338 & 339) OF 765Kv GAYA-VARANASI CKT-2 DUE TO BENDING OF MAIN LEG--Powergrid**

During patrolling of lines after monsoon season the railway crossing location no.338 & 339 of 765 Gaya-Varanasi ckt-2 near Shivsagar have been found damaged. From the nature of damage of towers it is being suspected that the tower would have damaged due to severely localized cyclone in that area. The condition of towers is very critical and it may collapse any time due to high wind pressure. During this monsoon season POWERGRID Eastern Region-I witnessed tower collapsed of other three lines also which have restored.

The commencement shifting of tower location 338 & 339 have been planned from 1st week of January'2018 and completion by mid of January-18. During the restoration work the said line will be under continuous shutdown.

In view of the above, the said outage period may be treated as force majeure condition i.e. beyond the control of POWERGRID and the outage shall be excluded for the purpose of availability.

Members may approve.

3. RECTIFICATION OF DEFECT OF 765Kv GAYA-VARANASI-TRANSMISSION LINE-I AT TOWER LOCATION NO.448--Powergrid

During routine patrolling of 765kV Gaya-Varanasi-I transmission line, main diagonal member of one leg of tower at location no.448(A+3) found bent and twisted. From the nature of damage of towers it is being suspected that the tower would have damaged due to severely localized cyclone in that area. The condition of towers is very critical and it may collapse any time due to high wind pressure. During this monsoon season POWERGRID Eastern Region-I witnessed tower collapsed of other three lines also which have restored.

The commencement shifting of tower location.448 have been planned from 3rd week of January,2018 and completion by mid of February,2018. During the restoration work the said line will be under continuous shutdown.

In view of the above, the said outage period maybe treated as force majeure condition i.e. beyond the control of POWERGRID and the outage shall be excluded for the purpose of availability.

Members may approve.

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

(i) Thermal Generating units:

Sr. No	Generating Station	Unit Number	Capacity(MW)	Reasons For Ouatge	Outage Date
1	MPL	1	525	OVER HAULING	27-Oct-17
2	KAHALGAON	1	210	OVER HAULING	15-Nov-17
3	TALCHER	1	500	ANNUAL OVERHAULING	25-Nov-17
4	MEJIA B	8	500	VIBRATION PROBLEM IN BEARING ,turbine blade damage	7-Aug-17
5	VEDANTA	2	600	MAINTENANCE	28-Jun-17
6	BUDGE BUDGE	2	250	MAINTENANCE	24-Nov-17
7	ADHUNIK	2	270	FLAME FAILURE INITIALLY ,LATER GENERATOR VIBRATION	7-Sep-17
8	JITPL	2	600	HEAVY BONNET LEAKAGE FROM EMERGENCY BOILER DRAIN VALVE	9-Nov-17
9	RAGHUNATHPUR	1	600	COAL SHORTAGE	14-Nov-17
10	KOLAGHAT	6	210	STATOR EARTH FAULT	11-Jun-17
11	MEJIA	5	250	INITIALLY OUT ON BTL,PRESENT PROBLEM IS IN BARRING GEAR	22-Sep-17
12	WARIA	4	210	TUBE LEAKAGE	5-Dec-17
13	SANTALDIH	5	210	ROTOR EARTH FAULT	30-Apr-17
14	SAGARDIGHI	4	500	COAL SHORTAGE	9-Nov-17
15	SAGARDIGHI	2	300	BOILER TUBE LEAKAGE	16-Nov-17
16	KBUNL STG II	2	195	COOLING WATER PROBLEM	3-Nov-17

(ii) Hydro Generating units:

Sr. No	Generating Station	UNIT NO	CAP(MW)	REASONS FOR OUTAGE	OUTAGE DATE
1	BURLA	5	37.5	R & M WORK	25.10.2016
2	BURLA	6	37.5	R & M WORK	16.10.2015
3	CHIPLIMA	3	24	R & M WORK	15.10.2015
4	BALIMELA	1	60	R & M WORK	05.08.2016
5	U.KOLAB	2	80	Repair of MIV & Draft tube gate leakage	28.05.2017
6	RENGALI	5	50	Hoist gate problem	21.03.17
7	RENGALI	1	50	Stator Earth fault	08.09.17

(iii) Transmission elements

Transmission Element / ICT	Agency	Outage Date	Reasons for Outage
220 KV BALIMELA - U' SILERU	OPTCL / APSEB	27.04.15	LINE IDLE CHARGED FROM UPPER SILERU END AT 12:42 HRS OF 25.01.17
400KV MOTIHARI-BARH-I & II	DMTCL	14.08.17	24 NO OF TOWERS IN GANDAK RIVER WHERE WATER LEVEL IS HIGH
220 ALIPURDUAR SALAKATI D/C	POWERGRID	17.11.17	TOWER BENDING IN LOCATION 196
220 KV BUDHIPADAR KORBA- I	POWERGRID	1.11.17	MULTI CKT TOWER ERECTION AND DIVERSION WORK FROM LOC 29 to 40

(Reported as per Clause 5.2(e) of IEGC)

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

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 November'17

System frequency touched a maximum of 50.27 Hz at 06:02 Hrs of 19/11/17 and a minimum of 49.62 Hz at 06:40 Hrs of 07/11/17. Hence, 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 November'17.

Members may note.

Item no. D.3: Grid incidences during the month of November, 2017

Sr No	GD	Disturbance Place	Date	Time	Gen loss (MW)	Load loss (MW)	Remarks
1	GD-I	Motipur	02/11/2017	13:18	0	66	At 13:18 Hrs total power failure occurred at Motipur, Musari, Darbhanga, Madhubani, Jainagar, Phoolparas due to tripping of 220 KV Darbhanga-Motipur D/C due to Y-B-N fault. At the same time, 220 KV Muzaffarpur (MTPS)-Motipur D/C also tripped.
2	GD-I	Birpara(WB)	03/11/2017	14:43	0	70	Total power failure occurred at 132 KV Birpara S/S (WB) when 132 KV Birpara-Birpara D/C tripped due to failure of B phase LA of 132 KV Birpara-Birpara-II at WB end. At same time, 132 KV Birpara-Birpara-I tripped from WB end on directional E/F
3	GD-I	Tashiding	12/11/2017	01:36	40	0	At 01:30 hrs 220 kV Tashiding - New Melli S/C and 220 kV Tashiding - Rangpo S/C tripped in Y-N fault resulting generation loss of 40 MW due to loss of evacuation path.
4	GD-I	Sultanganj	13/11/2017	02:50	0	38	Total power failure occurred at Sultanganj and Hatidah after tripping of 132 kV Banka – Sultanganj D/C, Ckt I tripped from Sultanganj only and Ckt II tripped from Banka only.

5	GD-I	Patratu	23/11/2017	11:56	0	145	220 kV main bus II at Patratu was under shutdown. So all elements were connected to main bus I. At 11:55 hrs 220 kV TVNL - Patratu S/C and 220 kV Hatia - Patratu D/C tripped resulting total loss of power supply at 220/132 kV Patratu S/S. Delayed fault clearance was observed in Y & B phases. During restoration both units at TVNL were tripped at 12:52 hrs. Voltage fluctuation was reported at TVNL bus.
6	GD-I	Melli	29/11/2017	05:52	0	32	Due to flashing of PG clamp of line bay of 66 kV Kalimpong - Melli S/C, 132 KV Sagbari-Melli S/C, 132 KV Siliguri-Melli S/C and 132 KV Rangpo-Melli S/C were switched off resulting total power failure at 132/66 kV Melli S/S and its surrounding area

Members may note.

Item no. D.4: Reporting of voltage deviation indices (VDI) for select S/Stns in ER

ERLDC submitted the Voltage Deviation Index (VDI) of selected 400 kV Sub-stations for November, 2017 of Eastern Region which is enclosed at **Annexure- D.4**.

Members may note.

Item no. D.5: Additional agenda

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Annexure-B1

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
पी .डी एम .प्रभाग

No.CEA/PLG/PDM/566/2017/ Dated: 04.12-2017

To,

S.K. Upadhyay,
President & Director-Projects,
M/s Gati Infrastructure Power Private Limited,
Plot No. KH 14/19/2
Old Delhi Gurgaon Road,
Samalkha, New Delhi-110037

Subject: - Uprating of Unit No. 1 & 2 of Chuzachen Hydroelectric Project from 2x49.5MW (99MW) to 2x55MW (110MW)- regarding.

Ref: GIPL/HO/CEA/17-18-09/002 dated 28/09/2017

Sir,

This is with reference to your above referred letter regarding change in Installed capacity of Chuzachen H.E.Project from 99 MW (2x49.5MW) to 110 MW (2x55MW).

It is seen that the capacity of the project has been enhanced from 99 MW to 110 MW. The details furnished by M/s. Gati Infrastructure Power Private Limited have been seen by the Central Electricity Authority. It is also seen that all the required approvals and clearances for the enhancement of the installed capacity from 99 MW to 110 MW of Chuzachen H.E. Project has been obtained by M/s. Gati Infrastructure Power Private Limited from Government of Sikkim and Ministry of Environment, Forest & Climate Change, Government of India. It is also seen from the ERLDC, POSOCO Daily Operation Report that the plant is operating at a peak capacity of over 110 MW.

Based on the information furnished by M/s. Gati Infrastructure Power Private Limited, after considering all necessary approvals & clearances, the capacity of Chuzachen H.E.Project is being changed from 99 MW(2x49.5MW) to 110 MW (2x55MW) in the data base of All India Installed Capacity with effect from 28.09.2017.

Yours faithfully

4/12/17

(P.C.Kureel)
Secretary, CEA

Copy for information to:

1. PPS, Secretary, MoP
2. SA to Chairperson, CEA
3. SA to Member (Planning/Hydro/Thermal/ E&C/ GO&D/PS), CEA
4. All Chief Engineers of CEA
5. All Heads of Subordinate offices, CEA
6. IT Division, CEA for uploading on CEA website

Annexure-B2

PPA details for the year 2017-18 to 2019-20

Name of the State :

		2017-18			2018-19			2019-20		
		Share/Contracted power (in MW)	Fixed Charges (Rs/kwh)	Variable charges (Rs/kwh)	Share/Contracted power (in MW)	Fixed Charges (Rs/kwh)	Variable charges (Rs/kwh)	Share/Contracted power (in MW)	Fixed Charges (Rs/kwh)	Variable charges (Rs/kwh)
1. Hydro Generation										
(a)	**Own generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

(b)	**CGS generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

(c)	**IPP`s generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

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2. Thermal Generation (Coal/Gas/Nuclear)										
(a)	**Own generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

(b)	**CGS generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

(c)	**IPP`s generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

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	3. RES Generation									
(a)	**Own generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

(b)	**CGS generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

(c)	**IPP`s generation**									
i.	Power station I									
ii.	Power station II									
iii.	Power station III									
iv.	Power station IV									

Annexure-B3

FoR Technical Committee on Grid Integration of Renewable Energy (RE), with reference to regional cooperation and other options for managing intra-day load / generation variation due to RE or otherwise -– Record of Proceedings of the meeting held on 18.8.2017.

In order facilitate implementation of Framework on Renewables at State Level, FoR constituted a Technical Committee under the Chairmanship of Shri A.S. Bakshi, Member, CERC. The mandate given to the Committee *inter alia* includes evolving a roadmap for implementation of Framework on Forecasting, Scheduling and Deviation Settlement of Wind & Solar generating stations at State Level, implementation of ABT Framework, introduction of Ancillary Services and Reserves, implementation of Automatic Generation and Primary Control etc.

2. The Technical Committee in its meeting held on 28.3.2017 at Chennai, discussed the matter related to Co-operation among States for Optimum Utilization of their Generation Resources, amongst the other issues. During the discussion, it was decided that sub-groups be constituted in the Northern Region, Western Region and Southern Region (the three RE rich regions) headed by the Member Secretaries of the respective Regional Power Committees (RPCs). The Sub-groups were mandated to examine the feasibility and modality of co-operation among States in the respective region for ensuring optimum utilization of generation resources with least cost options for balancing across the region and submit their findings before the Technical Committee.

3. A meeting of the Heads / Representatives of the Sub-Groups was convened under the Chairmanship of Shri A.S.Bakshi, Member, CERC on 18.8.2017 in CERC, New Delhi to review the progress on framework for regional co-operation. The list of participants is at **Annexure - I.**

4. The following emerged during the deliberations in the meeting:-

- Of late, the States have recognized the value of electricity resource vis-à-vis the cost of generation. Some of the States are not willing to cooperate with other States in the Region on “cost” basis.
- It was also observed that some of the Regions are predominantly “Surplus” in power, leaving little scope for co-operation within the region. This necessitates a national level framework / product for optimum resource utilization.
- Various other options for handling intra-day load / generation variation due to RE or otherwise were also discussed as at **Annexure-II,** viz. (i) Banking; (ii) DAM price on PX as reference; (iii) Pool based on VC as approved by the Regulator and on payment of cost; (iv) Pool based on VC as approved by the Regulator and on payment of MC; (v) Pool based on auction for intra-day for the rest of the day; (vi) Pool based on auction for intra-day on hourly basis; (vii) Pool based on auction for intra-day on intra-hour basis i.e for 15 min. block-wise etc.

5. During the meeting it was decided to share with all RPCs the options raised therein and seek feedback.

Annexure - I

List of participants attended meeting of the Sub-Group under FOR Technical Committee Meeting held on 18.8.2017 under the Chairmanship of Shri A.S. Bakshi, Member, CERC

1. Shri A.S. Bakshi, Member, CERC
2. Dr. M.K. Iyer, Member, CERC
3. Shri M.A.K.P. Singh, Member Secretary, NRPC
4. Shri A. Balan, Member Secretary, WRPC
5. Shri S.R. Bhat, Member Secretary, SRPC
6. Shri S.C. Shrivastava, Chief (Engineering), CERC
7. Dr. S.K. Chatterjee, Joint Chief (Regulatory Affairs), CERC
8. Shri K.V.S. Baba, CEO, POSOCO
9. Shri S.K. Soonee, Advisor (POSOCO)
10. Smt. Shilpa Agarwal, Joint Chief (Engg.)
11. Shri S.S. Barpanda, GM, NLDC
12. Shri Samir Saxena, DGM, NLDC
13. Shri M.M. Chaudhari Deputy Chief (Engg.)
14. Smt. Shruti Deorah, Advisor (RE), CERC
15. Shri Anil, SRPC
16. Shri H.K. Pandey, S.E, NRPC
17. Shri Rajasekhar Devaguptapu, Regulatory Executive Officer, CERC
18. Shri Siddharth Arora, Research Officer, CERC

Annexure-II

I. Options for Intra-Day / Hour Ahead transactions:

Seven options have been proposed for Hour Ahead Transactions.

Option-1: Banking

- Pros: Voluntary; No price transaction; Easy to implement
- Cons: Still bilateral; Opaque to cheaper options; True marginal cost of meeting demand not known; Elements of Cost and Value missing; No knowledge of gain or loss

Option-2: Day Ahead Market Price on Power Exchange as reference

- Pros: Well accepted reference price; Dispute free
- Cons: Very remote chance of availability of generation sources with marginal cost equal to or less than Day Ahead Market(DAM) price; Liquidity will always be an issue

Option-3: Pool, based on variable cost as approved by the Regulator and on payment of cost

- Pros: Visibility of all options for purchase decision; Dispute free as regulator approved Variable Cost (VC); All resources get paid as per their cost or marginal cost; Improvement over option 2, liquidity
- Cons: Still based on cost and not on value; VC difficult to ascertain; Merchant plants cannot participate as their tariffs are not determined by regulator

Option-4: Pool, based on variable cost as approved by the Regulator and on payment of marginal cost

- Pros: Same as Option 3; Improvement over Option 3 – element of 'value' introduced because of marginal cost based payment
- Cons: VC difficult to ascertain; Merchant plants cannot participate as their tariffs are not determined by regulator; Payment based on marginal cost may lead to heart burn; still administered

Option-5: Pool, based on auction (intra-day for the rest of the day)

- Pros: Market Discovered Price; Dispute free; Not administered; Akin to DAM but closer to real time
- Cons: Preparedness of Power Exchange (PX); Discoms' decision making process; OA registry, a pre-requisite

Option-6: Pool, based on auction (hourly)

- Pros: Market Discovered Price; Dispute free; Not administered; Akin to DAM but closer to real time
- Cons: Preparedness of PX; Discoms decision making process; OA registry, a pre-requisite

Option-7: Pool, based on auction (intra-hour i.e. 15 min. block)

- Pros: Market Discovered Price; Dispute free; Not administered; Akin to DAM but closer to real time
- Cons: Preparedness of PX; Discoms' decision making process; OA registry, a pre-requisite

II. Illustration:

a. Auction: 7.30 Hrs. – 8.00 Hrs. window, transaction for 'rest of the day' (Intra-day : Option 5) / 'for 9.00 – 10.00 Hrs.' (Hourly : Option 6) / 'for 9.00 – 9.15 Hrs.' (Intra-hour : Option 7), and so on
b. Generators can participate for sale of surplus power (over and above already scheduled on day-ahead basis)
c. Sellers (other than generators) and buyers can participate for surplus / deficit vis-à-vis their schedule on day-ahead basis
d. After the trade materializes under Option 5, 6 or 7 as the case may be, net schedule for the buyers and sellers shall be prepared, which will serve as reference point for DSM / UI
e. However, payment for 'Day-ahead' transaction and 'Intra-day' (Option 5) / 'Hourly' (Option 6) / 'Intra-hour' (Option 7) transactions shall be settled separately based on the schedules for the respective segments
f. Open Access Registry and delegation of decision making authority to operating level at Discom are pre-conditions to success of this framework.

****

Station name

Organisation

Annex-I (1 of 2)

Unit wise yearly generation Program for the year 2018-19

1. Contact Details

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

2. Units existing on 31.03.2017

Unit No.	Capacity (MW)	Date of commissioning	2017-18 generation details (MU)				2018-19 generation details (MU)			Remarks
			Program for 2017-18	Total Anticipated Gen for Sept 17 to March 18 (MU)	Total Anticipated Gen for 2017-18 (MU)	Reason for low generation (if any)	Anticipated maximum Generation capability (MU)	Anticipated Generation (MU)	Reason for variation from Maximum Capability	

3. Units Commissioned during 2017-18

Unit No.	Capacity (MW)	Date of commissioning	2017-18 generation details (MU)				2018-19 generation details (MU)			Remarks
			Program for 2017-18	Total Anticipated Gen for Sept 17 to March 18 (MU)	Total Anticipated Gen for 2017-18 (MU)	Reason for low generation (if any)	Anticipated maximum Generation capability (MU)	Anticipated Generation (MU)	Reason for variation from Maximum Capability	

4. Units likely to be commisioned during 2018-19

Unit No.	Capacity (MW)	Expected date of commissioning	Expected Generation 2018-19 (MU)	Remarks

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

5. Loss of Generation due to Grid Constraints/ Low schedules /fuel related issues during 2017-18

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

S No.	Details of the Constraint	Loss so far (Apr'17-Aug'17)		during 2017-18	
				Anticipated Period of constraint	Anticipated loss of generation (MU)

6. PPA details

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)	

7(a)Coal Linkage for coal based plants

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

7(b)Gas availibility for gas based stations

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

8. Cost of Generation:

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

Planned maintenance Schedules including R&M activities

A) R&M of Units likely to be completed during 2017-18 & 2018-19

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	

Annexure-B6.A

Generation Target 2018-19

Region	State	SECTOR	Fuel	Name of Utiity	NAME OF THE STATION	Monitored Capacity as on 31.07.2017 MW
ER	BIHAR	CENTRAL	COAL	BRBCL	NABI NAGAR TPP	500
ER	BIHAR	CENTRAL	COAL	K.B.U.N.L	MUZAFFARPUR TPS	610
ER	BIHAR	CENTRAL	COAL	NPGCPL	NEW NABI NAGAR TPP	0
ER	BIHAR	STATE	COAL	BSEB	BARAUNI TPS	210
ER	JHARKHAND	CENTRAL	COAL	PVUNL	PATRATU TPS	455
ER	JHARKHAND	PVT	COAL	ADHUNIK	MAHADEV PRASAD STPP	540
ER	ORISSA	PVT	COAL	IBPIL	UTKAL TPP(IND BARATH)	350
ER	ORISSA	PVT	COAL	ICCL	ICCL (IMFA) IMP	0
ER	ORISSA	PVT	COAL	JITPL	DERANG TPP	1200
ER	ORISSA	PVT	COAL	NALCO	NALCO IMP	0
ER	ORISSA	PVT	COAL	SEL	STERLITE TPP	600
ER	WEST BENGAL	PVT	COAL	IEL	INDIA POWER TPP (HALDIA)	150
ER	ANDAMAN NICOBAR	STATE	DIESEL	A&N ADM	AND. NICOBAR DG	40.05
ER	WEST BENGAL	STATE	HIGH SPEED DIESEL	WBPDC	KASBA GT (Liq.)	40

Annexure-B9

Bihar

Priority	Feeders/ICTs	Point of Disconnection
1	400/220 kV 315 MVA ICT at Biharsariff	400 kV Biharsariff PG
2	132 kV Arrah (PG)- Arrah (BSPHCL)	132 kV Arrah PG
3	132 kV Purnea(PG)-Purnea(BSPHCL)	132 kV Purnea PG

Jharkhand

Priority	Feeders/ICTs	Point of Disconnection
1	One 400/220 kV 315 MVA ICT Jamsedpur	400 kV Jamsedpur
2	220 kV Ranchi(PG)-Chandil(JUVNL)	220 kV Ranchi-PG

DVC

Priority	Feeders/ICTs	Point of Disconnection
1	220 kV Maithon (PG)-Kalyaneswari	220 kV Maithon-PG
2	220 kV Parulia (PG)-Parulia (DVC)	220 kV Parulia PG
3	220 kV Maithon (PG)-Dhanbad (DVC)	220 kV Maithon-PG

Odisha

Priority	Feeders/ICTs	Point of Disconnection
1	220 kV Rengali(PG)-Rengali(OPTCL)	220 kV Rengali-PG
2	220/132 kV Baripada 160 MVA ICT	220 kV Baripada-PG
3	220 kV Baripada(PG)-Balsore (Odisha)	220 kV Baripada-PG

West Bengal

Priority	Feeders/ICTs	Point of Disconnection
1	220 kV Dalkohla (PG)-Dalkohla(WB)	220 kV Dalkohla-PG
2	132 kV Malda (PG)-Malda(WB)	132 kV Malda-PG
3	220 kV Subhasgram(PG)-Subhashgram(WB)	220 kV Subhasgram PG

Annexure-19

List of the ICT/ATR/TRF belong to ISGS & ISTS transmission licensees

Name of S/S	Voltage level	Capacity (MVA)	No of ICT	Tap provided in which side	No of Taps	Voltage (kV) change per Tap	Present Tap position	Nominal Tap position	Make
Angul	765/400	1500	4	HV	23	4	12	12	NA
Gaya	765/400	1500	3	HV	23	4	12	12	NA
Jharsuguda	765/400	1500	2	HV	23	4	12	12	NA
New Ranchi	765/400	1500	2	HV	23	4	12	12	NA
New Sasaram	765/400	1500	2	HV	23	4	12	12	NA
Alipurduar	400/220	315	2	NA	NA	NA	NA	NA	NA
Baripada	400/220	315	2	HV	17	5	11	9	NA
Baripada	400/220	500	1	NA	NA	NA	NA	NA	NA
Biharshariff	400/220	315	3	HV	17	5	12	9	NA
Binaguri	400/220	315	2	HV	17	5	10	9	NA
Bolangir	400/220	315	2	HV	17	5	9B	9	NA
Chaibasa	400/220	315	2	HV	17	5	9B	9B	NA
Darbhanga	400/220	500	2	NA	NA	NA	NA	NA	NA
FSTPP	400/220	315	1	HV	17	5	11	9B	NA
Gaya	400/220	315	1	HV	17	5	12	9	NA
Gaya	400/220	500	1	HV	17	5	12	9	NA
Indravati	400/220	315	1	HV	17	5	9B	9	NA
Jamshedpur	400/220	315	3	HV	17	5	15	9	NA
Jeypore	400/220	315	2	HV	17	5	14	9	NA
Keonjhar	400/220	315	2	HV	17	5	9B	9B	NA
Kishangunj	400/220	500	2	HV	17	5	9B	9B	NA
Maithon	400/220	315	1	HV	17	5	9B	9B	NA
Maithon	400/220	500	1	HV	17	5	9B	9B	NA
Malda	400/220	315	2	HV	17	5	10	9	NA
Muzzaffarpur	400/220	315	2	HV	17	5	12	9B	NA
Muzzaffarpur	400/220	500	1	HV	17	5	12	9B	NA
New Purnea	400/220	500	2	HV	17	5	11	9	NA
Pandiabili	400/220	500	2	HV	17	5	9B	9B	NA
Parulia	400/220	315	2	HV	17	5	11	9	NA
Patna	400/220	315	1	HV	17	5	9B	9B	NA
Patna	400/220	500	1	HV	17	5	9B	9B	NA
Ranchi	400/220	315	2	HV	17	5	9B	9	NA
Rangpo	400/220	315	5	HV	17	5	9	9	NA
Rengali	400/220	315	2	HV	17	5	9	9	NA
Rourkela	400/220	315	2	HV	17	5	10	9	NA
Sasaram	400/220	315	1	HV	17	5	14	9	NA
Sasaram	400/220	500	1	HV	17	5	14	9	NA
Subhasgram	400/220	315	4	HV	17	5	9	9	NA
Subhasgram	400/220	500	1	HV	17	5	9	9	NA
TSTPP	400/220	315	2	HV	17	5	13	9	NA
Banka	400/132	200	2	HV	17	5	7	9	NA
Barh	400/132	200	2	NA	NA	NA	NA	NA	NA
KhSTPP	400/132	200	2	HV	17	5	10	9	NA
Lakhisarai	400/132	200	2	HV	17	5	9	9	NA
Nabinagar	400/132	200	2	NA	NA	NA	NA	NA	NA
Arrah	220/132	100	2	LV	17	1.65	9	13	NA
Arrah	220/132	160	1	LV	17	1.65	9	13	NA
Baripada	220/132	160	2	NA	NA	NA	NA	NA	NA
Birpara	220/132	160	2	LV	17	1.65	12	13	NA
Bolangir	220/132	160	1	NA	NA	NA	NA	NA	NA
Dikchu	400/132	270	1	NA	NA	NA	NA	NA	NA
Malda	220/132	160	2	LV	17	1.65	10	13	NA
Malda	220/132	50	1	LV	17	1.65	10	13	NA
Muzzaffarpur	220/132	100	1	NA	NA	NA	NA	NA	NA
NJP	220/132	100	2	LV	17	1.65	9	13	NA
NJP	220/132	160	1	LV	13	1.65	7	13	NA
Purnea	220/132	160	3	LV	17	1.65	9	13	NA
Rangpo	220/132	100	3	LV	17	1.65	NA	13	NA
Gangtok	132/66	50	2	HV	17	1.65	9B	9	NA

* NA means data not available

List of the ICT/ATR/TRF belong to BSPHCL

Name of S/S	Voltage level	Capacity (MVA)	No of ICT	Tap provided in which side	No of Taps	Voltage (kV) change per Tap	Present Tap position	Nominal Tap position	Make
Begusarai	220/132	100	2	HV	17	1.75	4	9	NA
Biharshariff	220/132	150	3	HV	17	2.75	4	5	NA
Bodhgaya	220/132	150	4	HV	25	1.85	9 (216.5 kV)	7	NA
Darbhanga	220/132	100	2	HV	13	2.75	10	9	NA
Dehri	220/132	100	4	HV	17	2.75	5	5	NA
Fatuah	220/132	100	4	HV	17	2.75	7	9	NA
Gopalgunj	220/132	100	2	HV	13	2.75	7	9	NA
Hazipur	220/132	100	3	HV	17	2.75	NA	9	NA
Khagul	220/132	100	3	HV	17	2.75	7	9	NA
Madhepura	220/132	100	2	NA	NA	NA	NA	NA	NA
Madhepura	220/132	160	1	NA	NA	NA	NA	NA	NA
MTPS	220/132	100	2	LV	17	1.65	1	9	NA
MUSHAHRI	220/132	160	2	HV	17	1.65	9	9	NA
Muzzaffarpur	220/132	100	3	HV	17	2.75	NA	9	NA
New Kishangunj	220/132	160	2	HV	17	2.75	NA	9	NA
Pusouli	220/132	150	2	HV	17	1.75	9	9	NA
Samastipur	220/132	160	2	LV	17	1.65	1	9	NA
Sipara	220/132	150	2	HV	17	1.65	9	9	NA
Sipara	220/132	160	1	HV	17	1.65	9	9	NA
Sonenagar	220/132	160	2	HV	17	2.75	NA	9	NA

* NA means data not available

List of the ICT/ATR/TRF belong to JUVNL

Name of S/S	Voltage level	Capacity (MVA)	No of ICT	Tap provided in which side	No of Taps	Voltage (kV) change per Tap	Present Tap position	Nominal Tap position	Make
Chaibasa	220/132	50	2	HV	17	2.75	5	9	
Chaibasa	220/132	150	2	HV	13	2.75	9	9	
Chandil	220/132	100	4	HV	17	2.75	9	5	
Dumka	220/132	150	2	HV	17	2.75	7	9	
Hatia	220/132	150	3	HV	17	2.75	5	9	
Lalmatia	220/132	100	2	HV	17	2.75	5	9	
Patratu	220/132	150	2	HV	17	2.75	12	9	
Ramchandrapur	220/132	150	2	HV	19	2.75	10	9	
Ramchandrapur	220/132	150	1	HV	17	2.75	5	9	

* NA means data not available

List of the ICT/ATR/TRF belong to DVC

Name of S/S	Voltage level	Capacity (MVA)	No of ICT	Tap provided in which side	No of Taps	Voltage (kV) change per Tap	Present Tap position	Nominal Tap position	Make
Bokaro A	400/220	315	2	NA	NA	NA	NA	NA	NA
Koderma	400/220	315	2	HV	17	5	9B	9B	NA
RTPS	400/220	315	2	NA	NA	NA	NA	NA	NA
TISCO	400/220	315	2	HV	17	5	9B	9B	NA
Bokaro B	220/132	150	2	HV	17	2.75	NA	9	NA
Borojora	220/132	150	2	HV	17	2.75	7	9	NA
CTPS	220/132	150	2	HV	17	2.75	NA	9	NA
CTPS	220/132	100	2	LV	17	1.65	NA	9	NA
Giridih	220/132	150	1	HV	17	2.75	9B	9B	NA
Giridih	220/132	160	1	HV	17	2.75	9B	9B	NA
Jamshedpur	220/132	150	1	HV	17	2.75	3	9	NA
Jamshedpur	220/132	160	1	HV	17	2.75	3	9	NA
Kalyaneswari	220/132	150	3	HV	17	2.75	11	9	NA
Ramgarh	220/132	150	2	HV	17	2.75	10	9	NA
Waria	220/132	150	2	HV	17	2.75	NA	9	NA
Borojora	220/33	50	2	NA	NA	NA	NA	NA	NA
Burnpur	220/33	50	2	NA	NA	NA	NA	NA	NA
Durgapur	220/33	80	1	NA	NA	NA	NA	NA	NA
Giridih	220/33	80	1	NA	NA	NA	NA	NA	NA
Muchipara	220/33	80	1	NA	NA	NA	NA	NA	NA
Muchipara	220/33	50	2	NA	NA	NA	NA	NA	NA

* NA means data not available

List of the ICT/ATR/TRF belong to GRIDCO

Name of S/S	Voltage level	Capacity (MVA)	No of ICT	Tap provided in which side	No of Taps	Voltage (kV) change per Tap	Present Tap position	Nominal Tap position	Make
Indravati	400/220	315	1	HV	17	5	9B	9B	NA
Mendasal	400/220	315	2	HV	17	5	9	9	NA
Meramundali	400/220	315	2	HV	17	5	10	9	NA
New Duburi	400/220	315	2	HV	17	5	9	9	NA
STERLITE	400/220	315	2	HV	17	5	11	9	NA
Atri	220/132	160	1	NA	NA	NA	NA	NA	NA
Balasore	220/132	160	2	LV	17	1.65	NA	9	NA
Bhanjanagar	220/132	160	2	LV	17	1.65	NA	9	NA
Bidansi	220/132	160	1	LV	17	1.65	NA	9	NA
Bidansi	220/132	100	2	LV	17	1.65	NA	9	NA
Budipadar	220/132	160	2	LV	17	1.65	NA	9	NA
Chandaka	220/132	100	3	LV	17	1.65	NA	9	NA
Duburi	220/132	100	3	LV	17	1.65	NA	9	NA
Jaynagar	220/132	100	2	HV	17	2.75	NA	9	NA
Joda	220/132	100	3	LV	33	-0.83	11	17	NA
Katapalli	220/132	160	1	LV	17	1.65	NA	9	NA
Katapalli	220/132	100	2	LV	17	1.65	NA	9	NA
Mendasal	220/132	160	2	NA	NA	NA	NA	NA	NA
Meramundali	220/132	100	3	LV	17	1.65	NA	9	NA
Narendrapur	220/132	160	2	NA	NA	NA	NA	NA	NA
Narendrapur	220/132	100	1	LV	17	1.65	NA	13	NA
Paradeep	220/132	160	1	NA	NA	NA	NA	NA	NA
Paradeep	220/132	100	1	NA	NA	NA	NA	NA	NA
Puri	220/132	160	2	NA	NA	NA	NA	NA	NA
New Bolangir	220/132	160	2	LV	17	1.65	NA	9	NA
Samungara	220/132	NA	NA	HV	17	2.75	NA	9	NA
Tarkera	220/132	100	4	LV	17	1.65	NA	9	NA
Theruvali	220/132	100	2	LV	17	1.65	NA	9	NA
TTPS	220/132	160	2	LV	17	1.65	NA	9	NA
TTPS	220/132	150	1	LV	33	-0.83	NA	17	NA

* NA means data not available

List of the ICT/ATR/TRF belong to WBPDCL/WBSETCL/WBSEDCL

Name of S/S	Voltage level	Capacity (MVA)	No of ICT	Tap provided in which side	No of Taps	Voltage (kV) change per Tap	Present Tap position	Nominal Tap position	Make
Arambag	400/220	315	4	HV	17	5	13	9	NA
Bakreswar	400/220	315	2	HV	17	5	11	9	NA
Bidhannagar	400/220	315	2	HV	17	5	9B	9	NA
Gokarna	400/220	315	2	NA	NA	NA	NA	NA	NA
Jeerat	400/220	315	4	LV	17	2.88	11	NA	NA
Kharagpur	400/220	315	3	HV	17	5	7	9	NA
KTPP	400/220	315	2	HV	17	5	12	9	NA
Sagardighi	400/220	315	1	HV	17	5	NA	9	NA
Arambag	220/132	160	1	LV	17	1.65	NA	9	NA
Arambag	220/132	100	1	LV	17	1.65	NA	9	NA
Asansol	220/132	160	2	LV	17	1.65	NA	9	NA
BBGS	220/132	NA	2	HV	16	5.55	10	9	NA
Bantala	220/132	160	1	NA	NA	NA	NA	NA	NA
Bidhannagar	220/132	160	2	LV	17	1.65	NA	9	NA
Dalkhola	220/132	160	2	LV	17	1.65	NA	9	NA
Dharma	220/132	160	2	LV	17	1.65	NA	9	NA
Domjur	220/132	160	2	LV	17	1.65	NA	9	NA
DPL (AREVA)	220/132	160	1	LV	17	1.65	9	9	NA
DPL (BHEL)	220/132	100	1	LV	17	1.65	9	9	NA
DPL (China)	220/132	160	1	HV	19	2.75	10	10	NA
EMSS	220/132	160	3	NA	NA	NA	NA	NA	NA
Egra	220/132	160	2	NA	NA	NA	NA	NA	NA
Foundry Park	220/132	160	2	NA	NA	NA	NA	NA	NA
Gokarna	220/132	160	2	LV	17	1.65	NA	9	NA
Howrah	220/132	150	3	LV	17	1.65	NA	9	NA
Howrah	220/132	160	1	NA	NA	NA	NA	NA	NA
Jeerat	220/132	160	3	LV	17	1.65	NA	9	NA
Kasba	220/132	160	2	LV	17	1.65	NA	9	NA
Kasba	220/132	150	2	NA	NA	NA	NA	NA	NA
Kharagpur	220/132	160	2	NA	NA	NA	NA	NA	NA
Krishnanagar	220/132	160	2	LV	17	1.65	NA	9	NA
KTPP	220/132	160	1	LV	17	1.65	NA	9	NA
KTPP	220/132	150	2	LV	17	1.65	NA	9	NA
Laxmikantapur	220/132	160	3	LV	17	1.65	NA	9	NA
New Bishnupur	220/132	160	3	NA	NA	NA	NA	NA	NA
New Haldia	220/132	160	2	NA	NA	NA	NA	NA	NA
N Jalpaiguri	220/132	160	2	LV	17	1.65	NA	9	NA
Rajarhat	220/132	160	2	NA	NA	NA	NA	NA	NA
Rishra	220/132	160	2	LV	17	1.65	NA	9	NA
Santaldih	220/132	100	1	LV	17	1.65	NA	9	NA
Santaldih	220/132	130	1	NA	NA	NA	NA	NA	NA
Satgachia	220/132	160	2	LV	17	1.65	NA	9	NA
Subhasgram	220/132	160	2	NA	NA	NA	NA	NA	NA
Vidyasagar Park	220/132	160	2	NA	NA	NA	NA	NA	NA

* NA means data not available

List of the GT situated in the Eastern Region

Name of Generating Unit	Voltage level	Capacity (MVA)	No of GT	Tap provided in which side	No of Taps	Voltage (kV) change per Tap	Present Tap position	Nominal Tap position	Owner	Make
APNRL I	400/16.5	330	1	HV	19	4.83	8(420 KV)	NA	APNRL	NA
APNRL II	400/16.5	340	1	HV	5	10.5	3 (420 KV)	NA	APNRL	NA
CHPC - I	220/11	105.882353	1	HV	5	4.5	NA	4 (220 KV)	Bhutan	NA
Nabinagar (250 MW)	NA	NA	1	NA	NA	NA	NA	NA	BRBCL	NA
Nabinagar (250 MW)	NA	NA	1	NA	NA	NA	NA	NA	BRBCL	NA
BTPS VI & VII	139/11	147.058824	2	HV	5	3.475	2 (142.5 KV)	3 (139 KV)	BSPHCL	NA
MTPS - I & II	230/11	164.705882	2	HV	6	5.75	NA	4 (230 KV)	BSPHCL	NA
MTPS -III (195 MW)	NA	NA	1	NA	NA	NA	NA	NA	BSPHCL	NA
BBGS I & II	132/16.5	294.117647	2	LV	9	0.4125	6 (16.09 KV)	5 (16.50 KV)	CESC	NA
BBGS III	235/16.5	294.117647	1	HV	9	5.875	5 (235 KV)	5 (235 KV)	CESC	NA
Jorethang (48 MW)	NA	NA	2	NA	NA	NA	NA	NA	DEPL	NA
Bokaro A (500 MW)	NA	NA	1	NA	NA	NA	NA	NA	DVC	NA
Bokaro B (210 MW)	NA	NA	3	NA	NA	NA	NA	NA	DVC	NA
CTPS (140 MW)	132/13.8	164.705882	2	HV	5	3.3	NA	3 (132 KV)	DVC	NA
CTPS B (210 MW)	NA	NA	2	NA	NA	NA	NA	NA	DVC	NA
DSTPS I & II	400/21	588.235294	2	HV	9	10.5	5 (420 KV)	7 (399 KV)	DVC	NA
Koderma I & II	400/21	588.235294	2	HV	9	10.5	5 (420 KV)	7 (399 KV)	DVC	NA
Mejia I - IV	220/15.75	247.058824	4	HV	5	5.5	NA	3 (220 KV)	DVC	NA
Mejia V & VI	220/16.5	294.117647	2	HV	5	6	NA	NA	DVC	NA
Mejia VII & VIII	400/21	588.235294	2	HV	9	10.5	4 (430.5)	7 (399 KV)	DVC	NA
RTPS (600 MW)	NA	NA	2	NA	NA	NA	NA	NA	DVC	NA
Waria IV	220/16	294.117647	1	HV	5	5.5	NA	3 (220 KV)	DVC	NA
Chujachen (110 MW)	NA	NA	2	NA	NA	NA	NA	NA	GIPL	NA
GMR (350 MW)	NA	NA	3	NA	NA	NA	NA	NA	GKEL	NA
Haldia (300 MW)	NA	NA	2	NA	NA	NA	NA	NA	HEL	NA
Ind Bharat (350 MW)	NA	NA	1	NA	NA	NA	NA	NA	IBEUL	NA
Ind Bharat (350 MW)	NA	NA	1	NA	NA	NA	NA	NA	IBEUL	NA
IBTPS I & II	220/15.75	294.117647	2	HV	5	5.5	NA	3 (220 KV)	IBTPS	NA
JITPL (600 MW)	NA	NA	2	NA	NA	NA	NA	NA	JITPL	NA
SUBARNAREKHA	132/11	94.1176471	2	HV	5	3.3	2 (138.6 KV)	4 (132 KV)	JUVNL	NA
Maithon RB (525 MW)	NA	NA	2	NA	NA	NA	NA	NA	MPL	NA
NALCO I - VIII	220/10.5	141.176471	8	HV	5	5.875	NA	NA	NALCO	NA
Teesta V (170 MW)	400/13.8	70	9	HV	5	10	3 (400 kV)	3 (400 kV)	NHPC	ALSTOM
Barh IV & V (660 MW)	NA	NA	2	NA	NA	NA	NA	NA	NTPC	NA
FSTPP -I	400/15.75	247.058824	1	HV	5	10.5	3 (420 KV)	5 (399 KV)	NTPC	NA
FSTPP -II & III	400/15.75	247.058824	2	HV	13	5.25	6 (414.8 KV)	9(399 KV)	NTPC	NA
FSTPP -IV, V & VI	400/21	588.235294	3	HV	13	5.25	7 (409.5 KV)	9(399 KV)	NTPC	NA
KhSTPP I, II, III & IV (210 MW)	NA	NA	4	NA	NA	NA	NA	NA	NTPC	NA
KhSTPP V, VI & VII (500 MW)	NA	NA	3	NA	NA	NA	NA	NA	NTPC	NA
TSTPP I & II	400/21	588	2	HV	13	5.25	8 (404.3 KV)	9(399 KV)	NTPC	NA
Balimela I - VI	132/11	70.5882353	6	HV	5	3.615	NA	NA	OHPC	NA
Balimela VII - VIII	132/11	88.2352941	2	HV	7	3.615	NA	NA	OHPC	NA
Rengali I - V	220/11	58.8235294	5	HV	5	5	NA	NA	OHPC	NA
U Indravati (150 MW)	NA	NA	4	NA	NA	NA	NA	NA	OHPC	NA
U Kolab I - IV	220/11	94.1176471	4	HV	6	6.25	NA	NA	OHPC	NA
TTPS I - IV	132/13.8	70.5882353	4	HV	6	3.2	NA	NA	OPGC	NA
TTPS V - VI	132/11	129.411765	2	HV	9	6	NA	NA	OPGC	NA
SEL	242.4/22	750	4	HV	5	5.45	3 (242.45)	3 (242.45)	SEL	NA
Dikchu (48 MW)	NA	NA	2	NA	NA	NA	NA	NA	SKPPPL	NA
Teesta III (200 MW)	NA	NA	6	NA	NA	NA	NA	NA	TUL	NA
TENUGHAT	220/15.75	294.117647	2	HV	9	5.5	1 (231 KV)	3 (220 KV)	TVNL	NA
BKTPS	420/15.75	247.058824	5	HV	5	10.5	3 (420 KV)	NA	WBPDCL	NA
BTPS I, II & IV	132/13.2	117.647059	3	HV	7	3.3	2 (135.3 KV)	3 (132 KV)	WBPDCL	NA
BTPS V	138/15.75	276.470588	1	HV	3	3.45	3 (134.55)	2 (138 KV)	WBPDCL	NA
DPL III & V	132/10.5	100	2	HV	18	1.88	8 (135.76)	10 (132 KV)	WBPDCL	NA
DPL VI	235/11	125	1	HV	5	5.87	3(235 KV)	3(235 KV)	WBPDCL	NA
DPL VII	220/20	370	1	HV	5	5.87	3(235 KV)	NA	WBPDCL	NA
DPL VIII	220/16.5	315	1	HV	5	5.87	3(235 KV)	NA	WBPDCL	NA
KTPS I, II, III	220/15.75	247.058824	3	HV	5	5.75	3 (230 KV)	NA	WBPDCL	NA
KTPS IV, VI	420/15.75	247.058824	2	HV	5	10.5	4 (409.5 KV)	3 (420 KV)	WBPDCL	NA
KTPS V	420/15.75	247.058824	1	HV	5	10.5	5 (399 KV)	3 (420 KV)	WBPDCL	NA
Sagardighi I & II	400/20	352.941176	2	HV	5	10	NA	3 (400 KV)	WBPDCL	NA
STPS	220/13.8	164.705882	4	HV	5	5.5	NA	3 (220 KV)	WBPDCL	NA
STPS V & VI	220/16.5	294.117647	2	HV	5	5.875	4 (229.13)	NA	WBPDCL	NA

* NA means data not available

Checklist for Submission of new transmission elements for updation in Protection Database

NAME OF ORGANISATION:
FOR THE MONTH OF:

SUBSTATION DETAIL:

Sl No	DETAILS OF ELEMENTS	DATA TYPE	Status of Submission (Y/N)	Remarks
1	TRANSMISSION LINE	LINE LENGTH, CONDUCTOR TYPE, VOLTAGE GRADE		
2	POWER TRANSFORMER	NAMEPLATE DETAILS		
3	GENERATOR	TECHNICAL PARAMETERS		
4	CURRENT TRANSFORMER	NAMEPLATE DETAILS		
5	VOLTAGE TRANSFORMER	NAMEPLATE DETAILS		
6	RELAY DATA	MAKE, MODEL and FEEDER NAME		
7	RELAY SETTINGS	NUMERICAL RELAYS: CSV or XML file extracted from Relay ELECTROMECHANICAL RELAYS: SNAPSHOT of RELAY		
8	REACTOR	NAMEPLATE DETAILS		
9	CAPACITOR	NAMEPLATE DETAILS		
9	UPDATED SLD			

SIGNATURE:
NAME OF REPRESENTATIVE:
DESIGNATION:
CONTACT:
E-MAIL ID:

PMU Installation and commissioning status of ER as on 20.04.2017

Annexure- B.26

S.No	Region	State	Sub-Station	Owner/ Utility	S/S type	PMU	TOTAL PANEL QTY	PMU Delivery status	Cable Delivery status	Erection	Cable laying	CT/PT/DI termination	Commissioning	Integration	SAT	Remarks
			78			286	175	73	61	51	45	40	40	24	37	
1	ER-II	West Bengal	Arambagh	WBSETCL	CR	3	1	Yes	Yes	done	done	pending	pending	Pending	pending	CT/ PT/ DI interfacing pending due to permission issue.
2	ER-II	West Bengal	BAKRESHWAR TPS	WBSETCL	CR	4	1	Yes	Yes	done	pending	pending	pending	Pending	pending	Panel erected. Cable laying pending due to permission issue.
3	ER-II	West Bengal	Bidhannagar	WBSETCL	CR	3	1	Yes	Yes	done	done	pending	pending	Pending	pending	Panel erected. Cable laying and termination at PMU panel completed. CT/ PT/ DI interfacing pending due to permission issue.
4	ER-II	West Bengal	JEERAT	WBSETCL	CR	2	1	Yes	Yes	done	done	done	done	done	pending	SAT pending as customer didn't agree to witness SAT.
5	ER-II	West Bengal	Kolaghat TPS	WBSETCL	CR	4	1	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	
6	ER-II	West Bengal	KASBA	WBSETCL	CR	3	1	Yes	Yes	done	done	done	done	done	pending	SAT pending as customer didn't agree to witness SAT.
7	ER-II	DVC	DSTPS	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
8	ER-II	DVC	Kodarma TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	Pending	done	Communication panel does not exist.
9	ER-II	DVC	MEJIA-B	DVC	CR	2	1	Yes	Yes	done	done	done	done	done	done	Integrated on 07.12.2016
10	ER-II	DVC	Maithon RB TPS	DVC	CR	2	1	Yes	Yes	pending	pending	pending	pending	Pending	pending	Work started on 04.07.2016. Panel shifted. Team demobilised due to access issue and panel location issue.
11	ER-II	DVC	Raghunathpur TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	Pending	done	Communication link was not available during work.
12	ER-II	DVC	MEJIA	DVC	CR	5	2	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs. Will be integrated on Mar 2017.
13	ER-II	DVC	Bokaro	DVC	CR	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.06.2016
14	ER-II	DVC	CTPS(Chanderpura)	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs. Will be integrated on Mar 2017.
15	Odisha	Orissa	Budhipadar	OPTCL	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
16	Odisha	Orissa	MENDHASAL	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	OPTCL is not providing CT/ PT connection for Meeramundali-2 feeder.
17	Odisha	Orissa	MERAMANDALI	OPTCL	CR	6	2	Yes	Yes	done	under progress	pending	pending	Pending	pending	
18	Odisha	Orissa	RENGALI	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Integration delayed because CAT-6 cable is faulty.
19	Odisha	Orissa	U.KOLAB	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	
20	Odisha	Orissa	BALIMELA(H)	OPTCL	CR	3	1	Yes	Yes	done	done	partially done	pending	Pending	done	OPTCL denied to provide DC connection. CT/PT/DI interfacing pending due to permission issue.
21	ER-II	West Bengal	Durgapur	Powergrid	CR	5	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 30.05.2016.
22	ER-II	West Bengal	FARRAKA	NTPC	CR	5	2	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	
23	Odisha	Orissa	Indrawati	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
24	Odisha	Orissa	Indrawati HPS	OPTCL	CR	1	1	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	OPTCL denied to provide DC connection.
25	Odisha	Orissa	JEYPORE	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
26	ER-II	West Bengal	MAITHON	Powergrid	CR	7	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 21.06.2016.
27	ER-II	West Bengal	MALDA	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.06.2016
28	Odisha	Orissa	Rengali	Powergrid	Kiosk	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 04.05.2016
29	Odisha	Orissa	ROURKELA	Powergrid	Kiosk	5	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 21.04.2016
30	ER-II	West Bengal	Binaguri	Powergrid	CR	7	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 28.07.2016
31	ER-II	West Bengal	SUBHASHGRAM	Powergrid	Kiosk	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 22.06.2016
32	Odisha	Orissa	Baripada	Powergrid	CR	3	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 30.01.2017.
33	Odisha	Orissa	Bolangir	Powergrid	CR+Kiosk	2	3	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
34	Odisha	Orissa	ANGUL	Powergrid	Kiosk	10	11	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.03.2017.

PMU Installation and commissioning status of ER as on 20.04.2017

S.No	Region	State	Sub-Station	Owner/ Utility	S/S type	PMU	TOTAL PANEL QTY	PMU Delivery status	Cable Delivery status	Erection	Cable laying	CT/PT/DI termination	Commissioning	Integration	SAT	Remarks
35	Odisha	Orissa	Keonjhar	Powergrid	CR	2	3	Yes	Yes	done	done	done	done	done	done	PMU integrated on 18.01.2017.
36	Odisha	Orissa	Jharsuguda	Powergrid	Kiosk	8	9	Yes	Yes	done	done	done	done	done	done	PMU integrated on 29.07.2016
37	Odisha	Orissa	GMR	GMR	Kiosk	3	4	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	
38	ER-II	Sikkim	RANGPO	Powergrid	CR	4	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs. Will be integrated on Mar 2017.
39	ER-II	West Bengal	Baharampur	Powergrid	CR	2	3	Yes	Yes	done	done	done	done	done	done	PMU integrated on 10.05.2016
40	ER-II	West Bengal	Birpara	Powergrid	CR	4	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 15.07.2016.
41	ER-II	DVC	CTPS B	DVC	CR	3	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
42	ER-II	DVC	KALYANESWARI	DVC	CR	4	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 02.01.2017.
43	ER-II	DVC	PARULIA	DVC	CR	5	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 21.02.2017.
44	ER-II	West Bengal	Purulia PSP	WBSETCL	CR	2	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
45	ER-II	Jharkhand	Bokaro TPS	DVC	CR	1	1	Yes	Yes	done	pending	pending	pending	Pending	pending	
46	ER-II	West Bengal	Durgapur TPS	DVC	CR	3	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
47	Odisha	Orissa	TTPS(Talcher)	OPTCL	CR	3	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
48	Odisha	Orissa	TALCHER	NTPC	CR	5	2	No	No	N/A	N/A	N/A	N/A	N/A	N/A	NTPC is not allowing to deliver mterial.
49	ER-II	Sikkim	TEESTA	Powergrid	CR	1	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
50	Odisha	Orissa	Uttara	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	Pending	pending	Communication link from s/s to ERLDC and NTAMC to be provided by PGCIL.
51	Odisha	Orissa	Jindal	JITPL	CR	2	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
52	Odisha	Orissa	Monnet	Monnet	CR	1	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
53	Odisha	Orissa	Strelite	Strelite	CR	3	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
54	Odisha	Orissa	Ind barath	Ind barath	Kiosk	1	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
55	ER-II	Sikkim	New Melli	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
56	ER-II	Sikkim	TT Pool	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
57	ER-II	West Bengal	Alipurduar	Powergrid	CR	6	7	Yes	Yes	partially done	partially done	pending	pending	Pending	pending	Work started on 22.12.2016. 4 PMU panels and network panel installed. Rest 2 PMU panels could not be erected because location not finalised. Cable laying and termination at PMU panel completed for 6 feeders. CT/PT interfacing pending due to unavailability of shutdown. PGCIL is asking to take DI points from field, which is not in scope. Work is held up. Team demobilised.
58	ER-II	West Bengal	Rajarhat	Powergrid	CR	2	1	Yes	Yes	done	pending	pending	pending	Pending	pending	Work withheld due to localite agitation issue.
59	ER-I	Jharkhand	JAMSHEDPUR	Powergrid	CR	6	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 14.02.2017
60	ER-I	BIHAR	Kahalgaon(KHSTPP)	NTPC	CR	6	2	Yes	Yes	done	done	pending	pending	Pending	pending	Work withheld due to gate pass issue.
61	ER-I	BIHAR	Purnea	Powergrid	CR	6	2	Yes	Yes	done	done	pending	pending	done	pending	PMU integrated on 13.04.2017
62	ER-I	BIHAR	PATNA	Powergrid	Kiosk	6	7	Yes	Yes	done	done	done	done	done	done	PMU integrated on 11.04.2017
63	ER-I	Jharkhand	RANCHI	Powergrid	Kiosk	12	13	Yes	Yes	done	under progress	pending	pending	Pending	pending	
64	ER-I	BIHAR	SASARAM(Pusauli)	Powergrid	CR+Kiosk	9	3	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	
65	ER-I	BIHAR	BARH	NTPC	CR	4	1	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	
66	ER-I	BIHAR	LakhiSarai	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	Pending	done	SAT completed. PMU not integrated because FO cable was not delivered due to road permit issue.
67	ER-I	BIHAR	BANKA	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	Pending	pending	SAT pending. PMU not integrated because switch was not delivered to site. Switch in transit.

PMU Installation and commissioning status of ER as on 20.04.2017

S.No	Region	State	Sub-Station	Owner/ Utility	S/S type	PMU	TOTAL PANEL QTY	PMU Delivery status	Cable Delivery status	Erection	Cable laying	CT/PT/DI termination	Commissioning	Integration	SAT	Remarks
68	ER-I	Jharkhand	Chaibasa	Powergrid	Kiosk	4	5	Yes	Yes	done	under progress	pending	pending	Pending	pending	
69	ER-I	BIHAR	765kv Gaya	Powergrid	Kiosk	11	12	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.02.2017
70	ER-I	Jharkhand	765/400kV Ranchi (N)	Powergrid	Kiosk	8	9	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.02.2017
71	ER-I	Bihar	Biharshariff	Powergrid	CR	9	3	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	
72	ER-I	Bihar	MUZAFFAPUR	Powergrid	CR	5	2	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
73	ER-I	Jharkhand	Daltonganj	Powergrid	Kiosk	2	3	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Road permit for Switch is pending.
74	ER-I	Bihar	Kishanganj (karandegh	Powergrid	CR	4	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mts.
75	ER-I	Jharkhand	Jharkhand Pool (Chan	Powergrid	Kiosk	4	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mts.
76	ER-I	Jharkhand	Patratu	Jharkhand	CR	3	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
77	ER-I	Jharkhand	Tenughat	Jharkhand	CR	2	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
78	ER-I	Bihar	Barauni PP	Bihar	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.

ER PMU site activity Summary:

Sl. No.	Region	Utility	As per approved BOQ		Supplied		Installed		Commissioned		Integrated to ERLDC/ SLD	
			No. of Substations	No. of PMU	S/S	PMU	S/S	PMU	S/S	PMU	S/S	PMU
1	ER-I	Powergrid	15	94	15	94	11	69	8	47	5	37
2	ER-I	NTPC	2	10	2	10	1	6	0	0	0	0
3	ER-I	Jharkhand	2	5	2	5	0	0	0	0	0	0
4	ER-I	Bihar	1	0	0	0	0	0	0	0	0	0
	ER-I	**Total**	**20**	**109**	**19**	**109**	**12**	**75**	**8**	**47**	**5**	**37**
1	ER-II	Powergrid	13	42	11	42	10	39	8	33	7	29
2	ER-II	NTPC	1	5	1	5	0	0	0	0	0	0
3	ER-II	DVC	13	37	13	37	10	29	9	28	4	13
4	ER-II	WBSETCL	7	21	7	21	5	15	2	5	2	5
	ER-II	**Total**	**34**	**105**	**32**	**105**	**25**	**83**	**19**	**66**	**13**	**47**
1	Odisha	Powergrid	10	38	10	38	10	38	10	38	6	30
2	Odisha	OPTCL	8	19	6	16	5	15	3	6	0	0
3	Odisha	NTPC	1	5	1	5	0	0	0	0	0	0
4	Odisha	IPP	5	10	5	10	0	0	0	0	0	0
	Odisha	**Total**	**24**	**72**	**22**	**69**	**15**	**53**	**13**	**44**	**6**	**30**
	ER	**Total**	**78**	**286**	**73**	**283**	**52**	**211**	**40**	**157**	**24**	**114**

Status of PDS system Installation and commissioning at ER as on 20.04.2017

Sl. No.	Site Name	Work Progress
1	ERLDC	Installed, powered up, functioning and integrated with DVC, WBSETCL and OPTCL PDS system.
2	Backup-NLDC	POSOCO did not provide space for PDS system installation.
3	SLDC, Maithon	Installed, powered up, functioning and integrated with ERLDC PDS system.
4	SLDC, Bhubaneswar	Installed, powered up, functioning and integrated with ERLDC PDS system.
5	SLDC, Howrah (WBSETCL)	Installed, powered up, functioning and integrated with ERLDC PDS system.

Annexure – B.27

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	

Annexure- B.28

Eastern Regional Power Committee

The status of ERS towers in Eastern Region as updated in OCC meetings is given below:

1) ERS towers available in Powergrid S/s 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) 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 recieved.
- Another, 16 nos of 400 kV towers accompanied with 6 sets of T&P are required which is under process

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

Availability of Emergency Restoration System in BSPTCL system

Sl. No.	Type	Quantity	Remarks
1	Tension ERS Tower	12	New
2	Suspension ERS Tower	20	New
3	Old ERS Tower	10	1 no. is defective
Total		**42**	

Note:-

- As informed in ERS meeting held on 10-11-2014 taken by Member (Power System), CEA; **2 sets (12 tension & 20 suspension) of ERS towers had been procured and is currently available in our system** (as mentioned in above table with remarks "New").
- Same ERS tower is used in both 220 Kv and 132 kV circuits.

Annexure-B35

Details of stations/Units required to operate under RGMO/FGMO as per IEGC							Whether operating under RGMO	indicate in case of status is not available
Name of State	Type	Name of Uitlity	Sector (CS/SS/Private)	Name of Station	Name of Stage/ Unit	Installed capacity (MW)		
JHARKHAND	Thermal	TVNL	SS	Tenughat	1	210	No	Difficulties in implementing RGMO & exemption not
			SS		2	210	No	
	Hydro	JSEB	SS	Subarnrekha	1	65	Yes	
			SS		2	65	Yes	
WEST BENGAL	Termal	WBPDCL	SS	Bandel TPS	1	82.5	No	
			SS		2	82.5	No	
			SS		3	82.5	No	
			SS		4	82.5	No	
			SS		5	210	No	
			SS	Santaldih	5	250	No	Unit#6 could not be implemented because of some technical problem
			SS		6	250	No	
			SS	Kolaghat	1	210	No	Nil
			SS		2	210	No	Nil
			SS		3	210	No	Nil
			SS		4	210	No	Nil
			SS		5	210	No	Nil
			SS		6	210	No	Nil
			SS	Bakreshwar	1	210	Yes	
			SS		2	210	Yes	
			SS		3	210	Yes	
			SS		4	210	Yes	
			SS		5	210	Yes	
			SS	Sagardighi	1	300	No	Without OEM support it is not possible to put in FGMO/RGMO. At present OEM support is not
			SS		2	300	No	
	Hydro		SS	PPSP	1	225	Yes	In 134th OCC WBPDCL informed that the units are in RGMO/FGMO mode
			SS		2	225	Yes	
			SS		3	225	Yes	
			SS		4	225	Yes	
	Thermal	CESC	SS	Budge-Budge	1	250	Yes	
			SS		2	250	Yes	
			SS		3	250	Yes	
			SS	Haldia	1	300	Yes	
			SS		2	300	Yes	
	Thermal	DPL	SS	DPL	7	300	Yes	
Orissa		OPGC	SS	IB TPS	1	210	No	Not adequate response in RGMO
			SS		2	210	No	
	Hydro	OHPC	SS	Burla	1	49.5	No	
			SS		2	49.5	No	
			SS		3	32	No	
			SS		4	32	No	
			SS		5	37.5	No	
			SS		6	37.5	No	
			SS		7	37.5	No	
			SS	Balimela	1	60	No	
			SS		2	60	No	
			SS		3	60	No	
			SS		4	60	No	
			SS		5	60	No	
			SS		6	60	No	
			SS		7	75	No	
			SS		8	75	No	
			SS	Rengali	1	50	No	
			SS		2	50	No	
			SS		3	50	No	
			SS		4	50	No	
			SS		5	50	No	
			SS	Upper Kolab	1	80	No	
			SS		2	80	No	
			SS		3	80	No	
			SS		4	80	No	
			SS		1	150	No	

			SS	Indravati	2	150	No	
			SS		3	150	No	
			SS		4	150	No	
			64					
Central Sector	Thermal	DVC	CS	Bokaro-A	1	500	No	RGMO will be service once the unit comes in CMC mode of operation. It will be done shortly in presence of BHEL experts.
			CS	Bokaro-B	1	210	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			CS		2	210	No	
			CS		3	210	No	
			CS	CTPS	2	140	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			CS		3	140	No	
			CS		7	250	Yes	
			CS		8	250	Yes	
			CS	DTPS	4	210	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			CS	Mejia	1	210	No	Not possible due to non availability of Electro
			CS		2	210	No	
			CS		3	210	No	Action has been initiated to put in RGMO, but testing is not yet completed.
			CS		4	210	Yes	
			CS		5	250	Yes	
			CS		6	250	Yes	
			CS	Mejia - B	7	500	Yes	
			CS		8	500	Yes	
			CS	DSTPS	1	500	Yes	
			CS		2	500	Yes	
			CS	KODERMA	1	500	Yes	
			CS		2	500	Yes	
			CS	RTPS	1	600	Yes	
			CS		2	600	Yes	
	Hydro		CS	Panchet	1	40	No	RGMO mode of operation
			CS		2	40	No	would not be possible for
	Thermal	NTPC	CS	Farakka STPP-I	1	200	Yes	
			CS		2	200	Yes	
			CS		3	200	Yes	
			CS	Farakka STPP-II	1	500	Yes	
			CS		2	500	Yes	
			CS	Farakka-U#6		500	Yes	Kept in RGMO mode from April, 2014
			CS	Kahalgoan STPP	1	210	Yes	
			CS		2	210	Yes	
			CS		3	210	Yes	
			CS		4	210	Yes	
			CS		5	500	Yes	
			CS		6	500	Yes	
			CS		7	500	Yes	
			CS	Talcher STPP Stg-I	1	500	Yes	
			CS		2	500	Yes	
			CS	Barh	5	660	Yes	
			CS	Barh	6	660	Yes	
	Hydro	NHPC	CS	Teesta HEP	1	170	Yes	
			CS		2	170	Yes	
			CS		3	170	Yes	
			45					
	Thermal	IPP	PS	Maithon RB TPP	1	525	Yes	
			PS		2	525	Yes	
			PS	Sterlite	1	600	Yes	
			PS		2	600	Yes	
			PS		3	600	Yes	
			PS		4	600	Yes	
			PS	Adhunik Power	1	270	Yes	
			PS		2	270	Yes	

IPP	Hydro	IPP	PS	JLHEP	1	48	No	(RoR project with 3 hours pondage)
			PS		2	48	No	
			PS	Chujachen HEP	1	49.5	No	(RoR project with 3 hours pondage)
			PS		2	49.5	No	
			PS	Teesta Urja	1	200	No	could be put in RGMO mode but because of transmission evacuation constraint RGMO/FGMO is disabled
			PS		2	200	No	
			PS		3	200	No	
			PS		4	200	No	
			PS		5	200	No	
			PS		6	200	No	
			PS	Dikchu	1	48	No	(RoR project with 3 hours pondage)
			PS		2	48	No	

20

Annexure-B36

Generation Projection (Jan 2018 - Mar 2018)

				Generation declared Commercial from 1st Apr '17 to 30th Sep'17					Generation declared/expected to be declared Commercial from 1st Oct'17 to 31st Dec'17								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/ PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)
1	West Bengal	ER	5065											5065			5065
2	Odisha	ER	2884											2884	As per data given by GRIDCO	3144	3144
3	Bihar	ER	153											153			153
4	Jharkhand	ER	444											444			444
5	Sikkim	ER	0											0			0
6	Chujachan	ER	94											94	As per data given by Chuzachen	110	110
7	DVC	ER	3975											3975	As per data given by DVC	4087	4087
	Durgapur Steel	ER															
	Koderma TPP	ER															
	Bokaro TPS	ER															
	Raghunathpur	ER															
8	MPL	ER	1022											1022	As per last quarter	990	990
9	Teesta V	ER	541											541	As per NHPC	510	510
10	Kahalgaon	ER	2196											2196	As per NTPC	2178	2178
11	Farakka	ER	1928											1928	As per NTPC	1968	1968
12	Talcher	ER	976											976			976
13	Rangit	ER	64											64	As per NHPC	60	60
14	Adhunik Power	ER	506											506			506
15	Barh	ER	1274											1274	As per NTPC	1057	1057
16	Kamalanga TPP (GMR)	ER	678											678			678
17	JITPL	ER	839											839			839
18	Jorethang	ER	63											63			63
19	Bhutan	ER	327											327			327

Generation Projection (Jan 2018 - Mar 2018)

				Generation declared Commercial from 1st Apr '17 to 30th Sep'17					Generation declared/expected to be declared Commercial from 1st Oct'17 to 31st Dec'17								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/ PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)
20	**Teesta-III**	**ER**		Teesta-III	1	200	158	950						950			950
		ER		Teesta-III	2	200	158										
		ER		Teesta-III	3	200	158										
		ER		Teesta-III	4	200	158										
		ER		Teesta-III	5	200	158										
		ER		Teesta-III	6	200	158										
21	**Dikchu HEP**	**ER**							Dikchu	1	48	38	76	76			76
		ER							Dikchu	2	48	38					
22	**Nabinagar BRBCL**	**ER**		Nabinagar BRBCL	1	230	151	151	Nabinagar BRBCL	2	230	151	151	301			301
	TOTAL		**23028**					**1101**					**227**	**24356**			**24483**

Note:

1. Projections are based on monthly maximum injection in the last 3 years from actual metered data.
2. Generation forecast has been done based on the following criteria
(i) If there is an increasing trend then last year average generation has been considered
(ii) Otherwise average of past three year average generation has been considered
3. In case of new generators where past data was not available following has been assumed
(i) 0.80 plf for hydro generators
(ii) 0.7 plf for thermal generators.
(iii) 0.3 plf for gas stations

DEMAND FORECASTUSING PAST3 YEARS DATA (Jan 2018 - Mar 2018)

	2014-15			2015-16			2016-17			1	2	3	4		
	Jan-15	Feb-15	Mar-15	Jan-16	Feb-16	Mar-16	Jan-17	Feb-17	Mar-17	2014-15 Average	2015-16 Average	2016-17 Average	Projected Demand for (Jan 2018 - Mar 2018) before normalization	Data given by DICs	Comments
Bihar	2,602	2,830	2,874	3,484	3,278	3,419	3,535	3,543	3,715	2,769	3,394	3,598	4,082		
DVC	2,467	2,320	2,393	2,421	2,381	2,473	2,457	2,570	2,663	2,393	2,425	2,563	2,631	2960	As per data given by DVC
Jharkhand	1,018	1,016	1,007	1,117	1,102	1,153	1,121	1,165	1,148	1,014	1,124	1,145	1,225		
Odisha	3,364	3,525	3,892	3,739	3,931	4,091	3,896	3,847	3,989	3,594	3,920	3,911	4,125	4002	As per data given by GRIDCO
West Bengal	6,317	6,721	7,332	6,240	6,858	7,443	6,078	7,036	7,840	6,790	6,847	6,985	7,069		
Sikkim	83	83	77	109	109	109	91	91	91	81	109	91	104		

Notes

1. Projections are based on the past 3 years' monthly Peak Demand Met data available on the website of CEA
2. The above projections are being done for financial year 2017-2018 (Q4) i.e January 2018 to March 2018
3. Projections are being done based on the forecast function available in MS Office Excel
4. CEA Reports can be accessed from the following links:

http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-03.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-01.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-01.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-03.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-03.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-01.pdf

Annexure-C.1

Anticipated Power Supply Position for the month of
Jan-18

SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	3800	2200
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	341	162
		- Central Sector	2693	1574
	iii)	SURPLUS(+)/DEFICIT(-)	-766	-464
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1250	800
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	400	269
		- Central Sector	508	297
	iii)	SURPLUS(+)/DEFICIT(-)	-342	-234
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	2770	1717
	ii)	NET POWER AVAILABILITY- Own Source	4772	2664
		- Central Sector	449	309
		Long term Bi-lateral (Export)	1300	967
	iii)	SURPLUS(+)/DEFICIT(-)	1151	289
4		**ORISSA**		
	i)	NET MAX DEMAND	4000	2418
	ii)	NET POWER AVAILABILITY- Own Source	2994	1741
		- Central Sector	1094	681
	iii)	SURPLUS(+)/DEFICIT(-)	88	4
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	5555	2912
	ii)	CESC's DRAWAL	0	0
	iii)	TOTAL WBSEDCL's DEMAND	5555	2912
	iv)	NET POWER AVAILABILITY- Own Source	3649	1977
		- Import from DPL	191	0
		- Central Sector	2075	1089
	v)	SURPLUS(+)/DEFICIT(-)	360	153
	vi)	EXPORT (TO B'DESH & SIKKIM)	5	4
5.2		**DPL**		
	i)	NET MAX DEMAND	235	179
	ii)	NET POWER AVAILABILITY	426	184
	iii)	SURPLUS(+)/DEFICIT(-)	191	5
5.3		**CESC**		
	i)	NET MAX DEMAND	1410	690
	ii)	NET POWER AVAILABILITY - OWN SOURCE	670	443
		FROM HEL	530	255
		FROM CPL/PCBL	0	0
		Import Requirement	210	30
	iii)	TOTAL AVAILABILITY	1410	728
	iv)	SURPLUS(+)/DEFICIT(-)	0	38
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	7200	3781
	ii)	NET POWER AVAILABILITY- Own Source	4745	2604
		- Central Sector+Others	2815	1344
	iii)	SURPLUS(+)/DEFICIT(-)	360	166
7		**SIKKIM**		
	i)	NET MAX DEMAND	90	38
	ii)	NET POWER AVAILABILITY- Own Source	3	2
		- Central Sector+Others	81	50
	iii)	SURPLUS(+)/DEFICIT(-)	-6	14
8		**EASTERN REGION** **At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	18553	10954
		Long term Bi-lateral by DVC	1300	967
		EXPORT BY WBSEDCL	5	4
	ii)	**NET TOTAL POWER AVAILABILITY OF ER** **(INCLUDING C/S ALLOCATION)**	20895	11696
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER** **(ii)-(i)**	1037	-229

Annexure- C.2

Proposed Maintenance Schedule of Thermal Generating Units of ER during January, 2018

(as finalised in LGBR meeting)

System	Station	Unit	Size (MW)	Period		No. of Days	Reason
				From	To		
DVC	CTPS	8	250	17.01.18	26.02.18	41	COH
WBPDCL	KTPS	2	210	02.01.18	21.01.18	20	Boiler Overhauling
CESC	TITAGAR	2	60	18.01.18	01.02.18	15	Not Specified
	SOUTHER	2	67.5	11.01.18	14.01.18	4	Not Specified
HEL	HALDIA	1	300	17.01.17	31.01.17	15	Not Specified

Annexure-D4

पावर सिस्टम ऑपरेशन कॉरपोरेशन लिमिटेड
(भारत सरकार का उद्यम)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A Government of India Enterprise)

पूर्वी क्षेत्रीय भार प्रेषण केन्द्र, 14, गोल्फ क्लब रोड, टालिगंज, कोलकाता 700 033
दूरभाष : 033 2423 5867/5875, फैक्स : 033 2423 5809/5704/5029, ई-मेल : erldc@posoco.in / www.erldc.org
EASTERN REGIONAL LOAD DESPATCH CENTRE, 14, Golf Club Road, Tollygunge, Kolkata - 700 033
Tel. : 033 2423 5867/5875, Fax : 033 2423 5809/5704/5029, E-mail : erldc@posoco.in / www.erldc.org

ERLDC/SS & MIS/2017/VDI/ 5016

Date: 01-12-17

To,

Member Secretary
Eastern Regional Power Committee
14, Golf Club Road, Kolkata – 33

Sub: Reporting of voltage deviation indices (VDI) for selected Substations in ER, for November 2017.
विषय: November 2017 के लिए पूर्वी क्षेत्र में चयनित सबस्टेशन के लिए वोल्टेज विचलन सूचकांक (VDI) की रिपोर्टिंग

Sir/ महोदय,

Enclosed please find VDI for selected 765 & 400kV buses of Eastern Region, computed for the month of November, 2017, for deliberation in next OOC meeting of ERPC.

संलग्न ERPC की अगली OCC बैठक में विचार विमर्श के लिए, November, 2017 के लिए गणना की गई पूर्वी क्षेत्र के चयनित 765 और 400 केवी बसों के लिए VDI को ढूंढें।

आपको धन्यवाद,

आपका विश्वस्त / Yours faithfully,

(पी मुखोपाध्याय) / (P Mukhopadhyay)
कार्यकारी निदेशक/ Executive Director

VDI of Selected 765 kV & 400 kV in Eastern Region in the month of November - 2017

नई रांची / Ranchi New			जमशेदपुर / Jamshedpur			मुजफ्फरपुर / Muzaffarpur		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
800	772	0.00	432	417	98.33	415	391	0.00

बिहार शरीफ / Bihar Sariff			बिनागुरी / Binaguri			जीरत / Jeerat		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
420	401	0.02	434	404	41.16	431	387	35.27

राउरकेला / Rourkela			जयपोर / Jeypore			कोडरमा / Koderma		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
421	408	0.48	425	383	0.13	423	398	5.80

मैथन / Maithon			तीस्ता / Teesta			रांगपो / Rangpo		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
423	408	3.44	431	377	7.35	430	397	2.44