Agenda

for

143rd OCC Meeting

Date: 26.03.2018
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

Eastern Regional Power Committee

Agenda for 143rd OCC Meeting to be held on 26th March, 2018 at ERPC, Kolkata

Item no. 1: Confirmation of minutes of 142nd OCC meeting of ERPC held on 23.02.2018

The minutes of 142nd OCC meeting were uploaded in ERPC website and circulated vide letter dated 13.03.2018 to all the constituents.

Members may confirm the minutes.

PART A : ER GRID PERFORMANCE

Item no. A1: ER Grid performance during February, 2018

The average consumption of Eastern Region for February - 2018 was 382 Mu. Eastern Region has achieved maximum energy consumption of 400 Mu on 28thFebruary - 2018. Total Export schedule of Eastern region for February – 2018 was 2734 Mu, whereas actual export was 2550 Mu.

ERLDC may present the performance of Eastern Regional Grid covering the following:

1. **Over drawal/under injection by ER Entities**
2. **Performance of Hydro Power Stations during peak hours**
3. **Performance of ISGS during RRAS**

Item no. A2: Commissioning of new transmission elements in Eastern Region

The details of new units/transmission elements commissioned in the month of February - 2018 based on information furnished by the constituents are depicted below:

SL NO	Element Name	Owner	Charging Date	Charging Time	Remarks
1	400 KV Sasaram-Daltonganj I	Powergrid	01-02-18	2:19	Charged upto Bus of Daltonganj
2	400/220 kV, 500 MVA ICT # 3 at Patna	Powergrid	11-02-18	0:22	Idle charged from HV side Loaded at 19:22hrs of 12/02/18
3	125MVAR MSR 1of STATCOM at Rourkela	Powergrid	17-02-18	18:28	
4	GIS Bay of 132 kV Purnea(PG)-Purnea (BSPTCL) -I at PurneaSubstaion.	Powergrid	23-02-18	21:29	
5	GIS Bay of 132 kV Purnea (PG)-Purnea (BSPTCL) -II at PurneaSubstaion	Powergrid	23-02-18	21:31	
6	132 KV GIS Bus Coupler Bay at PurneaSubstaion	Powergrid	23-02-18	20:34	
7	132 kV GIS Bay of 220/132 kV ICT - 1 at PurneaSubstaion.	Powergrid	23-02-18	20:50	

8	132/33kV Podagada S/s	GRIDCO			GRIDCO please confirm the date
9	132/33kV Dhenkikote S/s with line	GRIDCO			GRIDCO please confirm the date
10	132/33kV Kantabanji S/s with line	GRIDCO			GRIDCO please confirm the date
11	2nd 40 MVA Tfr at Bhograi S/s	GRIDCO			GRIDCO please confirm the date
12	220kV LILO line to Bargarh New S/s	GRIDCO			GRIDCO please confirm the date
13	765 kV ,80 Mvar spare LR @ Angulfor S'kulam_1	PGCIL	19-02-18	22:14	
14	125 MVAr MSR II of Statcom at Rourkela	PGCIL	20-02-18	16:42	2.5 KV voltage change was observed. 412.8/410.3 KV

Constituents may update.

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

In last few OCC meetings, over drawl pattern of West Bengal and Odisha was deliberated in detail. Some improvement in West Bengal and Odisha Drawl pattern has been observed during January which is most possibly due to decrease in system demand during winter season. However in March-2018 for some days, West Bengal average over drawl quantum is still around 1 to 2 mu whereas for Odisha over drawl quantum is increased to around 2 to 3 mu per day.

With the onset of summer, expected increase in system demand of Odisha and West Bengal system along with number of thermal units outage due to coal shortage, less availability at Farakka STPS due to Bangladesh water cycle and less water reservoir level in hydro generators of Odisha, over drawl situation may be worsened further.

In view of above, West Bengal and Odisha are advised plan accordingly to maximize their internal generation availability and increase their power purchase quantum in STOA/Power Exchange or from any other source in future to avoid any over drawl during February and March.

ERLDC may present. WBSETCL and Odisha may explain.

Item no. A4: Reactive Power performance of Generators

Generating stations have been monitored for certain sample dates in the month of February,18.

Power Plant	**Max and Min Voltage observed for Feb 18 (KV)**	**Date for occurrence (Feb 18)**
Farakka STPS	423, 411	5,3
Khalgaon STPS	420, 408	15,28
Talcher STPS	411, 395	3,25
Teesta-v	424,398	6, 28
Bakreshwar TPS	412, 395	10, 25
Kolaghat TPS	425, 402	1,27

Sagardighi TPS	419, 407	26,28
MPL	418, 407	2,28
Mejia-B	422, 410	7,21
DSTPS	420, 411	2,27
Adhunik TPS	420, 408	8,22
Barh	423, 409	3,22
JITPL	417, 406	4,27
GMR	417, 404	8,9
HEL	429,398	12,26
Kodarma	421, 406	2,28

ERLDC may present the reactive performance.

Item no. A5: Restricted Governor /Free Governor Mode Operation of generators in ER

Generators are requested to share their DCS data indicating unit-wise change in generation at the generator terminal with time and frequency for the following event:

1. On 20-02-18 at 08:25 hrs, Bara unit II tripped resulting change in frequency from 50.02 Hz to 49.97 Hz

SLDCs may share the frequency responses and observations pertaining to respective intra-state generators, which they have submitted to respective SERCs in fulfilment of CERC order.

Further, all generators may share the MW/frequency vs time data of 10 seconds or better resolution, recorded by their DCSs in order that SCADA data recorded at ERLDC can be checked / validated with reference to DCS data.

ERLDC may present. SLDCs and Generators may update.

Item no. A6: UFR operation during the month of February'18

System frequency touched a maximum of 50.21 Hz at 13:02Hrs of 17/02/18and a minimum of 49.69Hz at 18:43Hrs of 17/02/18.Hence, no report of operation of UFR has been received from any of the constituents.

Members may note.

Item no. A7: Grid incidences during the month of Febuary, 2018

Sr No	GD/ GI	Date	Time	S/S involved	Summary
1	GD-I	09/02/2018	15:00	Patratu	At 15:00 hrs 220 kV TVNL - Patratu S/C (at Patratu end), 220 kV Patratu - Hatia D/C (Ckt - I at Patratu end and Ckt - II at Hatia end), 132 kV Hatia - Hatia T/C, 132 kV Namkum - Hatia S/C (at Hatia end), 220/132 kV ICT - I at Patratu end tripped along with unit - I at TVNL. As per PMU data, initially fault was in B phase. After 200 ms, another fault was observed in Y phase.

2	GD-I	19/02/2018	18:12	Mejia	At 18:12 hrs, all the running units at Mejia (U#2, #3 & #6) along with all connected lines trpped due to bus fault at Mejia S/S

Members may note.

Item no. A8: 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 February18.

Members may note.

Item no. A9: Reporting of voltage deviation indices (VDl) for select S/Stns in ER

ERLDC submitted the Voltage Deviation Index (VDI) of selected 400 kV Sub-stations for February 2018 of Eastern Region which is enclosed at **Annexure- A9**.

Members may note.

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.

A. Projects approved:

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.)	Latest status
1	WBSETCL	Renovation & up-gradation of protection system of 220 kV & 400 kV Substations in W. Bengal	31-12-14	April 2018	108.6 Cr	18.26 Cr.	100 % Supply is Completed 92% Erection is completed
2		Renovation & modernisation of transmission system for relieving congestion in Intra-State Transmission System.	22-05-17	19 months from date of release of 1st instalment	43.37	Nil	Agreement signed. Bank A/c opened & PFMS mapping is in process.
3		Installation of switchable reactor at 400kV & shunt capacitors at 33kV	22-05-17	25 months from date of release of 1st instalment	70.13	Nil	Agreement signed. Bank A/c opened & PFMS mapping is in process.
4	WBPDCL	Implementation of Islanding scheme at Bandel Thermal Power Station	*10.04.17*	*March 2018*	1.39 Cr		*Award placed to ABB. The material reached the site and installation is in progress. The scheme would be implemented by April 2018.*
5		Upgradation of Protection and SAS			23.48		Approved by Ministry of Power. Fresh tendering is in progress.
6	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.	37.79 Cr	Total contract awarded for Rs. 51.35 Cr
7		Implementation of OPGW based reliable communication at 132kV and above substations	15.11.2017		25.61 Cr.		Agreement signed on 03.01.2018
8	OHPC	Renovation and up-gradation of protection and control system of 4 nos. OHPC substations.		*U.Kolab-March 19 Balimela-Feb 2019 U.Indravati-Jan 19 Burla-Nov 2018, Chiplima Dec 2018*	*22.35 Cr.*		Tendering under progress.
9	BSPTCL	Renovation and up-gradation of 220/132/33 KV GSS Biharshariff, Bodhgaya, Fatuha, Khagaul, Dehri -on-sone & 132/33 kV GSS Kataiya	11/5/2015	31.03.2018	64.02 crore	56.04 crore	75% of work has been completed. Contract awarded for Rs.71.37 Cr till date.
10		Installation of capacitor bank at different 35 nos. of GSS under BSPTCL	5/9/2016	12th March 2019	18.88 crore	Nil	Work awarded for 9 nos of GSS.
11		Renovation & up-gradation of protection and control system of 12 nos. 132/33 KV GSS under BSPTCL.	02.01.17	31st March 2018	49.22 Cr.		75% work completed for seven no. GSS as part of R & M work. Revised DPR is to be submitted for rest 5 no. GSS.
12	JUSNL	Renovation and up-gradation of protection system	*September 2017*	*138.13 crores*			LOA will be issued to PRDC in March 2018.

13	DVC	Renovation and upgradation of control & protection system and replacement of Substation Equipment of 220/132/33 kV Ramgarh Substation	02.01.17	01.06.2019	25.96 Cr	2.596 Crore on 01.06.2017	Work awarded for 28.07 Cr.
14		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	27.11.17	24 Months from the date of release of fund.	140.5 Cr.	1st installment of 14.05 Cr. received on 21.12.2017	Work awarded for 6.45 Cr.
15	POWERGRID	Installation of STATCOM in ER		June 2018	*630.28 Cr*	*63.028 Cr*	Work is in progress, expected to complete by June 2018. STATCOM at Rourkela has been commissioned.
16	ERPC	Creation & Maintenance of web based protection database and desktop based protection calculation tool for Eastern Regional Grid	17.03.16	Project is alive from 30th October 2017	20 Cr.	4.94 Cr. + 9.88 Cr.	1) Protection Database Project has been declared 'Go live' w.e.f. 31.10.17. 2) Pending training on PDMS at Sikkim and 3rd training on PSCT has been also completed at ERPC Kolkata.
17a	ERPC	Training for Power System Engineers					The proposal was approved by Appraisal Committee. The proposal was sent to CERC. CERC has sought some queries from the Appraisal Committee. The matter shall be taken up by the Appraisal Committee during its next meeting.
17b		Training on Power market trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents					

B. Projects under process of approval:

SN	Name of Constituent	Name of Project	Date of Submission	Estimated cost (in Rs.)	Latest status
1	Sikkim	Renovation & Upgradation of Protection System of Energy and Power Department, Sikkim.	09-08-17	68.95 Cr	Scheme was examined by TSEG. Inputs sought from entity.
2		Drawing of optical ground wire (OPGW) cables on existing 132kV & 66kV transmission lines and integration of leftover substations with State Load Despatch Centre, Sikkim	09-08-17	25.36 Cr	Scheme was examined by TSEG. Inputs sought from entity.
3	JUSNL	Reliable Communication & Data Acquisition System upto 132kV Substations.	23-08-17	102.31 Cr	Scheme was examined by TSEG. Inputs sought from entity. Scheme has been revised as suggested by TSEG and it would be submitted within a week.
4	OPTCL	Installation of 125 MVAR Bus Reactor along with construction of associated bay each at 400kV Grid S/S of Mendhasal, Meramundali & New Duburi for VAR control & stabilisation of system voltage	28-08-17	31.94 Cr	Scheme was examined by TSEG. Inputs sought from entity. OPTCL submitted the relevant information.

C. Projects recently submitted:

SN	Name of Constituent	Name of Project	Date of Submission	Estimated cost (in Rs.)	Latest status
1	WBPDCL	Implementation of Integated system for Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) system in West Bengal	22-12-17	25.96 Cr	
2	OPTCL	Implementation of Automatic Demand Management System (ADMS) in	22-12-17	3.26 Cr	

		SLDC, Odisha			
3	OPTCL	Protection upgradation and installation of SAS for seven numbers of 220/132/33kV Grid substations (Balasore, Bidanasi, Budhipadar, Katapalli, Narendrapur, New-Bolangir & Paradeep).	20.02.2018	41.1 Cr.	

Respective constituents may update the status.

Item No. B.2: Low Frequency Oscillation (LFO) observed in Pan India grid on 17th March 2017 from 02:43 hrs to 02:48 hrs.--ERLDC

Low frequency oscillation of 0.37 Hz was observed in pan India grid on 17th March 2017 from 02:43 hrs to 02:48 hrs. Based on the synchrophasor data analysis the oscillation was more prominent in the Eastern region near Farakka. The farakka bus voltage from PMU is given where oscillation can be observed. Based on analysis of all India SCADA data, it was found that there was a large variation in the MW and MVAR of the Kahalagaon Unit 6 during the same time period. On inquiry, it was found that there was some issue with the Kahalgaon unit 6 turbine Electro-hydraulic governer (EHG) due to which its control valves oscillated causing Unit generation fluctuation from 40 MW to 470 MW as can be seen from the power flow and MVAR pattern received from NTPC. The time of LFO initiation in the grid observed from PMU data and Kahalgaon also matched. Further, based on the analysis of all India data of units by NLDC it was observed that no other unit has observed such severe oscillation during the period in their MW/MVAr. So, It can be inferred from the analysis that oscillation has excited in the grid due to the malfunctioning of turbine EHG of Kahalgaon Unit 6.

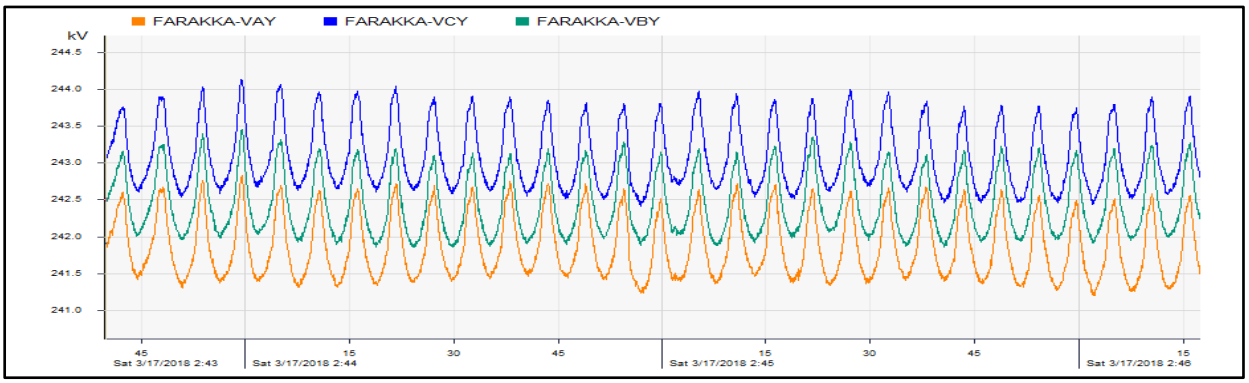

Fig 1 : Farakka Bus Voltage from PMU.

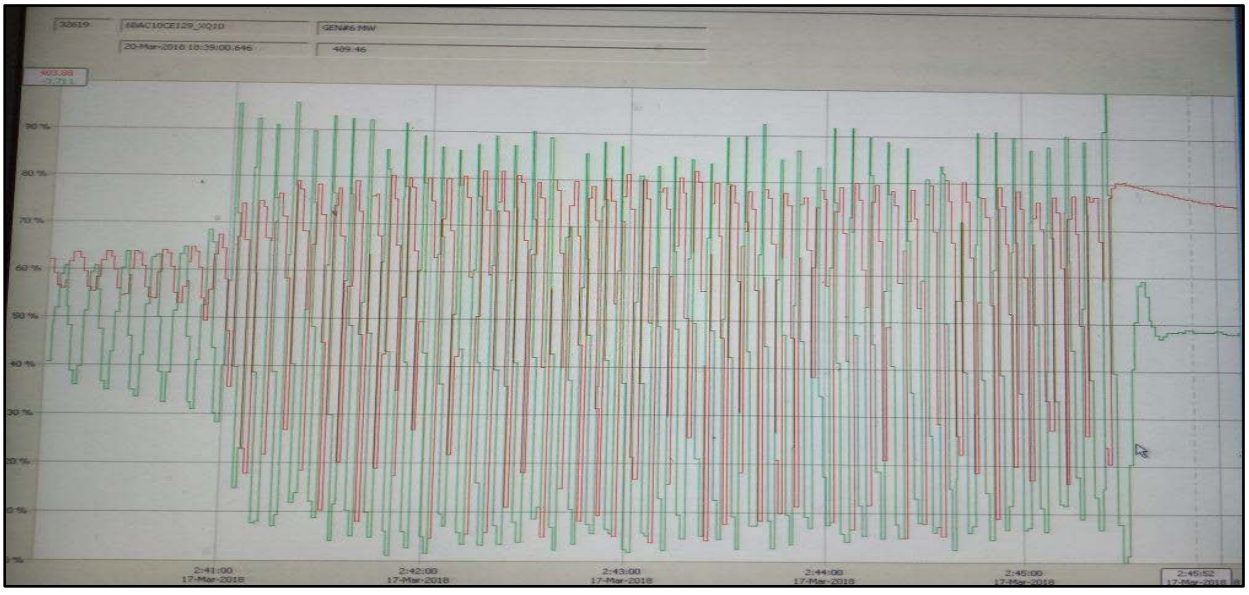
Fig 2 : MW and MVAR of Kahalgaon Unit 6 received from NTPC.

In view of the above incident, it is desired that:

1. NTPC Kahalgaon may kindly explain the issue with the turbine EHG governor and the remedial action taken so that such event does not reappear in near future as these have an adverse impact on the entire the Indian Grid.
2. Further, it is desirable that all generating units must immediately share the details of MW/MVAr of their units in Excel/.CSV format to ERLDC as soon as they receive communication from ERLDC control Room or ERLDC Protection team for analysis of such event. The resolution of such data should be 1 seconds or better as available from the DCS of the power plant. In case of generators within the state, the respective SLDC to immediately collect the data and submit to ERLDC/ERPC for analysis.
3. PSS tuning of all the units above 100 MW may kindly be ensured as per the relevant regulation of CERC and CEA in the Eastern region and their tuning reports to be shared with ERLDC/ERPC.

Members may discuss.

Item No. B.3: Status of Implementation of Enquiry Committee Recommendations

9.9 Optimum utilization of available assets:

9.9.2 An audit of devices such as HVDC, TCSC, SVC and PSS should be done immediately to ensure that their stability features are enabled. Further, exercise of PSS tuning should be planned and implemented. Settings of these dynamic stabilizing devices should be reviewed at appropriate intervals.

In 2007 Based on a system study (Prof. Kulkarni) were proposed the following units to be equipped with PSS devices:

1. Kolaghat stage II 400 kV U#4.5.6.(201MW each)of WBPDCL;
2. Farakka U#4,5 (500MW each)of NTPC;
3. U.Kolab 4 units (80 MW each) of OHPC;
4. Budge Budge U# 1,2,(250 MW) of CESC Ltd.

Thereafter, PSS tuning of all units were carried out with the help of BHEL Service Manager, Shri K. Partha Sarathi in the presence of Prof. Kulkarni except Budge Budge units. PSS tuning of Budge-Budge unit 1&2 of CESC has been carried out on 28th &29th July, 2015.

142nd OCC opined that for identifying the generators for PSS tuning, a fresh study is needed to be done as per the existing network. OCC referred to TCC for further guidance.

Powergrid informed that they are planning to conduct audit for HVDC, TCSC and SVC in April 2018.

In 37th TCC, Members authorised Member Secretary, ERPC to contact different IITs including IISc for the study and advised to place a comprehensive proposal in next TCC Meeting.

9.11 Need of Dynamic Security Assessment and review of State Estimation: In order to assess the system security in real time and assess the vulnerability condition of the system, dynamic security assessment need to be periodically carried out at the control centers. A proper review and upgradation of the state estimation procedure is required to improve the visibility and situational awareness of the system.

Dynamic Security Assessment is propsed to be covered in NLDC SCADA upgradation package. State Estimation is currently in working condition at ERLDC.

9.12 Implementation of islanding schemes: Efforts should be made to design islanding scheme based on frequency sensing relays so that in case of imminent grid failure, electrical islands can be formed. These electrical islands can not only help in maintaining supply to essential services but would also help in faster restoration of grid.

No islanding scheme is available in Odisha, Bihar and Sikkim.

In 142nd OCC, members opined that an islanding scheme for Kanti generating units with Bihar load might be explored.

OCC advised Bihar and NTPC to discuss and place the details in next OCC.

OCC advised OPTCL to give a presentation on CPP islanding scheme existing in Odisha with the details of extending power capacity to Odisha during emergencies.

OCC advised OPTCL to place their plan for IbTPS islanding scheme in the next OCC meeting.

OPTCL may give a presentation. Bihar may update.

9.13.2 Training and certification of system operators need to be given focused attention. Sufficient financial incentives need to be given to certified system operators so that system operation gets recognized as specialized activity.

In 142nd OCC, Members updated the status of certification of system operators as follows:

State	***Status of certification of system operator***
SLDC, West Bengal	*Operators will appear for certification in March 2018*
SLDC, Odisha	*Complied*
SLDC, DVC	*Complied*
SLDC, Jharkhand	*4 operators were certified*
SLDC, Bihar	*Training has been completed but yet to appear in exam for certification*
SLDC, Sikkim	*No information received*

In 37th TCC, Sikkim informed that they are in the process of creating a separate cadre of certified operator for their newly established SLDC after necessary approval of the State Govt. of Sikkim.

9.18 Strengthening of system study groups in various power sector organizations

There is need to reinforce system study groups in power sector organisations to analyse the system behaviour under different network status/ tripping of lines/outage of generators. Where these do not exist, these should be created.

In 142nd OCC, it was informed that system study groups have been formed at state level in all states except Sikkim.

Sikkim representative was not available in the meeting for discussion.

9.20. Improved telecom Infrastructure for cyber security

In 142nd OCC, ERLDC informed that, in line with Enquiry Committee Recommendation, cyber security audit is being conducted on regular basis for SCADA system installed at ERLDC and SLDC as well but cyber security audit for telecom infrastructure installed in Eastern Region is not being carried out.

OCC advised all the constituents to conduct the cyber security audit on telecom infrastructure installed in Eastern Region. It is further advised that compliance / mitigation of the points

observed during the audit should also be completed for improvement of the telecom infrastructure in ER.

MS, ERPC informed that a presentation on Cyber Security in Power Sector is also planned to be conducted at 37th TCC/ERPC meeting.

OCC referred the issue to TCC for further deliberation.

In 37th TCC meeting, it was decided that a workshop would be conducted by CEA at ERPC for further benefit of ER Constituents.

As suggested by CEA, a format would be circulated among ER constituents for furnishing the information of the their respective systems for discussion in OCC Meeting. The format is enclosed at **Annexure-B3***.*

Members may discuss.

Item No. B.4: CONTINGENCY PLAN TO MEET DEFICIENT / EXCESS RAILFALL DURING MONSOON -CEA

The anticipated monthly demand profile in respect of various states and the annual maintenance plan of various generating units of has been received from Eastern Region. It is understood that this data is based on normal monsoon scenario. However, a poor or excess monsoon activity, sudden excess silt in the river, and such other contingencies may lead to increased demand – supply gap in the region(s) or county. Each RPC needs to be fully prepared to meet such credible contingencies.

In the above background, it is requested to estimate the impact (in terms of average MW) of various contingencies including the above ones, on the demand and availability in respect of each state/ UT for the months of June to September,2018, and an implementable action plan be prepared for handling the contingency situation like deficit or delayed monsoon, excessive monsoon, flooding of mines or damaging of railway network or situation of high silt(in the Northern Region during July-August),etc, Implementable concrete steps like identification of flexible plant outages, maintaining sufficient coal stock at critical plant sites and diversion of coal via alternate route may also be identified and documented by each RPC. Contingency arising out of failure of transmission towers also needs to be considered and preparedness by the CTU/STUs to meet the same using ERS be examined and outcome/action plan documented. The Ministry of Power has desired that the aforesaid contingency plan be made ready by this month end.

OCC advised all the constituents to send their contingency plan within a week to mserpc-power@nic.in.

Members may submit the contingency plan.

Item No. B.5: Methodology for Submitting the Status of New Transmission Elements/ Generating Units to be Commissioned within the State

For clear visibility of the Eastern Region networks and better system operation, all the new transmission elements (ISTS & STU links) need to be updated regularly. The commissioning of new transmission elements of ISTS lines has been processed and updated by RLDC whereas commissioning of STU lines has been processed by SLDCs. However, commissioning status of new STU lines of states has not been updated to ERLDC and ERPC regularly. Sometime SLDCs

used to submit the status of their new commissioning of elements during OCC meeting. To regularize the process following methodology need to be adopted:

1. Transmission elements/ Generating units expected to be commissioned during next month need to be submitted to ERLDC/ERPC in every OCC.
2. Detail parameters of new transmission element before commissioning need to be shared with RLDC.
3. Detail date and time of synchronization need to be updated on real time to ERLDC after commissioning of any new Transmission element/Generating unit.
4. SLDC SCADA team needs to configure the new element in their SCADA and share the same to ERLDC SCADA for network update.
5. List of the new transmission elements/ generating units commissioned during last month need to inform RLDC/RPC within 7th day of the current month, so that same to be updated in OCC.

In 141st OCC, all the constituents were advised to submit the information within 7th day of the month to following mail ids:

- *erldcam@gmail.com*
- *ftcer@posoco.in*
- *mserpc-power@nic.in*

In February month ERLDC has received updates from Bihar, Odisha, West Bengal and Powergrid ER – II. However, the format of the file and details of the transmission line commissioned or to be commissioned in the file are not proper. To maintain harmonization, all the states and transmission licensees are request to submit the details to ERLDC/ERPC in the following format:

Monthly commissioning List of Transmission element and generators: Previous Month					
SL NO	**Element Name**	**Owner**	**Charging Date**	**Charging Time**	**Remarks**

Expected commissioning List of Transmission element and generators: Next Month				
SL NO	**Element Name**	**Owner**	**Expected Charging Date**	**Remarks (conductor type/spec/expected load/any other)**

Members may discuss.

Item No. B.6: Operationalizing black start facility at Purulia Pump Storage Project (PPSP) of WBSEDCL--ERLDC

CERC vide order dated 04.07.13 on Petition No. 149/MP/2012 had directed WBSEDCL to operationalize black –start facility at PPSP after finalizing a suitable scheme in consultation with ERLDC

The said order was challenged by WBSEDCL and an appeal was filed with APTEL by WBSEDCL

Subsequently, APTEL vide order dated 21.11.2015 on the Appeal No. 60 (filed by WBSEDCL) directed CEA to submit a report on the feasibility of black start of PPSP units.

Further, APTEL vide order dated 31.05.16, based on CEA report dated 18.04.16, directed CERC to ensure implementation of the recommendations of CEA within 6 months of the date of order.

In 34th TCC, WBSETCL informed that black start exercise can be conducted after commissioning of new 400kV PPSP S/s with 80 MVAR reactor.

WBSEDCL informed that they have contacted OEM Toshiba for feasibility of black start and OEM required to conduct a simulation with CEA recommendations.

TCC advised WBSEDCL/WBSETCL to submit the status to CERC.
Thereafter, WBSEDCL had filed a petition before CERC on 30thSeptember, 2016 seeking extension of time for six months.

OCC in its 130th meeting held on 17-02-17, *advised WBSEDCL to explore the opportunity for conducting black start exercise as the extension given by CERC is going to lapse by March.2017.*

WBSEDCL informed that they are fully dependant on OEM Toshiba to carry out this exercise.

In the 134th OCC meeting held on 23-06-17, WBSEDCL was requested to furnisha detailed report indicating the actions taken so far for implementation of black-start and FGMO/RGMO features for their PPSP units along with expected date for making these features functional. Representative of WBSEDCL assured OCC that the present status would be apprised at an early date.

In the 135th OCC meeting held on 24-07-17, WBSEDCL informed that they were yet to receive any comments from the OEM.

In the 136th OCC meeting held on 30-08-17, ERLDC observed that WBSEDCL had already consumed 6 month time extension granted by CERC for implementation of black-start facility at PPSP and no progress could be made even after expiry of 11 months. Since such delay and uncertainty in execution of the work was directly affecting the security of Eastern Regional grid, matter may escalated to MOP / CEA for hiring the professional service of competent vendors / consultants so that blackstart capability at PPSP could be operationalised within a definite target date.

By delaying the implementation of PPSP black-start for around 2 years since issuance of order by APTEL, WBSEDCL has practically failed to comply with the orders of both APTEL and CERC, apart from failing to improve the much needed reliability of the ER grid.

OCC may please escalate the issue with APTEL, CERC and CEA for expeditious resolution of the matter.

Members may discuss.

Item No. B.7: Shifting of Control Area Jurisdiction of MTPS Stg – II (2*195 MW)

As per the direction from Hon'ble CERC against Petition No. 20/MP/2017 along with IA No. 47/2017 dated 09th March, 2018, control area jurisdiction of MTPS-II shall be transferred to ERLDC with effect from 1.4.2018 and while computing schedules of Bihar from MTPS Stage-II, ISTS Charge and losses shall not be applicable on schedules of Bihar. Accordingly, ERLDC shall start the scheduling of MTPS Stg-II with effect from 01.04.2018 as per the above mentioned order and in line with the scheduling procedure depicted in ERLDC operating Procedure.

Members may discuss.

PART C: ITEMS FOR UPDATE

Item no. C.1: Status of UFRs healthiness installed in Eastern Region

UFR Healthiness Certification for the month of February, 2018 has been received from CESC, WBSETCL, DVC, JUSNL, OPTCL and BSPTCL.

142nd OCC advised OPTCL to change 33kV Laxmipur feeder with suitable feeder of desired load.

OPTCL vide letter dated 12th March 2018 submitted the revised feeders for load shedding scheme. Details are enclosed at **Annexure-C1***.*

Members may note.

Item no. C.2: Status of Islanding Schemes healthiness installed 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 February, 2018 has been received from NTPC, CTPS, DVC, Tata Power, JUSNL, WBPDCL and CESC.

Members may note.

Item no. C.3: Healthiness of SPS existing in Eastern Region

GMR, & CESC have submitted the healthiness certificate for the month of February 2018.

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.

Members may update.

Item no. C.4: Commissioning of breakers at 400/220kV Indravati (OHPC) S/s

In 141st OCC, it was explained that 3x105 MVA 400/220kV ICT-I tie breaker, 220kV Bus coupler and transfer bus breakers are not in service at 400/220kV Indravati (OHPC) S/s.

In 142nd OCC, OHPC submitted the action plan as follows:

1. *220kV Bus Coupler: CB and CT needed to be replaced. They would restore the Bus coupler by August 2018.*

2. *220kV Bus tie: CB and CT needed to be replaced. They would restore the Bus Tie by November 2018.*
3. *400kV Tie-1 Breaker: CB and CT needed to be replaced. They would restore the 400kV Tie-I by January 2019.*

OCC opined that the target dates given by OHPC for replacement of CT and Breakers is too long and advised to take serious actions to complete the work at the earliest.

OHPC may update.

Item no. C.5: Inadequacy of DVC transmission system (220kV and below) for meeting its own demand

The total load of DVC system is catered by the 220/132kV ATRs at Jamshedpur, CTPS, DTPS, Kalyaneswari , Giridih, Koderma and Ramgarh. The ATRs at CTPS, Kalyaneswari and DTPS remain heavily loaded and tripping of any ATR is likely to trigger cascade tripping and loss of major load in DVC system. Moreover, during shutdown or forced outage of 220kV Jindal-Jamshedpur tie or nil generation at Bokaro-B, the only 315MVA, 400/220kV ICT at Bokaro-A gets severely overloaded. In the event of loss of 400kV Bokaro-A-Koderma D/C line, the Bokaro-A station has little chance of survival as the existing 315MVA, 400/220kV ICT at Bokaro is insufficient to evacuate the station generation. It has also been observed that, during low generation at CTPS-B, the 220kV Bokaro-B – CTPS-B D/C line gets heavily overloaded and (n-1) security criteria is not satisfied.

In view of the aforesaid facts, DVC needs to expedite strengthening of its transmission system for achieving long term adequacy and till such time, to cope with the rising demand, suitable load / generation rejection schemes may be urgently implemented to automatically shed load/generation with tripping of associated line / ATR.

In 37th TCC, ERLDC gave a detailed presentation highlighting the constraints faced by DVC in catering its load due to phasing out of old units connected at 132kV level and increase in demand at DVC system.

Further evacuation problem in Bokaro-A was also highlighted. Tripping of any of the existing highly loaded 220/132kV ATR may create disturbance not only in DVC system but also the adjacent system.

DVC assured that they have already taken short term and medium term measures to mitigate the problem.

TCC advised DVC to submit their action plan to ERPC and ERLDC.

DVC may update.

Item no. C.6: Flexible jumpering arrangement for bypassing substations, prone to inundation during monsoon, for ensuring continuity of important corridors and power evacuation from power stations—ERLDC

During the last monsoon season, quite a few substations in Eastern Region viz Alipurduar(PG), Kishanganj(PG), Dalkhola(PG) and Motihari(DMTCL) had to be completely shutdown, due to massive waterlogging. Outage of Kishanganj S/Stn posed constraint in power evacuation of Sikkim generators and surplus power of NER while outage of Alipurduar S/stn weakened the inter-regional connectivity between ER and NER. Such substations typically have 2 nos incoming and 2 nos outgoing lines and lie either along a major intra/inter-regional corridor or along the evacuation route of a major power station.

Under the above mentioned situation, it is desirable that continuity of the transmission corridor be maintained by directly connecting the incoming and outgoing lines, bypassing the inundated

substation. However, such network re-configuration is possible only if facility for jumpering conductors at appropriate locations is already in place. This practice is already being followed at a number of locations in Western Region.

In 136th OCC, ERLDC explained that the flexible jumpering arrangement may be done for 400 kV Binaguri-Kisheenganj-N.Purnea D/C and 400kV Binaguri-Alipurduar-Bongaigaon D/C lines for bypassing the LILO points i.e. 400kV Kishanganj(PG) and Alipurduar(PG) S/s so that the same lines may be directly connected during the emergencies like flood situations at LILO points. The possibility may be explored as these elements are very important in terms of hydro power evacuation and long outages of these elements may endanger the grid security. The other such elements (LILOed at Dalkhola, Motihari (DMTCL) etc) may also be explored which are under threat during flood and other emergencies.

In 138th OCC Powergrid informed that feeders are identified for Alipurduar, Kishanganj and Dalkhola SS for necessary jumpering. However, awarding and execution of the work will take some time.

PGCIL may update. DMTCL may update the actions taken for Motihari S/S.

Item no. C.7: 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. 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.

The updated list is enclosed at **Annexure-C7***.*

In 142nd OCC, all constituents were advised to indicate the average and maximum load relief expected on disconnection of the identified intra-state / tie lines.

Members may update.

Item no. C.8: Implementation of Automatic Demand Management Scheme (ADMS)-ERLDC

The latest status along with proposed logic as follows:

Sl No	State/Utility	Logic for ADMS operation	Implementation status/target	Proposed logic (if different from under implementation logic)
1	West Bengal	F <49.7 AND deviation > 12 % or 150 MW	Implemented on 25.11.16	F <49.9 AND deviation > 12 % or 150 MW
2	DVC	F <49.7 AND deviation > 12 % or 25 MW	Implemented on 17.06.2016	
3	Bihar	F <49.7 AND deviation > 12 % or 150 MW	3 months Feeders identified. Communication healthiness needs to be checked.	F <49.9 AND deviation > 12 % or 150 MW
4	Jharkhand	1. System Frequency < 49.9 Hz AND deviation > 12 % or 25	9 Months RTU installation is in progress	Condition 1: Block I feeders will be selected for load shedding Condition 2: Block I & II feeders

		MW 2. System Frequency < 49.9 Hz AND deviation > 12 % or 50 MW 3. System Frequency < 49.9 Hz AND deviation > 12 % or 75 MW		will be selected for load shedding Condition 3: Block I, II & III feeders will be selected for load shedding
5	Odisha	1. System Frequency < 49.9 Hz 2. Odisha over-drawl > 150 MW 3. DISCOM over-drawl > (40 MW)	10 Months Sent for PSDF approval.	Logic 2 and 3 is AND or OR, in case it is AND then ADMS may not operated when discom are in schedule but GRIDCO is overdrawing due to less generation at state embedded generators
6.	Sikkim			No information furnished by Sikkim

In 142nd OCC, it was opined that uniform logic should be implemented for all the states. OCC decided to review the logic of ADMS after implementation of the scheme by all the states.

In 37th TCC, Bihar informed that the Scheme would be implemented after commissioning of communication scheme which is being executed by PGCIL.

PGCIL informed that the communication scheme would be commissioned by June 2018.

Bihar added that PGCIL has agreed to commission the communication scheme by April 2018 and requested to adhere the schedule.

Jharkhand informed that they would implement the scheme by May 2018.

Sikkim informed that they have submitted a proposal to PSDF Committee for installation of OPGW cables which is under approval stage. Sikkim added that ADMS scheme would be implemented after installation of OPGW.

Members may update.

Item no. C.9: 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 142nd OCC, BSPTCL informed that by end of February 2018.

BSPTCL may update the latest status.

Item no. C.10: Reactor at 400kV Behrampur

In 140th OCC, 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.

In 142nd OCC, Powergrid informed that 125MVAR bus reactor would be installed by end of April 2018.

Powergrid may update.

Item no. C.11: 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.

In 141st OCC, BPC representative informed that supply order has been placed for insulator replacement and the material will be delivered by January, 2018. The replacement of insulators would be completed by April, 2018.

In 37th TCC, PGCIL informed that a meeting has been scheduled in the last week of March 2018 where the issue is going to be discussed and expected to be resolved.

BPC/DGPC and POWERGRID may update.

Item no. C.12: 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.

In 141st OCC, Sikkim informed that rectification of the tower has been taken up with Gati. The work would be completed by 2nd week of February 2018.

In 37th TCC, it was decided that Sikkim would give a comprehensive proposal to PGCIL within one week regarding handing over of the relevant segments of the line to PGCIL. Thereafter, PGCIL and Sikkim would sit together and sort out the issues involved therein.

Powergrid and Sikkim may update.

Item no. C.13: 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.

In 142nd OCC, Powergrid informed that CT would be replaced in March 2018.

WBSETCL and Powergrid may update.

Item no. C.14: 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.

Powergrid updated the latest 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		*Completed and test charged in March 2018.*
2	Kishanganj	±200	2x125		*70% civil work completed. 30% switchyard equipment supplied. Expected to complete by December 2018*
3	Ranchi(New)	±300	2x125		*80% civil work completed. All switchyard equipment, reactors and 3 transformers supplied. Expected to complete by April 2018*
4	Jeypore	±200	2x125	2x125	*Expected to complete by June 2018*

Powergrid may update.

Item no. C.15: 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.	**400/220kV Pandiabil Grid S/s:**	
a.	Pratapsasan(OPTCL)-Pandiabil(PG) 220 kV D/C line	By Dec, 2018.
3.	**400/220 kV Keonjhar S/S**	
a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	By May, 2018.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019.

OPTCL may update.

Item no. C.16: 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.	**Daltonganj 400/220/132kV S/s:**	
a.	Daltonganj (POWERGRID) – Latehar 220kV D/c	By April, 2019.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	The line expected to be completed by May, 2018 but – Garhwa 220kV is expected to be completed by Dec 2018.
c	Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/c	By May, 2018. However Daltonganj (PG) has been connected to Daltonganj (JUSNL) at 132kV through existing 220 kV Latehar-Daltonganj line as stop gap arrangement till completion of the line.
d	Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c	Tendering is in progress. Expected to be completed by October 2019
2	**Chaibasa400/220kVS/s**	
a	Chaibasa(POWERGRID)–Noamundi220kVD/c	
3	**Dhanbad400/220kVS/s**	
a	LILO of Govindpur–Jainamore/TTPS 220kVD/c at Dhanbad	

JUSNL may update.

Item no. C.17: 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***)	*by March 2018*
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
3	**Subashgram400/220kVS/s**	
a	Subashgram–Baraipur220kVD/cline	

WBSETCL may update.

Item no. C.18: 220 kV inter-connecting lines of BSPTCL

1. Darbhanga (ISTS) –Darbhanga (BSPTCL) 220kV D/c

2. Darbhanga(ISTS)–Laukhi (earlier Supaul New) 220kVD/c

BSPTCL may update.

Item no. C.19: Issuance of TOC for DSTPS-RTPS OPGW link by DVC-Powergrid

In 19th SCADA O & M meeting held on 07th April 2017 at ERLDC, Kolkata, POWERGRID informed that they are not able to complete the OPGW work in DSTPS – RTPS in DVC Sector under Microwave Replacement Package due to severe ROW issue. POWERGRID further informed that they have mobilized the team several times but work could not be completed due

to heavy ROW / compensation issues related to TL construction resulting non-completion of 2 nos. OPGW drum (approx. 9 Km) out of total 69.182 Km. POWERGRID again informed that this issue is discussed in various forums but the solution is yet to be provided by DVC. DVC informed that they are not able to resolve the issue as this is old ROW / compensation issue related to TL construction. OPGW work in this link could not be completed due to ROW/Compensation issues since September-2013.

In 36th ERPC meeting, matter has been deliberated and DVC informed that they will try to resolve ROW issues by 31st October-2017 otherwise they will provide the necessary certificate.
In 20th SCADA O&M meeting held on 15th December-2017, POWERGRID informed that DVC has not yet issued TOC for this link. DVC confirmed that they will issue TOC and request for a letter from POWERGRID. POWERGRID issued the request letter on 20.12.2017. However, TOC is yet to be issued by DVC.

In 37th TCC, *DVC informed that the ROW issue would likely to be resolved after the Panchayat Election of West Bengal.*

DVC may update.

Item no. C.20: 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.

ERLDC may present.

Item no. C.21: Failure of Real time telemetry

a) In geographically located area of North Bengal and Sikkim to ERLDC:

On 06th December 2017 at 17:26 hours, there was failure of real time SCADA data of 17 nos Central Sector station to ERLDC due to communication failure between Malda – Farakka OPGW link. The real time data restored at 09:37 Hours of 07th December 2017.

The real time SCADA data of North Bengal & Sikkim is totally dependent on availability of Malda – Farakka communication link. The path redundancy of Malda – Farakka communication link must be planned and implemented by POWERGRID so that such failure could be avoided.

The real time SCADA data failure of 17 nos Central Sector station to ERLDC due to communication failure Malda – Farakka OPGW link has been discussed in 141st OCC meeting held on 18th January 2018 wherein POWERGRID pointed out the alternate communication path could be established after installation of OPGW communication link between Purnea 400 kV to Biharshariff 400 kV. This link is owned by M/s East North Interconnection Company Limited (A subsidiary of Sterlite Power Transmission Limited).

In 142nd OCC, M/s East North Interconnection Company Limited (ENICL) informed that OPGW is already available in the line but laying of approach cable inside the POWERGRID sub-stations & termination at both end to communication Mux is pending. ENICL added that the same is under discussion at their end for early implementation of the same.

ENCIL & POWERGRID may update

b) Farakka STPS to ERLDC:

Real time SCADA data from Farakka STPS stage #3 SAS is not available at ERLDC since 10:32 Hrs of 09/09/2017. Real time SCADA data failure has been intimated to NTPC Farakka Generating station on number of occasions; verbally over phone & through but the same is yet to be rectified.

In 142nd OCC, NTPC informed that they are in the process of replacing the SAS which is in tendering stage.

NTPC may update

Item no. C.22: 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 March-2018 is given below:

Sl No	State/Utility	TTC import(MW)		RM(MW)		ATC (Import) MW		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	--	--	--	--	--	--	Last available for Jan-18
2	JUSNL	988	--	60	--	928	--	
3	DVC	1132	2707	54	44	1078	2663	For March18
4	OPTCL	1896	--	84	--	1812	--	For March18
5	WBSETCL	3960	--	300	--	3660	--	For March18
6	Sikkim	--	--	--	--	--	--	

Members may update.

Item no. C.23: 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 in Phase-I. Subsequently drifted meter replacement work of Phase –I for 24 meters have been completed.

As per decision taken in 134th OCC meeting, another 10% heavily drifted meter list was prepared by ERLDC and given to Powergrid for replacement. In 140th OCC it was informed that all the Phase-II meters have been replaced except Kharagpur. Since issue of integration of Genus meter is already resolved, It was also decided that list of meters to be replaced in next phase may be prepared.

Accordingly List of drifted meters to be replaced in Phase-III is placed below:

List of drifted meters to be replaced in Phase-III

SNO	LOCATION	METER SNO	FEEDER NAME	Region
1	JEERAT(WB)	NP-6445-A	400 KV JEERAT (WBSETCL) - BERHAMPORE(PG)	ER-II
2	JEERAT(WB)	NP-6446-A	400 KV JEERAT (WBSETCL) - SUBHASGRAM	ER-II
3	RANCHI(PG)	NP-7853-A	400 KV RAGHUNATHPUR 1	ER-I
4	RANCHI(PG)	NP-7871-A	400 KV RAGHUNATHPUR 2	ER-I
5	ALIPURDUAR(PG)	NR-3716-A	400 KV POLE-3 MAIN BAY-AGRA(NR)	ER-II
6	ALIPURDUAR(PG)	NR-3718-A	400 KV POLE-3 TIE BAY AGRA(NR)	ER-II
7	NEW MELLI(PG)	NR-4620-A	220 KV JORETHANG(JLHEP)-1	ER-II
8	NEW MELLI(PG)	NR-4621-A	220 KV JORETHANG(JLHEP)-2	ER-II
9	TEESTA-III	NR-3714-A	400 KV SIDE OF TEEST-III HEP GT-1	ER-II
10	TEESTA-III	NR-3715-A	400 KV SIDE OF TEEST-III HEP GT-2	ER-II
11	TEESTA-III	NR-4450-A	400 KV SIDE OF TEEST-III HEP GT-3	ER-II
12	TEESTA-III	NR-3720-A	400 KV SIDE OF TEEST-III HEP GT-4	ER-II
13	TEESTA-III	NR-4623-A	400 KV SIDE OF TEEST-III HEP GT-5	ER-II
14	TEESTA-III	NR-3719-A	400 KV SIDE OF TEEST-III HEP GT-6	ER-II
15	TEESTA-III	NR-4456-A	400 KV TEESTA-III - DICKCHU (MAIN)	ER-II
16	TEESTA-III	NR-4618-A	400 KV TEESTA-III - DICKCHU (CHECK)	ER-II
17	TEESTA-III	NR-4454-A	400 KV TEESTA-III - RANGPO (MAIN)	ER-II
18	TEESTA-III	NR-4453-A	400 KV TEESTA-III - RANGPO (CHECK)	ER-II
19	JINDAL (GRIDCO)	NP-6502-A	220KV JAMSHEDPUR (DVC)	ODHISA PROJECT
20	JAMSHEDPUR (DVC)	NP-6010-B	220 KV JINDAL	ER-I
21	GANGTOK(PG)	NP-6026-A	132KV CHUZACHEN(GATI)	ER-II
22	RANGPO(PG)	NP-7958-A	132 KV CHUZACHEN (GATI)	ER-II

Powergrid informed that they would start the replacement work of Phase III after collecting the SEMs tentatively in March 2018.

Powergrid may update.

Item no. C.24: Replacement of SEM meters/ time drift correction of SEMs installed in 400kV Derang-Phoolpada(PG) D/C line.

JITPL vide letter dated 5th February 2018 informed that there was time drift in SEMs installed in 400kV Derang-Phoolpada(PG) D/C line.

JITPL requested to resolve the long pending issue for which they are incurring loss in billing and DSM.

In 142nd OCC, POWERGRID informed that they would replace the meters by next day.

ERLDC, JITPL and PGCIL may update.

Item no. C.25: Mock Black start exercises in Eastern Region – ERLDC

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	*Done on 9th January 2018*
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	Done on 30th November 2017
4	U. Indarvati	3rdweek ofJune 2017	November 2017	2ndweek of February2018	*1st week of March 2018*

5	Subarnarekha	1stweek of October 2017	Done on 14th October 2017	1stweek of January2018	In mid March 2018
6	Balimela	3rdweek of October 2017	November 2017	1stweek of March 2018	*1st week of March 2018*
7	Teesta-V	2ndweek of Nov 2017		Last week of February2018	Done on 26th December 2017
8	Chuzachen	Last Week of May2017	May, 2017	January2018	
9	Burla	Last Week of June 2017	Dec, 2017	Last week of February2018	Done on 29th January 2018
10	TLDP-III	1st Week of June 2017	Done on 20th Dec, 2017.	2ndWeek of January2018	
11	TLDP-IV	Last Week of June 2017	After Mansoon	1stWeek of February2018	Before 12th March 2018
12	Teesta-III		December 2017		Done on 8th January 2018

The black start exercise of Upper Indravati P.H. which was scheduled to be carried out on 09.01.2018 at 11:00Hrs could not be carried out due to transmission line problem and would be performed later.

In 141st OCC, WBSETCL was advised to submit the report on black start exercise of TLDP III to ERLDC and ERPC.

OHPC informed that the black start operation of unit-1 of Indravati P.H. has been successfully completed on 09.03.2018 at 15:47 Hrs. The black start operation of unit-6 of Balimela P.H. has been successfully completed on 09.03.2018 at 12:30Hrs.

Members may update.

Item no. C.26: Testing of DG sets by SLDCs

In the event of failure of local supply, the critical function of monitoring and controlling state grids by SLDCs should not get affected. Hence it is essential to maintain the respective DG sets in healthy condition at all times. SLDCs may confirm whether their DG sets are tested on weekly basis.

In 142 OCC meeting JUSNL informed that they have been testing the DG sets on weekly basis.

Odisha, West Bengal and DVC informed that they have been testing the DG sets on monthly basis.

OCC advised all SLDCs to test the DG sets on weekly basis.

SLDCs may update the present frequency of testing of DG sets.

Item no. C.27: Schedule for reactive capability tests

In 37th TCC, *Members updated the status and informed the schedule as follows:*

- Adhunik TPS(both units) – Yet to be confirmed by Adhunik
- JITPL(both units) – After the emergent inspection of OEM(BHEL). Testing would be done in June 2018
- Barh TPS – Vibration problems will be attended during overhauling. The testing would be done after overhauling.
- Raghunathpur – In March 2018 with partial loading because of coal shortage issues

- GMR (Three units) – It was informed that Grid Conditions are not supporting for testing of the units. TCC advised GMR to discuss the issues in 143rd OCC Meeting scheduled to be held on 26th March 2018.

Members may update.

Item no. C.28: 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. The updated status as furnished in 142nd OCC by Powergrid is given at **Annexure-C.28**.

Powergrid vide mail dated 8th January 2018 informed that they are facing difficulty in installation of PMUs at following locations:

1. IBEUL: Material delivered at site in the month of August. Accordingly team was deployed for installation. But Due to non-readiness at site the team could not work and has to returned back. Till now permission has not been granted for PMU installation.
2. JITPL: Material delivered at site in the month of August. Team was deployed for PMU installation. Due to space constraint the installation could not be done.

In 142nd OCC, POWERGRID informed that the installation could not be completed at Jindal, Angul due to space constraint. In the meeting, JITPL representative agreed to resolve the issues.

POWERGRID informed that air-conditioning and lighting arrangement in PDC control room at SLDC-Howrah was not yet provided by WBSETCL for PDC installation. The requirement of air-conditioning and lighting in PDC control room at SLDC-Howrah was intimated to WBSETCL during survey on November-2014 but the same is not yet provided. The matter has also been discussed in 20th SCADA O&M meeting held on 15th December 2018 wherein WBSETCL intimated that the same would be done on priority.

OCC advised WBSETCL to provide the air-conditioning and lighting in PDC control room at SLDC-Howrah at the earliest.

In 37th TCC, JITPL agreed to examine and confirm the space within one week.

Regarding Patratu, it was decided that NTPC and JUSNL would sit together and sort out the issue by March, 2018.

POWERGRID may update the status.

Item no. C.29: Curtailment of charging time on tripping of 132 KV new Kataiya-Kushaha Transmission Line from GSS Kataiya raised by Nepal Electricity Authority--BSPTCL

Nepal Electricity Authority (NEA) has requested to arrange the shortest time period for charging of 132 KV new Kataiya- Kushaha Transmission Line from GSS Kataiya. The charging of the said lines are getting delayed about 1:30 - 2 hrs from January itself. Previously on tripping of line, the line used to be charged based on telephonic conversation within 10 min. To minimize the charging time on tripping of 132 KV new Kataiya- Kushaha Transmission Line from GSS Kataiya the method of 1st instance charging of tripped line with consent limited to BSPTCL Kataiya & Duhabi/Kushaha/Nepal only may be allowed.

In 142nd OCC, BSPTCL informed that they were to take consent from ERLDC then NLDC before charging the line. Hence the charging of the line was getting delayed.

ERLRC informed that they take up the issue with NLDC.

ERLDC may update.

Item no. C.30: Flexible Operation of thermal power stations- Identification of pilot projects--CEA

Central Electricity Authority vide letter dated 16th February 2018 informed that a special Task Force was constituted under IGEF Sub-Group-I for enhancing the flexible operation of existing coal-fired power plants. The committee has recommendd for implementation of measures for 50%, 40% and 25% minimum load in thermal power stations. The measures for 50% minimum load operation requires no investment or minimal investment. (Report is available on CEA website under TRM division)

Subsequently, a meeting was held under the chairmanship of Member (Thermal) on 8th February 2018 where in it was decided that 55% minimum load operation would be implemented nationwide in first phase. Furher, Six units, including two units of NTPC and one unit each from DVC, GSECL, APGENCO, MSPGCL, would be taken up for 55% minimum load operation on pilot basis as 55% minimum load operation in line with the CERC notification dated 6th April 2016 and 5th May 2017 (IEGC 4th Amendment).

In 142nd OCC, NTPC informed all the units of NTPC were capable of 55% minimum load operation.

DVC informed that they were planning to implement at DSTPS.

In 37th TCC, DVC informed that they would demonstrate the capability of 55% minimum load operation for one unit of DSTPS by March 2018.

NTPC and DVC may decide.

Item no. C.31: Nomination of members for Crisis & Disaster Management Plan for Power Sector

The old list of nominated members for Crisis & Disaster Management Plan for Power Sector of Eastern Region is attached as **Annexure-C31**. Most of the members in the list have been superannuated or transferred to other places.

SLDCs are requested to nominate/update the contact details of members for Crisis & Disaster Management.

OCC advised all SLDCs to nominate/update the contact details of members for Crisis & Disaster Management.

ERLDC may update.

PART D:: OPERATIONAL PLANNING

Item no. D.1: Anticipated power supply position during April'18

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

Members may confirm.

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

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

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

1. **Continuous S/D of 400kV D/C New Siliguri-New Purnea TL LILO At Kishanganj For Carrying out Diversion of Anchor Tower-2 Location which got damaged during last year flood-Powergrid**

400kV Binaguri-New Purnea TL LILO at Kishanganj Loc No. Anchor-2 has got vulnerbale due to change in course River Mahananda.Two tower legs already encroached by river last year and the earth below the foundation have been eroded.

As a permanent measure Powergrid is shifting the Anchor-2 Tower on Pile Foundation and presently Pile Foundation work is in progress.

However, after completion of pile, during tower erection & stringing work Powergrid require continuous S/D of 400kV D/C Binaguri-Purnea LILO @ Kishanganj wef 1st week of April to End of May-18.

In order to save the long outage of both the lines we are proposing for bypassing the existing LILO at Kishanganj and by jumpering we shall through 1 ckt to Purnea SS.

142nd OCC in principle agreed to the proposal.

BSPTCL informed that they would make a study on their state network to cater their loads.

BSPTCL may update.

2. **Continuous S/D of 220kV D/C Siliguri-Dalkhola LILO At Kishanganj For Carrying out Diversion of Anchor Tower-1,2 & Loc No.-35 Location which got damaged during last year flood.**

3 Nos. Locations of 220kV Siliguri-Dalkhola TL LILO @ Kishanganj Loc No.- Anchor-1,Anchor-2 & Loc No.-35 have got vulnerbale due to change in course River Mahananda. Anchor-1 & Anchor-2 has already been encroached by Mahananda River and Loc No.-35 is presently at a distance of 8 metres from the river.

However, considering the last year trend and present site condition, it has been decided to shift all the affected 3 towers on Pile Foundation.

However, during construction of Pile and during tower erection & stringing work we require continuous S/D of 220kV Siliguri-Dalkhola LILO @ Kishanganj wef End of April-18 to June-18.

In order to save the long outage of both the lines we are proposing for bypassing the existing LILO at Kishanganj and by jumpering we shall through 1 ckt to Dalkhola SS.

142nd OCC in principle agreed to the proposal.

BSPTCL informed that they would make a study on their state network to cater their loads.

BSPTCL may update.

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

(i) Thermal Generating units:

Sr. No	Generating Station	Unit Number	Capacity(MW)	Reasons For Outage	Outage Date
1	KAHALGAON	2	210	OVER HAULING	5-Mar-18
2	FARAKKA	4	500	OVER HAULING	11-Mar-18
3	ADHUNIK	2	270	GENERATOR VIBRATION	7-Sep-17
4	FARAKKA	2	200	DESYN DUE TO LOW CW INTAKE	19-Mar-18
5	JITPL	2	600	PROBLEM IN ASH HANDLING SYSTEM	16-Mar-18
6	RAGHUNATHPUR	2	600	COAL SHORTAGE	27-Feb-18
7	MEJIA	5	250	PROBLEM IS IN BARRING GEAR	22-Sep-17
8	MEJIA	1	210	ETL	14-Feb-18
9	MEJIA	6	250	STATOR EARTH FAULT	15-Mar-18
10	VEDANTA	2	600	PROBLEM IN BOILER	8-Feb-18
12	GMR	3	350	PROBLEM IN ASH CONVEYING	17-Mar-18
13	SAGARDIGHI	4	300	TURBINE VIBRATION	17-Mar-18

(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	BALIMELA	2	60	R & M WORK	20.11.2017
6	BALIMELA	7	75	Governor & Guide vane problem	12.10.2017
7	U.KOLAB	2	80	Repair of MIV & Draft tube gate leakage	28.05.2017
8	RENGALI	5	50	Hoist gate problem	21.03.17

(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 TALA -BINAGURI -I	POWERGRID/BHUTAN	29.12.17	S/D AVAILED BY BHUTAN
132 KV ARRAH-ARRAH	BSPTCL	12.2.18	FOR RECONDUCTORING AND MULTI CKT TOWER ERECTION WORK
400KV TALA -BINAGURI -II	POWERGRID/BHUTAN	22.2.18	LINE OPENED ON O/V
765kV GAYA - VARANASI- II	POWERGRID	25.02.18	MODIFICATION OF TOWER NOS 338 &

			339 BY CASTING OF NEW TOWER FOUNDATION.
220 KV MERAMUNDALI - BHANJNAGAR II	OPTCL	12-02-18	UNDER CONTINUOUS SHUTDOWN

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

Members may update.

Item no. D.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	765kv Anugul-Srikakulum D/C	
7	400kV Sasaram-Daltonganj D/C &Daltonganj S/Stn	
8	400 kV Ranchi-Raghunathpur D/C	
9	220 kV TLDP-IV – NJP ckt-2	
10	220kV Gola- Ranchi	

Members may update.

PART E:: ITEMS FOR INFORMATION

Item No. E.1: 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-E1**.

Members may note.

Item No. E.2: 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. E.3: 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.

Item No. E.4: 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-E.4**.

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 note.

Item No. E.5: 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- E.5**.

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 note.

Item No. E.6: 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	46	85.19
NTPC	16	14	87.50
NHPC	1	1	100.00
DVC	40	26	65.00
WB	68	27	39.71
Odisha	59	42	71.19
JUSNL	34	25	73.53
BSPTCL	16	5	31.25
IPP (GMR, Sterlite and MPL)	5	5	100.00

** Pending observations of Powergrid are related to PLCC problems at other end.*

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.

Members may comply.

Item No. E.7: Approval of outage procedure and Submission of outage request to ERLDC as per procedure

In 142nd OCC, ERLDC deliberated the outage procedure and requested all indenting agency to follow the procedure while submitting any outage request to ERLDC/ERPC. OCC advised all the constituents to go through the outage procedure and give their comments to erldcam@gmail.com and ftcer@posoco.in, if any modification is required. Till date ERLDC did not receive any modification suggestions from beneficiaries. In view of non-receipt of any modification/suggestions, the modified procedure is hereby considered approved.

Members may note.

Item No. E.8: 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-E8**.

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.

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

Constituents may note and comply.

Item No. E.9: Additional agenda

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Annexure-A9

VDI of Selected 765 kV & 400 kV in Eastern Region in the month of February - 2018

नई रांची / Ranchi New			जमशेदपुर / Jamshedpur			मुजफ्फरपुर / Muzaffarpur		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
791	763	0.00	425	411	29.12	412	385	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	398	0.00	424	400	15.95	427	394	24.72

राउरकेला / Rourkela			जयपोर / Jeypore			कोडरमा / Koderma		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
417	404	0.00	425	383	0.31	420	406	0.00

मैथन / Maithon			तीस्ता / Teesta			रांगपो / Rangpo		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
422	405	0.37	423	398	5.03	420	395	0.00

Quarterly Preparedness Monitoring -AGENDA

(Status as on :)

S.No.	State	Sector (G/T/D)	Utilities	Status of CISO Nomination	Critical Infra Identified	Crisis management Plan Prepared	Status of CS mock drill	Status of Training/ Workshops organized/ participated by utility	Action taken on CERT-In/NCIIPC Advisories
1	Tamilnadu	T	TANGEDCO	Yes/No	Yes/No	Yes/No	Done on ____		

Annexure-C1

ODISHA POWER TRANSMISSION CORPORATION LIMITED
(A Government of Odisha Undertaking)
CIN-U40102OR2004SGC007553
Regd.Office:Janapath,Bhoinagar,Bhubaneswar-751022
O/O the CGM (O&M),FAX: (0674) – 2542932

NO:TW-GM(O&M)-O/O CGM(O&M) 04/2014 -410 **Dated** 12-3-18

To

The Member Secretary,
ERPC, 14 Golf Club Road,
Tollygunge, Kolkata-700 033

Sub: Revised allocation for under frequency load shedding in OPTCL.

Sir,

With reference to the above, during the UFR audit of 132/33kV Sunbedha GSS on 02.01.2018 it is observed that load in the feeder is very negligible. The load has been reduced in the said feeder due to realignment of load in 33kV feeders. Hence, revised under frequency load shedding has been adopted in UF relay setting of Jaynagar Sunabedha and Tentulikhunti GSS for load shedding of total 735 MW in OPTCL system. The revised feeder wise load shedding details is enclosed herewith.

Yours faithfully

Encl. As above.

9/3/18
Chief General Manager(O&M)

CC to

1. **Director (Operation), OPTCL, Bhubaneswar.**
2. **CLD, SLDC, Bhubaneswar.**
3. **GM , EHT (O&M) Circle, Jeypur.**
4. **Sr.GM,(O&M)-I, Narendrapur.**
5. **Under Frequency Correspondence file.**

Feeder wise Automatic under frequency load shedding of OPTCL

State / Utilitry	Stage / Frequency	Name of Grid / Sub-Station	Name of Feeder	Load in MW
OPTCL	Stage-I, 49.2Hz	Kesinga	33kV Naria Feeder	11.0
		Junagarh	33kV Charbahalpur Feeder	10.0
		Bhanjanagar	33kV KB Pur Feeder	7.0
		Aska	33kV Buguda Feeder	11.0
		Berhampur	33kV Chikiti Feeder	11.0
		Balugoan	33kV Khalikote Feeder	16.0
		Khurda	Banki Feeder	13.0
		Nayagarh	33kV Khandapada Feeder	8.5
		Jagatsinghpur	33kV Balikuda Feeder	11.0
		Boinda	33kV Jharpada Feeder	12.0
		Bhadrak	33kV Dhamnagar Feeder	16.0
		Balasore	33kV Srijang Feeder	6.5
		Bolangir (Old)	33kV Dumarbahal Feeder	10.5
		Bargarh	33kV Dunguri Feeder	15.0
		Rourkela	33kV Lathikata Feeder	8.0
		Khariar	33kV Khariar RE	15.0
			Total	**181.5**

State / Utility	Stage / Frequency	Name of Grid / Sub-Station	Name of Feeder	Load in MW
OPTCL	Stage-II , 49.2 Hz	Jayanagar	33kV Boriguma Feeder	10.0
		Sunabeda	33kV Nandpur Feeder	12.0
		Therubali	33kV Bisam Katak Feeder	8.0
		Phulbani	33kV Kalinga Feeder	8.0
		Kendrapara	33kV Luna Feeder	15.0
		Pattamundai	33kV Rajnagar Feeder	8.0
		Chatrapur	33kV Rambha Feeder	14.0
		Chandikhole	33kV Kabatabandaha Feeder	15.0
		Nimapara	33kV Kakatpur Feeder	13.0
		Khurda	33kV Delanga Feeder	12.0
		Dhenkanal	33kV Hindol RD Feeder	12.0
		Chainpal	33kV Banarpal Feeder	15.0
		Jajpur Road	33kV Panikoili Feeder	12.0
		Bhanjanagar	33kV Belaguntha Feeder	12.0
		Sundargarh	33kV Bargoan Feeder	6.5
		Aska	33kV Budamba Feeder	15.0
			Total	**187.5**

State / Utilitry	Stage / Frequency	Name of Grid / Sub-Station	Name of Feeder	Load in MW
OPTCL	Stage-III 48.8Hz	Bhadrak	33kV Chandabali Feeder	16.0
		Dhenkanal	33kV Gondia Feeder	13.0
		Sambalpur	33kV Rengali Feeder	15.0
		Bargarh	33kV Turung Feeder	22.0
		Nayagarh	33kV Binodpara Feeder	12.0
		Brajarajnagar	33kV Sargipali Feeder	15.0
		Patnagarh	33kV Khaparakhol Feeder	8.0
		Palasponga	33kV Remuli Feeder	18.0
		Boinda	33kV Athamalik Feeder	5.0
		Chainpal	33kV Parjang Feeder	13.0
		Kalarangi	33kV Goda Feeder	10.0
		Kesinga	33kV Titilagarh Feeder	12.0
		Nimapara	33kV Konark Feeder	7.0
		Aska	33kV Nuagaon Feeder	10.0
		Jajpur Road	33kV Kuakhia Feeder	8.0
			Total	**184.0**

State / Utilitry	Stage / Frequency	Name of Grid / Sub-Station	Name of Feeder	Load in MW
OPTCL	Stage-IV 48.6Hz	Khariar	33kV Khariar Feeder-II	7.0
		Sunabedha	33kV Sunki Feeder	8.0
		Barkote	33kV Mahuldhia Feeder	9.0
		Polaponga	33kV Keonjhar Feeder	17.0
		Aska	33kV Kabisuryanagar Feeder	13.0
		Sundargarh	33kV Subdega Feeder	5.0
		Bhanjanagar	132kV Phulbani Feeder	22.0
		Kendrapara	33kV Pattamundai Feeder	24.0
		Jajpur Road	132kV Anandapur Feeder	30.0
		Bolangir (New)	132kV Patanagarh Feeder	22.0
		Tentulikhunti	132kV Dabugaon-Umerkote	25.0
			Total	**182.0**
		Total Load relief under UFR Scheme		**735**

LIST OF FEEDERS IDENTIFIED TO BE DISCONNECTED UNDER RLDC INSTRUCTION, TO CONTROL OVERDRAWAL OF THE CONCERNED STATE

WB System

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	132 kV Birpara(PG)-Birpara(WB)	132 kV Birpara(PG)

Odisha System

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

Intra-state Feeders	Remarks
132kV Bolangir(New)-Patnagarh S/C	
132kV Chhatrapur – Ganjam S/C	
132kV Bhanjanagar-Phulbani S/C	
132kV Chandaka-Nimapara / Ranasighpur	
132kV Baripada(PG)-Jaleswar/Bhograi	
132kV Jajpur Rd. – Kendrapara D/C	

DVC System (feeders identified are at 33kV)

List of Sheddable Feeders of DVC

SUBSTN	NAME OF THE CONSUMER	Category	Rev. CD in MVA
Barhi	JSEB Barhi	JSEB	30.0
BTPS-A	JSEB Bokaro	JSEB	24.0
CTPS	JSEB Chas	JSEB	20.0
Konar	JSEB Konar Banaso	JSEB	10.0
Kumardubi	JSEB Mugma	JSEB	22.0
Giridih	JSEB Giridih	JSEB	55.0
Patherdih	JSEB Digwadih	JSEB	17.0
Patherdih	JSEB Gobindpur	JSEB	40.0
Putki	JSEB Ganeshpur	JSEB	35.0
Putki	JSEB Jamadoba	JSEB	13.0
Barhi	JSEB Padma PSS RGGVY	JSEB	18.0
CTPS	JSEB Dugdha	JSEB	25.0
Ramgarh	JSEB Ramgarh	JSEB	80.0
Konar	JSEB Karma PSS RGGVY	JSEB	3.0
Kumardubi	JSEB Kumardubi	JSEB	9.0
Nimiaghat	JSEB Dumri Banaso	JSEB	40.0
Patherdih	JSEB Mukunda	JSEB	13.0
Putki	JSEB Katras (Tilatand)	JSEB	17.0
Patherdih	PMCH Medical College	JSEB	9.0
Ramgarh	JSEB West Bokaro (Ghato)	JSEB	1.5
Sindri	JSEB Sindri	JSEB	9.0
Biada	*JSEB Biada-Chas*	*JSEB*	15.0
Putki	JSEB Katras(Sijua)	JSEB	2.5
Putki	JSEB Sendra Bansjora	JSEB	4.0
CTPS	JSEB Jainamore	JSEB	22.0
Maithon R/B	JSEB Badjna	JSEB	18.0
Belmuri	WBSEB Belmuri	WBSEB	25.00
Burdwan	WBSEB Burdwan	WBSEB	48.00
Kalipahari	WBSEB Kanyapur	WBSEB	29.00
Kalipahari	WBSEB Luchipur	WBSEB	25.00
Maithon L/B	WBSEB Dendua	WBSEB	10.00
Maithon L/B	WBSEB Kalyaneswary	WBSEB	1.00
MTPS	WBSEB Borjora	WBSEB	10.00
Patherdih	WBSEB Santhaldih	WBSEB	0.80
Jamuria	WBSEDCL Jamuria	WBSEB	20.0

JUSNL System

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
Intra-state Feeders		**Remarks**
132kV Chandil – Golmuri D/C		
132kV Dumka-Pakur S/C		

BSPTCL System

Priority	Feeders/ICTs	Point of Disconnection
1	132kV Banka(PG)-Banka D/C line	132kV Banka PG
2	132kV Banka(PG)-Sultanganj D/C	132kV Banka PG
3	132kV Ara(PG)-Jagdishpur S/C line	132 kV Ara PG

PMU Installation and commissioning status of ER as on 12.01.2018

Annexure-C28

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			296	175	74	75	66	65	64	64	43	60	
1	ER-II	West Bengal	Arambagh	WBSETCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
2	ER-II	West Bengal	BAKRESHWAR TPS	WBSETCL	CR	4	1	Yes	Yes	done	done	done	done	done	done	
3	ER-II	West Bengal	Bidhannagar	WBSETCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
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.
57	ER-II	West Bengal	Alipurduar	Powergrid	CR	6	7	Yes	Yes	partially done	partially done	partially done	partially done	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.
6	ER-II	West Bengal	KASBA	WBSETCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
7	ER-II	DVC	DSTPS	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
67	ER-I	BIHAR	BANKA	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	Pending	pending	SAT pending.
9	ER-II	DVC	MEJIA-B	DVC	CR	2	1	Yes	Yes	done	done	done	done	done	done	Integrated on 07.12.2016
45	ER-II	Jharkhand	Bokaro TPS	DVC	CR	1	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.
11	ER-II	DVC	Raghunathpur TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	done	done	
33	Odisha	Orissa	Bolangir	Powergrid	CR+Kiosk	2	3	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
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.
78	ER-I	Bihar	Barauni PP	Bihar	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	Substation deleted.
16	Odisha	Orissa	MENDHASAL	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	done	done	
17	Odisha	Orissa	MERAMANDALI	OPTCL	CR	6	2	Yes	Yes	done	done	done	done	done	done	
18	Odisha	Orissa	RENGALI	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	done	done	Integrated on 22.06.2017
37	Odisha	Orissa	GMR	GMR	Kiosk	3	4	Yes	Yes	done	done	done	done	Pending	pending	SDH Panel not commisioned, powergrid supervision required for SAT activity
20	Odisha	Orissa	BALIMELA(H)	OPTCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
21	ER-II	West Bengal	Durgapur	Powergrid	CR	5	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 30.05.2016.
15	Odisha	Orissa	Budhipadar	OPTCL	CR	10	0	No	Yes	pending	pending	pending	pending	pending	pending	Manufactured, waiting for FAT. Will be dispatched after FAT.
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	done	done	done	done	done	done	Team deployed in substation. Permission for panel installation & cable laying given but no work permission in existing control panel is given. Team was idle for more than. 10 days.
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

PMU Installation and commissioning status of ER as on 12.01.2018

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
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.
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.
34	Odisha	Orissa	ANGUL	Powergrid	Kiosk	10	11	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.03.2017.
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
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.
8	ER-II	DVC	Kodarma TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	Pending	done	SDH panel does not exist.
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	Yes	done	done	done	done	done	done	mom/sat signature pending from powergrid end.
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	Yes	done	done	done	done	done	done	
66	ER-I	BIHAR	LakhiSarai	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	Pending	done	SAT completed. Integration planed
46	ER-II	West Bengal	Durgapur TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	done	done	
73	ER-I	Jharkhand	Daltonganj	Powergrid	Kiosk	2	3	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Site on-hold as Substation is under construction.
22	ER-II	West Bengal	FARRAKA	NTPC	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.
54	Odisha	Orissa	Ind barath	Ind barath	Kiosk	1	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
10	ER-II	DVC	Maithon RB TPS	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Work started on 04.07.2016. Panel shifted. Team demobilised due to access issue and panel location issue. Team deputed again 18th August, I&C done, integration pending due to communication break with control center.
51	Odisha	Orissa	Jindal	JITPL	CR	2	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
5	ER-II	West Bengal	Kolaghat TPS	WBSETCL	CR	4	1	Yes	Yes	done	done	done	done	done	done	
52	Odisha	Orissa	Monnet	Monnet	CR	1	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
55	ER-II	Sikkim	New Melli	Powergrid	CR	0	0	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Substation deleted.
76	ER-I	Jharkhand	Patratu	Jharkhand	CR	3	1	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Permission awaited.
53	Odisha	Orissa	Strelite	Strelite	CR	3	1	Yes	Yes	done	done	done	done	pending	done	SDH not commisioned
48	Odisha	Orissa	TALCHER	NTPC	CR	5	2	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
58	ER-II	West Bengal	Rajarhat	Powergrid	CR	2	1	Yes	Yes	done	pending	pending	pending	Pending	pending	Site on-hold. 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 on-hold. NTPC asked to use Armoured cable. Out of scope. Team idemobilized from site. Site assumed as closed as per PRM in Kolkatta.
61	ER-I	BIHAR	Purnea	Powergrid	CR	6	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 13.04.2017

PMU Installation and commissioning status of ER as on 12.01.2018

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
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	done	done	done	done	done	
64	ER-I	BIHAR	SASARAM(Pusauli)	Powergrid	CR+Kiosk	9	3	Yes	Yes	done	done	done	done	done	done	
65	ER-I	BIHAR	BARH	NTPC	CR	4	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
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.
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.
68	ER-I	Jharkhand	Chaibasa	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	done	done	
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	done	done	done	done	done	done	
72	ER-I	Bihar	MUZAFFAPUR	Powergrid	CR	5	2	Yes	Yes	done	done	done	done	done	done	
49	ER-II	Sikkim	TEESTA	NHPC	CR	1	1	Yes	Yes	done	done	done	done	done	pending	SAT pending due to no supervision
77	ER-I	Jharkhand	Tenughat	Jharkhand	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	SDH panel not commisioned
19	Odisha	Orissa	U.KOLAB	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
56	ER-II	Sikkim	TT Pool	Powergrid	CR	0	0	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Substation deleted.
50	Odisha	Orissa	Uttara	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication link from s/s to ERLDC not available.
47	Odisha	Orissa	TTPS(Talcher)	OPTCL	CR	3	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited

ER PMU site activity Summary:

Sl. No.	Region	Utility	As per approved BOQ		Supplied		Installed		Commissioned		Integrated to ERLDC/ SLDC	
			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	14	92	14	92	10	76
2	ER-I	NTPC	2	10	2	10	2	10	1	4	0	0
3	ER-I	Jharkhand	2	5	2	5	1	2	1	2	0	0
4	ER-I	Bihar	0	0	0	0	0	0	0	0	0	0
	ER-I	**Total**	**19**	**109**	**19**	**109**	**17**	**104**	**16**	**98**	10	76
1	ER-II	Powergrid	10	41	10	42	9	35	8	33	7	29
	ER-II	NHPC	1	1	1	1	1	1	1	1	1	1
2	ER-II	NTPC	1	5	1	5	1	5	1	5	0	0
3	ER-II	DVC	13	37	13	37	13	37	13	37	7	22
4	ER-II	WBSETCL	7	21	7	21	7	21	7	21	7	21
	ER-II	**Total**	**32**	**105**	**32**	**106**	**31**	**99**	**30**	**97**	**22**	**73**
1	Odisha	Powergrid	10	38	10	38	10	38	10	38	6	30
2	Odisha	OPTCL	8	29	7	19	6	16	6	16	5	14
3	Odisha	NTPC	1	5	1	5	0	0	0	0	0	0
4	Odisha	IPP	5	10	5	10	2	6	2	6	0	0
	Odisha	**Total**	**24**	**82**	**23**	**72**	**18**	**60**	**18**	**60**	**11**	**44**
	ER	**Total**	**75**	**296**	**74**	**287**	**66**	**263**	**64**	**255**	**43**	**193**

MOP/POSOCO/NLDC/RLDC/ SLDC	Name	Designation	Tel. Nos.	Mobile No.	Fax No.	E-mail Address
SLDC OPTCL						
Nodal Officer	Sh M R Mohanty	Sr. GM, SLDC		9438907310		sldcgridco@yahoo.com
SLDC W.B.						
Nodal Officer	Sh. A.RaiChoudhuri	C.E, SLDC	033- 26887186	9434910021	033- 26886132	wbsldc-power@yahoo.co.in
SLDC Ranchi, Jharkhand						
Nodal Officer	Md Shakeel Ahamed	ESE, SLDC	0651-2490090/ 2490486	9430730503	0651-2490486	sldcranchi@gmail.com
Second in Command	Shri S. K. Mishra	E.S.E. (Trans)	0651-2490090/ 2490863	9431708981	0651-2490486	sldcranchi@gmail.com
SLDC Ptana, Bihar						
Nodal Officer	Sh Prabhat Kumar Govil	Chiief Engineer (Head of SLDC)		7763817701	0612-2504557	cetransom.bsptcl@gmail.com
SLDC DVC						
Nodal Officer	Sh. B.Pan	C.E.(SO), CLD, Maithon	06540- 252423	9903247102	06540- 274838	brahmananda.pan@dvc.gov.in
SLDC J&K						
Nodal Officer	Sh. Shahnaz Goni	CE/ M & RE Wing	0191-2554426	9419191674	0191-2505708	cemrejammu2@gmail.com
Nodal Officer	Sh. Umesh Parihar	XEN (LD)	0191-2475371	9419185439	0191-2475371	
SLDC PUNJAB						
Nodal Officer	Sh. G. S. Sohi	CE (SO)	0175-2653660	9646118001	0175-2365340	ce_sldc@pstcl.org
Second in Command	Sh. S. S. Mall	SE (SO)	0175-2366074	9646118004	0175-2365340	se_sldcop@pstcl.org
SLDC BBMB						
Nodal Officer	Sh. Ashok Ghai	Director (Power Regulation)	0172-2652820	9417216047	0172-2652820	dirpr@bbmb.nic.in
Second in Command	Sh. Kuldeep Singh	Sr. XEN/ Add. SE (Power	0172-2659324	9417200352	0172-2652820	powerc@bbmb.nic.in
SLDC CHANDIGARH						
Nodal Officer	Sh. Sunil Sharma	P.C. Cum Executive Engineer	0172-2655531	8054104511	0172-2637880	elop2_chd@nic.in
Second in Command	Sh. Surendra	APC cum AEE	0172-2637880	8054104512	0172-2637880	apc_chandigarh@hotmail.com
SLDC DELHI						
Nodal Officer	Sh. P. K. Gupta	GM (SLDC)	011-23221091	9999533626	011-23221069	psdpvr2012@gmail.com
Second in Command	Sh. V. Venugopal	DGM (SO)	011-23221175	9871093902	011-23221059	dtldata@rediffmail.com
SLDC HARYANA						
Nodal Officer	Sh. Rajesh Gupta	Chief Engineer (SO)	0172-2560547	9313472673	0172-2560622	hvpncecoml@yahoo.com
Second in Command	Sh. N.K.Makkar	EE (LD & PC)	0180-2661515	9300278204	0180-2670819	sldcharyanacr@gmail.com

Annexure-D.1

Anticipated Power Supply Position for the month of
Apr-18

SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	4300	2477
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	336	182
		- Central Sector	3062	1674
	iii)	SURPLUS(+)/DEFICIT(-)	-902	-620
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1240	800
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	321	162
		- Central Sector	804	418
	iii)	SURPLUS(+)/DEFICIT(-)	-115	-220
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	2800	1695
	ii)	NET POWER AVAILABILITY- Own Source	5146	2776
		- Central Sector	318	155
		Long term Bi-lateral (Export)	1564	1126
	iii)	SURPLUS(+)/DEFICIT(-)	1100	110
4		**ORISSA**		
	i)	NET MAX DEMAND	4300	2520
	ii)	NET POWER AVAILABILITY- Own Source	3327	1822
		- Central Sector	1185	631
	iii)	SURPLUS(+)/DEFICIT(-)	211	-67
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	6097	3791
	ii)	CESC's DRAWAL	0	0
	iii)	TOTAL WBSEDCL's DEMAND	6097	3791
	iv)	NET POWER AVAILABILITY- Own Source	3740	2071
		- Import from DPL	115	0
		- Central Sector	2363	1724
	v)	SURPLUS(+)/DEFICIT(-)	121	4
	vi)	EXPORT (TO B'DESH & SIKKIM)	5	4
5.2		**DPL**		
	i)	NET MAX DEMAND	272	176
	ii)	NET POWER AVAILABILITY	387	187
	iii)	SURPLUS(+)/DEFICIT(-)	115	11
5.3		**CESC**		
	i)	NET MAX DEMAND	2050	1042
	ii)	NET POWER AVAILABILITY - OWN SOURCE	750	486
		FROM HEL	540	337
		FROM CPL/PCBL	0	0
		Import Requirement	760	219
	iii)	TOTAL AVAILABILITY	2050	1042
	iv)	SURPLUS(+)/DEFICIT(-)	0	0
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	8419	5009
	ii)	NET POWER AVAILABILITY- Own Source	4877	2744
		- Central Sector+Others	3663	2061
	iii)	SURPLUS(+)/DEFICIT(-)	121	-204
7		**SIKKIM**		
	i)	NET MAX DEMAND	85	34
	ii)	NET POWER AVAILABILITY- Own Source	1	0
		- Central Sector+Others	154	69
	iii)	SURPLUS(+)/DEFICIT(-)	70	35
8		**EASTERN REGION** **At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	20528	12535
		Long term Bi-lateral by DVC	1564	1126
		EXPORT BY WBSEDCL	5	4
	ii)	**NET TOTAL POWER AVAILABILITY OF ER (INCLUDING C/S ALLOCATION)**	23193	12694
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER (ii)-(i)**	1096	-971

Annexure- D.2

Proposed Maintenance Schedule of Thermal Generating Units of ER during April, 2018
(as finalised in LGBR meeting)

System	Station	Unit	Size (MW)	Period		No. of Days	Reason
				From	To		
ODISHA	TTPS	2	60	24.04.18	08.05.18	15	Boiler Overhaul
DPL	DPPS	6	110	01.04.18	15.05.18	45	Boiler License & ESP Augmentation
NTPC	KhSTPP	2	210	05.04.18	29.04.18	25	Boiler, DAVR
	TSTPS	5	500	05.04.18	19.05.18	45	Boiler Mod.+Capital+Gen.

Annexure-E1

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	

Annexure-E1

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 – E.4

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- E.5

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.

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: