Agenda

for

148th OCC Meeting

Date: 20.08.2018

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700 033

Eastern Regional Power Committee

Agenda for 148th OCC Meeting to be held on 20th August, 2018 at ERPC, Kolkata

Item no. 1: Confirmation of minutes of 147th OCC meeting of ERPC held on 20.07.2018

The minutes of 147th OCC meeting were uploaded in ERPC website and circulated vide letter dated 02.08.2018 to all the constituents.

Members may confirm the minutes.

PART A : ER GRID PERFORMANCE

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

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

1. **Frequency profile**
2. **Over drawal/under injection by ER Entities**

Over drawl figure of West Bengal and Odisha from 01-08-2018 to 09-08-2018 are shown below:

State	West Bengal		Odisha	
Date	Over Drawl (MU)	Max. Over Drawl (MW)	Over Drawl (MU)	Max. Over Drawl (MW)
01/08/18	0.69	200	3.09	250
02/08/18	1.2	400	1.3	250
03/08/18	3.93	480	2.4	400
04/08/18	4.82	300	-0.51	220
05/08/18	4.76	250	1.63	225
06/08/18	1.26	250	2.96	250
07/08/18	2.07	390	0.94	200
08/08/18	4.53	520	1.4	380
09/08/18	3.7	620	3.3	430

3. **Performance of Hydro Power Stations during peak hours**
4. **Performance of ISGS during RRAS**
5. **Reactive Power performance of Generators**
6. **Restricted Governor /Free Governor Mode Operation of generators in ER**

ERLDC has prepared a report on highlighting the poor response of Eastern region in comparison to other region in providing the primary frequency response. The report for the three events has been submitted in the 147th OCC. Based on the above, following ISGS/IPP generators may kindly update the reason for no response:

Name of Generators (ISGS/IPP)	Reason for Nil governor response during the events
JITPL	
Farakka St 3	
Barh	
Teesta 5	
Teesta 3	
Nabinagar	
Talcher St 1	
GMR	
MPL	

Submission of High-resolution data for July'18 FRC Event: Two more events has occurred in the Month of July i.e. on 10th July 2018 at 08:14 Hrs and 30th July 2018 at 2:48 Hrs. All ISGS/SSGS/IPP are advised to submit the 1-second or higher resolution data to ERLDC on erldcprotection@posoco.in at earliest. E-Mail communication has been sent to ISGS/IPP and State SLDC. State SLDC may kindly collect the details from state generators and submit to ERLDC.

Event	NR	ER	WR	SR	NER*
Event 1 at Teesta III &Dikchu in NR (1025 MW Gen Loss)	16.3%	51.4%	20.0%	47.1%	24.2%
Event 2 at Teesta III &Dikchu in NR (1024 MW Gen Loss)	13.8%	4.6%	9.5%	4.2%	38.4%
Average Response	15.05%	28.00%	14.75%	25.65%	31.30%

Event	Bihar	Jharkhand	DVC	OPTCL	WB	SIKKIM
Event 1 at Teesta III &Dikchu in NR (1025 MW Gen Loss)	190.7%	-439.4%	4.5%	34.5%	41.3%	124.5%
Event 2 at Teesta III &Dikchu in NR (1024 MW Gen Loss)	-45.1%	385.9%	23.9%	-178%	24.9%	165.4%
Average Response	72.8%	-26.7%	14.2%	-71.9%	33.1%	145.0%

7. Non-Operation of SPS-1 for 400 kV Rangpo-Binaguri D/C on 13th June 2018 at 06:32 Hrs.

At 06:32 Hrs, there was a successful Auto-Reclosure on 400 kV Binaguri- Bongaigaon 2 circuit due to B phase to earth fault. At the same time , 400 kV Binaguri-Rangpo circuit 2 which is in same diameter of 400 kV Binaguri-Bongaigaon 2 at Binaguri end got tripped from Binaguri end on Over voltage stage 2 operation (Y phase voltage) . In addition 400 kV Bingauri-Tala 1 also has tripped on over voltage stage 2 operation from Binaguri end (R phase Voltage). The reason for the transient overvoltage is not known. Rest of the circuit from Binaguri end did not trip during this event.

Prior to the event, 400 kV Rangpo-Binaguri each circuit was carrying around 800 MW. Immediately with the tripping of 400 kV Rangpo-Binaguri 2, the SPS-1 should have operated and given trip command for all teesta 3 Units except one and one unit each at Tashiding, Jorethang, Chujachen and Dikchu. However, the signal did not generate. This led to loading of the remaining circuit above 1600 MW. With this condition, SPS-2 should have operated however, that also did not operate. This led to loading of 400 kV Rangpo-Binaguri circuit 1 above 1600 MW (Above thermal loading) and instructions were passed on to generators to reduce their loading to avoid permanent damage to the circuit. After 15 minutes the loading were reduced below 900 MW for this circuit.

Immediately after the event, SPS at Rangpo was tested and details of SPS testis given below:

Event	Time stamp	Delay (In sec)
Signal generation time at Rangpo	15:06:44.027	--
Bus coupler opened at Teesta 3	15:06:44.056	0.029
Receipt of SPS I signal at Chujachen	15:06:44.278	0.251
Receipt of SPS I signal at Jorethang	15:06:44.447	0.420
Receipt of SPS I signal at Tashiding	15:06:44.866	0.839

Issues of Concern and Discussion:

a) Over-Voltage Stage 2 operation at Binaguri due to rise in the healthy phase voltage.
b) Failure of SPS operation at Rangpo end for 400 kV Rangpo-Binaguri circuits.
c) Redundancy of SPS at Rangpo and Binaguri substations.
d) Status of DTPC based SPS scheme in order to avoid any time delay and increasing its robust operation.

8. Simultaneous Operation SPS-1 and SPS-2 of 400 kV 400 kV Rangpo-Binaguri D/C on 10th and 30th July 2018

Event 1: On 10th July at 08:14 Hrs, 400 kV 400 kV Rangpo-Binaguri 1tripped on transient fault with which SPS-1 operated. However, after 700 ms of this SPS-2 has also operated causing blackout of Teesta3 and Dikchu generation complex with envisaged tripping of 400 kV Teesta3-Rangpo circuit.

Event 2: On 30th July at 20:48 Hrs, 400 kV 400 kV Rangpo-Binaguri 2tripped on Permanent Nature fault with which SPS-1 operated. However, after 700 ms of this SPS-2 has also operated causing blackout of Teesta3 and Dikchu generation complex with envisaged tripping of 400 kV Teesta3-Rangpo circuit.

Both incidents have led to more than 1000 MW generation loss in the system and frequency drop of more than 0.1 Hz in the system.

Following are the reason of concern over these events, which may kindly be discussed by members:

- **Operation of Both SPS-1 and SPS-2 operation during one line tripping:** It is the cause of concern that both SPS are operating indicating that the line loading of one circuit after tripping of another circuit and SPS-1 operation is not coming below 850 MW after the SPS-1 operation. The time delay for SPS-2 operation may kindly be reviewed in order to avoid operation during the power swing after SPS-1 operation.
- **Delay in commissioning of 400 kV Rangpo-Kishenganj D/C:** The delay in the commission of 400 kV Rangpo-Kishenganj D/C is leading to congestion in evacuation of generation of all

the hydro IPPs in Sikkim. Tripping of Rangpo-Binaguri line with consequent SPS operation and generation outage is experienced in each rainy season. The above line needs to commissioned at earliest for the evacuation of Sikkim hydro complex to ensure reliability and security.

- **Faults and Conductor snapping of 400 kV Rangpo-Binaguri circuits:** The conductor snapping in above case, hot spots and frequent faults on the 400 kV Rangpo-Binaguri D/C are cause of concern. This may be due to continuous loading of these lines above 850 MW. It is desirable to have proper monitoring and maintenance of these line to avoid any unwanted tripping of permanent damage to the line.
- **Unwanted tripping of 220 kV Rangpo-Tashiding circuit:** It was observed that on both days (10 July and 30th July), 220 kV Rangpo-Tashiding circuit got tripped from Tashiding end. At Tashiding end, line has tripped on power swing protection indication. It may be noted that power swing based tripping has to be allowed only for Zone 1 and not for other zones.
- **Time synchronization Issue in Event Logger/DR:** During analysis of event, it was found that there are time synchronization issue in DR/Event logger of Dikchu, Chujachen, Jorethang and Teetsa. This is highly undesirable as utilities are confirming healthiness of DR/EL/Time synch instruments however in actual the same is not found correct.

Members may please discuss.

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 (inRs.)	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 100 % Erection is completed Claim is submitted for releasing of 22.27 Cr., the same is yet to be received.
2		Renovation & modernisation of transmission system for relieving congestion in Intra-State Transmission System.	22-05-17	25 months from date of release of 1st instalment	70.13	21.03 Cr	Order has been placed for 96.44 Cr.
3		Installation of switchable reactor at 400kV & shunt capacitors at 33kV	22-05-17	19 months from date of release of 1st instalment	43.37	6.59 Cr	Order has been placed for 12.53 Cr.
4	WBPDCL	Implementation of Islanding scheme at Bandel Thermal Power Station	*10.04.17*	*March 2018*	1.39 Cr	1.25 Cr	*The implementation would be completed by July 2018.*
5		Upgradation of Protection and SAS			23.48	2.348 Cr	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	30.11.18	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.*	2.235 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	31.07.2018	64.02 crore	56.04 crore	85% 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 all 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*	*2 years*	*138.13 crores*		LOA issued to PRDC on 22ndMarch 2018 for monitoring the project. Tendering is in progress.
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	*160.28 Cr*	*16.028 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. Sikkim submitted the relevant information.
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. Sikkim submitted the relevant information.
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	WBSETCL	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 SLDC, Odisha	22-12-17	3.26 Cr	
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: Scheduling of Un-requisitioned Surplus (URS) power from ISGS – ERLDC

CERC vide order dated 17/10/2017 against Petition No. 16/SM/2015 had directed the following modification to the order dated 11.1.2010 in Petition No.134/2009(regarding scheduling of URS from ISGS):

"(a) All generating companies whose tariff is determined by this Commission under section 62 or adopted by this Commission under section 63 of the Act shall be permitted to revise their schedule for URS power from one beneficiary to another beneficiary of the same power station in terms of Regulation 6.5.18 of the Grid Code within 4 time blocks…."

"Where both the ***generating station and its beneficiaries (surrendering and requesting beneficiaries) give their standing consents in writing to RLDC that the decision of the concerned RLDC will be binding on them with regard to scheduling and dispatch of URS power****, the concerned* ***RLDC shall schedule such URS power to the requesting beneficiaries*** *in relative proportion to the quantum requested by them. In other cases, RLDCs*

*shall schedule URS power on the basis of the consents submitted by the **generating stations** …"*

In line to this order, the scheduling of URS of any generator within its beneficiaries by ERLDC is dependent upon the receipt of standing consent from the ISGS station and its beneficiaries. As on date ERLDC did not receive any standing instruction from majority of the beneficiaries/ISGS generators and also in some consent letter, parties did not mention that the decision of the concerned RLDC will be binding on them with regard to scheduling and dispatch of URS power and that they indemnify RLDCs/NLDC in all respects i.r.o the same.The URS scheduling practice followed at ERLDC is:

1. Beneficiaries send their URS requisition quantum directly to NTPC, RHQ with a copy to ERLDC.
2. NTPC, RHQ furnish their consent to ERLDC (URS quantum from respective ISGSs).
3. ERLDC allocate the consented URS quantum generator wise of each beneficiaries in the WBES URS module.

However, such practice of routing the requisition through NTPC/Patna causes unnecessary delay in scheduling URS power to the beneficiaries who are at that time in utter need of power due to sudden loss of state generation availability or any other reasons.

So, to avoid such delay in processing, all ISGS stations/beneficiaries are requested to submit the standing instruction to ERLDC in letter format mentioning that the decision of the concerned RLDC will be binding on them with regard to scheduling and dispatch of URS power and that they indemnify RLDCs/NLDC in all respects i.r.o the same as per the CERC order**.**

NTPC & all beneficiaries may please deliberate.

Item No. B.3: Guidelines for the charging of Transmission line connecting two generating plants after tripping on fault or outage

There is a prevailing issue on the charging of transmission line connecting two generating complex after its outage/tripping. It has been observed sometimes that either of the utility is not ready for charging of the line from their end after its tripping on fault/outage. This results in the delay in the restoration of line and thus affecting the reliability of both the generating station. In view of this, there is a need of guideline on charging of such transmission lines.

List of such transmission lines is given below:

I. 400 kV Farakka-Kahalgaon Q/C.
II. 400 kV Kahalgaon-Barh D/C.
III. 400 kV Farakka-Sagardighi D/C.
IV. 400 kV RTPS-DSTPS D/C.

As a general guideline following may be considered

- If voltage difference between two system is more than 5 kV system which have lower voltage should charge the line
- In case voltage difference is less than 5 kV system which have higher fault level should charge
- If only one end has line reactor than the end which is not having the line reactor should attempt to charge first.

Members may decide.

Item No. B.4: Reactive Energy Charge calculation i.r.o. Subhasgram(PGCL) S/S--WBSETCL

WBSETCL has requested for exclusion of MVarh drawal from Subhasgram(PGCL) / MVarh injectin to Subhasgram (PGCL) S/S by West Bengal for calculation of weekly Reactive charge account with the E.R. pool.

400/220 KV Subhasgram(PGCL) sub-stn. is embedded within STU network of West Bengal state control area. It is not connected to any CTU/ ISTS/ ISGS sub-stn. of Eastern Region. Rather this standalone PGCL S/S is connected only with West Bengal load buses of Jeerat, Subhasgram, Newtown, KLC BantaIa and EMSS(CESC) and West Bengal generation buses of Sagardighi TPP and Haldia Energy Ltd. Whatever lagging reactive power is drawn from SubhasGram(PGCL) S/S by STU load buses at low voltage (<97%) is mostly supplied by state generators like SgTPP and HEL through PGCL Subhasgram buses. Subhasgram (PGCL) S/S has no reactive power supplying equipment like synchronous condenser, SVC etc., rather it consumes some reactive energy to supply magnetizing current of its 5 nos. 400/220kv ICTs.

Same logic may be applicable to leading MVar injection to SubhasGram(PG) S/S by STU S/S as lightly loaded CTU-STU tie lines generates capacitive MVar. As Subhasgram(PG) has no bus reactor, it has no contribution towards absorbing any reactive power to reduce system voltage in high voltage scenario. Generators of Haldia Energy limited and Sagardighi TPP are operated to absorb reactive power from SubhasGram(PG) during high voltage.

So charging any amount to West Bengal on account of MVarh drawal from Subhasgram(PG) S/S at low voltage (below 3%) or MVarh injection to Subhasgram(PG) S/S at high voltage (above 3%) seems not justified considering exchange of reactive power with Subhasgram(PGCL) is not exchange between West Bengal and regional grid.

In 147th OCC, it was decided that the methodology adopted by the other regions for computation of Reactive Energy Charges would be implemented in the Eastern Region with immediate effect.

Accordingly, changes in the computations for weekly Reactive Energy Charge are being effected in stages. It is hoped that with the changes, the concerns of the Eastern Regional constituents would be taken care of.

Members may note.

Item No. B.5: Collapse of one tower of 400kV Purnia-Biharsharif Ckt-1&2 due to change of course of river Ganga and water flow with very high velocity--ENICL

ENICL informed that that 400kV D/C Purnia-Biharsharif line got tripped on dated 10.08.2018 at 10:28.

After the line patrolling based on the fault details, it has been identified that one tower was totally collapsed/damaged and this caused tripping of both the circuits. Also, it was noted that the incident happened due to the change of course of the Ganges river and heavy velocity of flow of water which lead to tower collapse.

ENICL requested to kindly consider the above restoration period may be treated as force majeure condition which was beyond the control of ENICL.

ENICL may explain.

Members may decide.

Item No. B.6: Request for approval of deemed availability for transmission lines of POWERGRID in Odisha for Delta Tower strengthening work in 765KV Angul-Sundargarh Ckt-I & II.--Powergrid

Powergrid informed that in the meeting of the Standing Committee of Experts on 2.12.2016 at CEA Head Quarters regarding failure of towers in 132KV and higher Voltage Transmission Lines during the period December, 2015 to September, 2016(MOM is attached).The Committee suggested many remedial measures to arrest the failure of the Towers. One of the suggestions was to strengthening the members of the Delta Tower by adopting new technology(Steel clipping).

Accordingly, Delta Tower strengthening work for 765KV Angul-JharsugudaCkt-I &Ckt-II was planned in Odisha and s/d of the lines were approved in 146th and 147th OCC. Now the Tower strengthening work is under progress after taking shutdown of the line as follows:

Sl NO	Name of the line	Date	Date	Remark
1	765KV Angul JarsugudaCkt-I	07.07.2018	11.07.2018	On daily basis-10days Shutdown was availed
		16.07.2018	20.07.2018	
2	765KV Angul JarsugudaCkt-II	26.07.2018	31.07.2018	On daily basis-9days Shutdown was availed
		02.08.2018	04.08.2018	

Proposed Shutdowndate and time

Sl NO	Name of the line	Date	Time	Date	Time	Remark
1	765KV Angul-JharsugudaCkt-I	08.08.2018	08:00	09.08.2018	17:00	On daily basis Shutdown request mail sent to ERLDC
2	765KV Angul JharsugudaCkt-II	10.08.2018	08:00	12.08.2018	17:00	

The 765KVTowerStrengthening work has been done in accordance with the CEA Standing Committee recommendation as a remedial measure against Tower Failure. In view of this it is requested that the approved Shut down for the said lines towards the strengthening works may please be granted as deemed availability.

Powergrid may explain.

Members may decide.

Item No. B.7: Request for approval of deemed availability for the insulator replacement works at NH/SH/River/Power Line/Railway Crossing in various transmission lines of POWERGRID in Odisha.---Powergrid

During Insulator de-capping, Conductor is grounded and if such incident occurs in crossing span of other transmission line/Railway line/Road/River, consequential effects are much higher. To minimize consequential effects in case of de-Capping the above said crossing span will be provided with punctured proof Composite Long Road Polymer Insulator for which no incident of de-capping has been reported. Insulator replacement work in the above said crossings in most of the transmission lines in Odisha have been completed except few lines.

Accordingly, the shutdown of 400KV Jeypore-Gazuwaka line-I & II was planned and approved in147th OCC meeting for replacement of Porcelaininsulator with Polymer insulator(shutdown nature of defects) as mentioned below.Further, during PID testing of Insulators of 400KV Jeypore-Gazuwaka line-I &II, it is found that at many locations the existing Porcelain Insulators are defective.Hence to keep the line healthy and defect free for uninterrupted power flow,the defective porcelain insulators are also planned to be replaced with long rod polymer insulators.

Shutdown Approved in 147th OCC:

Sl NO	Name of the line	Date	Time	Date	Time	Remark
1	400KV Jeypore-Gazuwaka Line-I	01/08/2018	09:00	02/08/2018	17:30	ODB
2	400KV Jeypore-Gazuwaka Line-II	03/08/2018	09:00	04/08/2018	17:30	ODB

Actual Shut down Proposed date and time:

Sl NO	Name of the line	Date	Time	Date	Time	Remark
1	400KV Jeypore-Gazuwaka Line-I	27/08/2017	09:00	28/08/2017	17:30	ODB
2	400KV Jeypore-Gazuwaka Line-II	29/08/2018	9:09	30/08/2018	17:30	ODB

In view of this it is requested that the approved Shut down for the said lines may please be granted as deemed availability.

Powergrid may explain.

Members may decide.

Item No. B.8: Long Outage of transmission elements in Eastern Region

a) **400 kV Barh – Motihari – D/C :**
Line was out of service since 28/06/18 due to reduced clearance as water level in Gandak river has increased.

DMTCL may please update.

b) **400kV Farakka – Baharampur – D/C :**
400 KV Farakka-Baharampur - Jeeratline reconfigured & liloed at Sagardihghi as 400 kV Farakka – Sagardighi-II & 400 kV Jeerat – Sagardighi. Currently Baharampore is radially connected through 400 kV Baharampore – Sagardighi-D/C.

Power grid ER – II may please update restoration plan.

c) **400 kV Rangpo – Dikchu :**

Line was out of service from 06/07/18 due to ROW issue.

TPTL may please update restoration plan

d) **400 KV Binaguri – Kisanganj – Purnea – D/C**–
Line was taken under shutdown since 01/06/18 and charged as 400 KV Binaguri – Purnea direct ckt since 03/06/2018. Line supposed to be returned on original configuration19/07/18 on completion of pile foundation work.

PGCIL may please update status of restoration.

e) 315MVA 400/220KV ICT-II Kolaghat:
ICT was taken underS/D on 03/07/18 for tan-delta test of transformer winding and bushing. However due to fail on tan-delta test the ICT has been kept out of service.

WBSETCL may please update.

f) <u>Breakers at 400/220kV Indravati (OHPC) S/s</u>

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.*

OHPC may please update.

g) 132 kV Sonenagar(BSPTCL) – Rihand(UPPCL) inter regional link:

In 147th OCC meeting, BSPTCL has informed the line re-conductoring of the line was going on and line would be charged as per original ISTS configuration by end of July.

BSPTCL may update.

h) Prolonged Outage of FSC of 400 kV Ranchi-Sipat D/C line

Fixed Series Capacitor of 400 kV Ranchi-Sipat D/C are under prolonged outage since 7th September 2017. RTAMC has intimated that the FSCs have been kept out due to Group B card faulty issue. Such prolonged outage of FSCs will result in operational issue due to the long length of the circuits (405 km –Twin Moose) and will result in delay in charging due to high-rise in the voltage along the line.

POWERGRID may kindly update.

Item No. B.9: Installation of PMU for observation of the dynamic performance of STATCOMs--ERLDC

Four STATCOMs (Rourkela, Jeypore, Kishenganj, New Ranchi) are being commissioned in the Eastern Region to improve the dynamic var compensation in the grid and for the improvement of the transient stability. STATCOM is a dynamic VAR compensation device and provides the fast reactive support to the grid during transient as well steady state operation. In order to analyze the dynamic performance of STATCOM (STATCOM+ MSR /MSC) during day-to-day operation, it is desired to install PMU on the Coupling Transformer of the STATCOM as a part of the URTDSM project.

In the 37th ERPC meeting, the followings were decided:

i) Power Grid shall first explore the possibilities by diverting the unutilized PMUs under URTDSM project and would complete the work on urgent basis.
ii) If adequate no. of PMUs are not available under URTDSM project, balance PMUs will be implemented under project “Upgradation of SCADA / RTUs / SAS in the Central sector stations and strengthening of OPGW network”.

In 147th OCC, ERLDC informed that spare connection was available at 765kV Ranchi S/s which could be used for integration of Ranchi STATCOM. Since PMUs available at Ind Bharat and Monnet S/s could not be shifted due prevailing administrative issues, PMUs at Tenughat and Patratu might be diverted for STATCOM integration at Rourkela, Jeypore and Kishanganj S/s.

ERLDC added that the same had been communicated to Powergrid.

Powergrid informed that they were exploring all possibilities to provide PMU on the Coupling Transformer of the STATCOM.

Powergrid may update.

Item No. B.10: PSS tuning of Generators in Eastern region

Several Cases of Low frequency Oscillations have been observed in the Eastern Region. In view of this, it is desirable to have the PSS tuning of Generators in Eastern region to improve the system damping. It is mandatory as per existing CERC and CEA regulation to tune 100 MW and above generating units.

In view of that, Generating station may kindly update the following details to ERLDC/ERPC:

Name of Generating Power Plant:

Unit No	Type of Excitation System (Static/ Brushless /Other)	IEEE Model (IEEET1/ ESST1A/ Other)	Name of Excitation System Vendor (ABB/GE /Hitachi/ other)	Whether PSS is Tuned of not (If tuned Date of tuning	Whether Report of tuning Submitted or not.

In line with regulations, all generating power plant to take up the PSS tuning activities at earliest with their vendors and submit the report after PSS tuning for verification. The response data with PSS tuning also to be shared with ERLDC/ERPC for validation in either excel or .csv format. This will be monitored in OCC on regular basis.

Generators may kindly submit the details and inform the tentative plan for PSS Tuning.

Item No. B.11: Submission of Thermal Loading of Transmission line and associated terminal equipment by ISTS licensee

In line with the MoM of 4th NRCE Meeting dt.03-11-14 and "Operational Guidelines for determination Of TTC, ATC and TRM for the Short-Term Horizon (0-3 Months)" published by NRCE dt.20-02-15, thermal limit for transmission line has to be used for calculation of ATC/TTC. However, the thermal loading of transmission line depend on the Maximum Conductor Temperature, End equipment thermal rating. This has to be submitted by the Owner of the equipment. Further, the equipment owner also has to confirm that relay setting has been aligned so that the line can be operated up to its thermal limit. In the absence of complete details, ERLDC is utilising the data from the CEA Planning Criteria for thermal rating as given below :

Conductor Type	Ampacity per conductor(A)*	Thermal loading limit of line (MVA)
765 kV Quad ACSR_Bersimis	732	3880
765 kV HexaACSR_Zebra	560	4452
400 kV Twin ACSR_Moose	631	874
400 kV Quad ACSR_Moose	631	1749
400 kV Quad ACSR_Bersimis	732	2029
400 kV Triple Snowbird	630	1309
400 kV Twin ACSR_Lapwing	773	1071
220 kV Single AAAC_Zebra	557	212

220 kV Single ACSR_Zebra	560	213
220 kV Twin ACSR_Moose	631	481
132 kV Single ACSR_Zebra	560	128
132 kV Single ACSR_Panther	366	84

*Ambient and Maximum conductor temperature are taken as 45°C and 75°C respectively.
Apart from above specifically mentioned in CEA transmission planning criteria following loading limit is considered for HTLS line while calculating ATC/TTC

Conductor Type	Ampacity per conductor(A)*	Thermal loading limit of line (MVA)
400 kV Twin HTLS	1262	1750
220 kV Single HTLS	1020	390
132 kV Single HTLS	732	168

In view of this, it is desired that all ISTS Licensee and STU(for 400 kV and important 220 kV lines) may kindly submit the following details to ERLDC for utilisation in ATC/TTC calculation:

a) Transmission line wise Ampacity and Thermal loading along with Maximum Conductor Temperature and conductor type.
b) End Equipment Rating and
c) Confirmation whether the relay setting has been adopted in line with the thermal rating of the line
d) Any constraint during thermal loading of line

Item No. B.12: FLEXIBILITY IN GENERATION & SCHEDULING OF THERMAL POWER STATIONS TO REDUCE EMISSIONS-MOP, GOI ORDER

CEA vide letter dated 18th July 2018 informed that a committee has been constituted in CEA under Chief Engineer (TPRM) to develop a road map to enable flexible operation of thermal power stations for smooth integration of intermittent RES generation.

CEA requested for plant performance data as per the format enclosed at **Annexure-B12**. CEA requested to submit the hard copy and softcopy (in excel) to cetrmcea@yahoo.com.

Members may note and comply.

Item No. B.13: Ratification of Demand and Generation for calculation of POC of Q-3 2018-19

The projected Demand and Generation of ER constituents to be considered in the base case for POC transmission charge and loss calculations for Q3 (Oct 18-Dec 18) was circulated to all the concerned via email dated 6th August 2018 for verification and enclosed at **Annexure-B13**.

Odisha informed that the projected generation is considered as 2628 MW instead of 3076 MW and the projected demand is considered as 4305 MW instead of 4148 MW. Odisha informed that node-wise drawal and injection figures were submitted to NLDC/ERLDC. Odisha requested to correct the figures accordingly.

Members may discuss and confirm.

PART C: ITEMS FOR UPDATE

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

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

OPTCL may submit.

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.

The healthiness certificate for Islanding Scheme for July, 2018 has been received from CTPS, DVC, NTPC, West Bengal, JUSNL and CESC.

WBPDCL may submit.

Item no. C.3: Status of Implementation of islanding schemes in ER

1. Islanding scheme at Bandel TPS-WBPDCL

In 145th OCC, WBPDCL informed that the implementation at Power station would be completed by May 2018. Implementation part at Substation for load segregation would be done by WBSETCL.

In 38th TCC Meeting, WBPDCL informed that the implementation at Power station has been completed.

In 147th OCC, WBSETCL informed that implementation part at Substation end for load segregation would be completed by end of July 2018.

WBPDCL and WBSETCL may update.

2. Islanding scheme at IbTPS- OPGC

The islanding scheme was discussed in 68th PCC Meeting held on 18-06-2018. PCC opined that the draft scheme submitted by Odisha was three years old and the draft scheme is needed to be reviewed with existing network configuration.

PCC decided to discuss the islanding scheme in next PCC Meeting and advised OPTCL to submit all the relevant details to ERPC and ERLDC.

In 69th PCC Meeting, it was decided that ERLDC and ERPC would study and finalize the islanding scheme in next PCC Meeting.

Members may note.

Item no. C.4: Healthiness of SPS existing in Eastern Region

The Status of healthiness certificate for July, 2018 is given below:

Sl. No.	Name of the SPS	Healthiness certificate received from	Healthiness certificate not received from
1.	*Talcher HVDC*	*Powergrid, GMR,*	*NTPC & JITPL*
2.	*Rangpo*	*Chuzachen*	*Powergrid, Dikchu, Teesta-III, Dansenergy*
3.	SPS of 132 kV Muzaffarpur-Dhalkebar D/C	*Nil*	*Powergrid*
4.	SPS in CESC system	*CESC*	*Nil*
5.	SPS for Power Export to Bangladesh	*Nil*	*Powergrid*
6.	SPS at Chuzachen	*Chuzachen*	*Nil*

In 145th OCC,ERLDC informed that generation relief provided by the generators was not sufficient during SPS Operation on HVDC Talcher-Kolar Pole 1 tripping on 16-05-2018 15:34 Hrs. ERLDC elaborated the event with detailed presentation.

OCC advised Powergrid to submit a report on frequent tripping of only pole 1.

OCC opined that a Committee was already formed to study the SPS issues related to HVDC Talcher-Kolar. OCC advised the Committee to analyze this event and place the report in OCC Meeting.

The report is placed at **Annexure-C4**.

Members may update.

Item no. C.5: Low-Frequency Oscillation (LFO) observed At Durgapur and nearby nodes on 05thAPRIL 2018 from 14:21 hrs to 14:28 hrs.

Low-frequency oscillation of 0.1 Hz was observed in Durgapur and nearby nodes on 05th April 2018 from 14:21 hrs to 14:28 hrs. The oscillation was prominent in the Eastern region near Durgapur only based on the synchrophasor data analysis. Plot of Durgapur bus voltage based on PMU data is shown in the figure below where oscillation can be clearly observed. No significant oscillation was recorded by any other PMU during the said period, indicating some nearby local phenomenon or generator hunting. On further analysis of Eastern region SCADA data, large variations in the MW and MVAR of Sagardighi Unit 4 was noticed during the same time period.

In 146th OCC, WBPDCL informed that BHEL engineers had visited the site and attributed turbine vibration as the reason for low frequency oscillation. The necessary work for corrective measures is in progress. They will submit the detailed report after completion of the work.

In 147th OCC, WBDPCL informed that the unit #4 was synchronized after attending the turbine vibration problem by BHEL engineers.

OCC advised WBPDCL to submit a detailed report to ERPC and ERLDC on the issues related to turbine vibration and the corrective action taken to resolve the issues.

WBPDCL may update.

Item no. C.6: 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 150 MW	Implemented on 17.06.2016	
3	Bihar	F <49.7 AND deviation > 12 % or 150 MW	3 months Feeders identified. Implemented by June 2018	F <49.9 AND deviation > 12 % or 150 MW
4	Jharkhand	1. System Frequency < 49.9 Hz AND deviation > 12 % or 25 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	9 Months Tendering for RTU installation is in progress. Implemented by May 2018	Condition 1: Block I feeders will be selected for load shedding Condition 2: Block I & II feeders 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			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.

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.

During the Month of June'18, several number of times ADMS criteria for the state got satisfied. The details for each state are given below. It may kindly be noted that on 19th July 2018, the Indian Grid Frequency has touched 49.62 Hz during which there was significant over drawal by West Bengal to tune of 400 MW. Details are enclosed at **Annexure-C6**. West Bengal and DVC may kindly update on ADMS Operation on the dates and relief obtained. Further, Other state like Bihar/Jharkhand/Orissa also done over drawl when grid frequency was below 49.7 Hz. Therefore, ADMS implementation may kindly be accelerated in compliance of IEGC Regulation 5.4.2.d.

Members may update.

Item no. C.7: Unreliable operation at Motihari (DMTCL) SS

400/132kV Motihari S/Stn is of critical importance as the two high capacity inter-regional lines (400kVBarh-Gorakhpur Qd. Moose D/C) link E. Region with N. Region at this S/Stn. The Barh-Motihari D/C Qd. Moose line is essential for reliable power evacuation from Barh STPS of 2X660MW capacity. Motihari S/Stn is also responsible for meeting about 200MW load, considering Bihar and Nepal together.

As on date main CB of 125MVAR bus reactor-1, line isolator of 400kV Gorakhpur-2 line along with main and tie CBs of this line are out of service due to problem in gas duct. 400 kV Motihari – Gorakhpur – II was out of service due to unavailability of both bays at Motihari S/S.

In 144th OCC, it was decided to pursue the issue with DMTCL and decided to discuss the issue in 66th PCC Meeting scheduled to be held on 25th April 2018.

In 145th OCC, DMTCL informed that 400kV Motihar-Gorakhpur D/C line is under outage due to non-availability of GIS spares.

DMTCL added that the line would be restored within a month.

OCC advised DMTCL to expedite the work to restore the line at the earliest.

In 38th TCC, DMTCL informed that three bays, which are under outage, would be in service by 20th July 2018.

DMTCL may update.

Item no. C.8: 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 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.

In 145th OCC, Sikkim informed that the proposal had been sent to State Govt. for approval.

In 38th TCC, Sikkim informed that State Govt. for approval is pending.

Powergrid and Sikkim may update.

Item no. C.9: 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		*In service from 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		*Commissioned on 12th July 2018*
4	Jeypore	±200	2x125	2x125	*Commissioned on 30th June 2018*

Powergrid may update.

Item no. C.10: 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 December, 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 Aug, 2018.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019. The work is yet to be started.

OPTCL may update.

Item no. C.11: 220 kV inter-connecting lines of JUSNL with 2x315 MVA, 400/220 kV sub-stations at Chaibasa, Daltonganj&Dhanbad

In lastOCC, 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)–Latehar220kVD/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	The line would be charged as per original configuration by 31st July 2018. At present, 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	Not yet started
3	**Dhanbad400/220kVS/s**	
A	LILO of Govindpur–Jainamore/TTPS 220kVD/c at Dhanbad	ROW issues.Target date November 2018.

JUSNL may update.

Item no. C.12: 220 kV inter-connecting lines of WBSETCL with 400/220 kV, 2x315 MVA Alipurduar & 2x500 MVA Rajarhat sub-stations

In lastOCC, *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***)	*The line was commissioned on 6th June 2018.*
2.	**2x500MVA, 400/220kV Rajarhat---**	
a.	Rajarhat-N. Town-3 (WBSETCL) 220 kV D/C line	Matching, ROW problem
b.	Rajarhat-N. Town-2 (WBSETCL) 220 kV D/C line	ROW problem
c.	Rajarhat- Barasat (WBSETCL) 220 kV D/C line	ROW problem
3	**Subashgram400/220kVS/s**	
a	Subashgram–Baraipur220kVD/cline	Feb 2019, 50% of work has been completed.

WBSETCL may update.

Item no. C.13: 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. Members may update.

Item no. C.14: Failure of Real time telemetry from North Bengal and Sikkim to ERLDC

In 141st OCC meeting 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.

In 143rd OCC, ENCIL updated that termination of OPGW would be completed by end of June 2018.

Powergrid informed that the link would be in service by end of July 2018 subjected to termination of OPGW link.

ENCIL &POWERGRID may update

Item no. C.15: Transfer capability determination by the states

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.

Latest status of State ATC/TTC declared by states for the month of November -2018

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	1085	--	60	--	1025	--	
3	DVC	1243	3708	60	47	1183	3661	
4	OPTCL	1835	--	82	--	1753	--	
5	WBSETCL	3630	--	300	--	3300	--	Sep-18
6	Sikkim	--	--	--	--	--	--	

BSPTCL has neither declared TTC nor has provided updated base case in last six months.

BSPTCL and Sikkim may update the status.

Item no. C.16: Replacement of GPRS communication with Optical Fiber for AMR

In ER, 80% meters are connected through Automated Meter Reading (AMR). At present the communication system used for data transfer from each location is GPRS. It has been observed that many locations are not communicating with AMR system due to poor/no GPRS signal. Many substations have their own optical fiber which is also used for the LAN network of respective stations. TCS has successfully connected 02 locations (Subhasgram-PG and Binaguri-PG) in ER-II with PGCIL intranet and these two locations are smoothly reporting to AMR system after connecting with PGCIL LAN. The proposed network will not only provide better communication but alsoreduce the cost of GSM.

In 147th OCC, POWERGRID informed that the replacement of GPRS communication of the Remaining 34 locations would be completed by August 2018.

POWERGRID may please update the progress.

Item no. C.17: Accounting of state drawl from Substation of PGCIL/ISTS Licensee in ER

As per Clause 7(1) (C) of CEA (Installation and Operation of Meters) Regulations, 2006 &its subsequent amendments, Main Meters for drawl computation through ICT should be installed on HV side of ICT and meters installed on LV side of ICT should be considered as Standby meters .

In view of the above it is proposed that Sate drawl from PGCIL/ISTS Licensee S/S may be computed by using the meter installed on HV side of ICTs in line with CEA regulation.

In 146th OCC, Powergrid informed that the SEM installation in ER-I stations has been completed and the same at ER-II stations would be completed by June 2018. Powergrid(Odisha) informed they will complete the SEM installation by July,2018.

However locations in ER-I for ex, Purnea, Banka, Lakhisarai, and Ranchi are still pending.

A List of Time drifted Meters installed at ICTs at PGCIL S/station in ER was prepared by ERLDC from AMR system and vide letter dated 04.07.18, PGCIL was requested for replacement of the same.

In 147th OCC, Powergrid informed that the list had been received from ERLDC and the replacement of SEMs is in progress.

However Meter at either side of ICTs at Purnea(2 nos of 220/132 ICT), Birpara (1 no of 220/132 ICT) and Baripada(2 nos of 400/220 ICT) is yet to be installed. Further Meters installation at IV side of many ICTs is also pending. Latest status of meter installation along with CT/PT details is enclosed in **Annexure-C17**.

Powergrid may update.

Item no. C.18: Meter related issues

1. **Error between the Main and Check energy meter of 400kV Tala-Siliguri Feeder-I & IV (Siliguri end).**

The percentage error between the Main and Check energy meter of 400kV Tala-Siliguri Feeder-I and IV at Siliguri end is found to be beyond permissible limit at 18.93% and 1.93 % respectively for the month of June 2018**.** As per PPA the percentage error should not exceed ±0.6%. The check energy meter pertaining to DGPC/THP has been tested on 20th January, 2018 and the error was found to be within the permissible limit.

There was abnormal difference between energy send from Tala end and received at Siliguri end on 8th,9th,10th& 11th of June, 2018 due to loose connection in main energy meter of 400kV Tala-Siliguri Feeder I. The energy recorded by check energy meter couldn't be considered due to high error as mentioned above.

Therefore, PTC/POWERGRID is requested to test/replace the energy meter at the earliest.

DGPC and Powegrid may update the status.

2. **Reverse Polarity of Meter at ICT at Subhasgram**

Meter No NP-8718-A installed at HV side of Meter at ICT at subhasgram has reverse polarity and due to the same, export power is showing as import. Accounting of states drawl will be computed through HV side of ICTs of PGCIL substation. The CT polarity of the meter may be reversed at the earliest. A communication from ERLDC is was sent to PGCIL for the same on 07.08.18

Powegrid may please update the status.

Item no. C.19: Mock Black start exercises in Eastern Region – ERLDC

Tentative Schedule for mock black start exercise for FY 2018-19 is given below:

Sl no	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I		Test-II	

1	U.Kolab	Last week of May, 2018	*Completed on 8th June,2018*	Last Week of January2019	
2	Maithon	1stweek of June 2018	*Completed on 6th June,2018*	1stWeek of February2019	
3	Rengali	2ndweek of June 2018	*Planned in August,2018.*	Last week of November 2018	
4	U. Indarvati	3rdweek ofJune 2018	*Planned in August,2018.*	2ndweek of February2019	
5	Subarnarekha	1stweek of October 2018		1stweek of January2019	
6	Balimela	3rdweek of October 2018		1stweek of March 2019	
7	Teesta-V	2ndweek of Nov 2018	Done on 3rd May 2018	Last week of February2019	
8	Chuzachen	Last Week of May2018	In May 2018	2nd week of January2019	
9	Burla	Last Week of June 2018	*Completed on 7th June,2018*	Last week of February2019	
10	TLDP-III	1st Week of June 2018	After Monsoon	2ndWeek of January2019	
11	TLDP-IV	Last Week of June 2018	After Monsoon	1st Week of February2019	
12	Teesta-III	Last week of Oct 2018		First Week of March 2019	
13	Jorthang	First Week of May 2018		First Week of Feb 2019	
14	Tasheding	2nd Week of May 2018		2nd Week of Feb 2019	
15	Dikchu	3rd Week of May 2018		3rd Week of Feb 2019	

Members may update.

Item no. C.20: Schedule for reactive capability tests

In last OCC, Members updated the status and informed the schedule as follows:

- AdhunikTPS(both units) –Unit #2 would be in service from April 2018.
- JITPL(Unit #2) –Unit #2 testing would be done in Sep 2018
- Barh TPS – Vibration problems will be attended during overhauling. The testing would be done after overhauling in December 2019.
- Raghunathpur – Coal not available
- GMR (Unit #3) –

Members may update.

Item no. C.21: Agenda point related to reporting of grid events by users, STU, CTU and SLDC to RLDC

As per IEGC section 5.9.4 (b) and 5.9.6 (a), all users, STU, CTU and SLDC are to send written report to RLDC for the events notified by IEGC section 5.9.5. Format of draft written report as per IEGC section 5.9.6 (c). All users, STU, CTU and SLDC are requested to send flash report in given format to **erldcprotection@posoco.in/ erldccr@posoco.in/ erpcprotection@gmail.com** followed by events mentioned in IEGC section 5.9.5.

ERLDC elaborated that flash report for events occurred in STU also needed to be submitted to ERLDC.

OCC advised STU, CTU, IPPs and SLDC to send flash report as per the format enclosed at ***Annexure-C21*** *to* ***erldcprotection@posoco.in/*** ***erldccr@posoco.in/*** ***erpcprotection@gmail.com****.*

Members may comply.

Item no. C.22: Agenda point related to load forecasting by SLDC

For better grid management and shutdown planning, RLDCs needs to do short term load forecasting. Accuracy and effectiveness of load forecasting depend on input data. As per current practice, day ahead load forecasting is being done at ERLDC by analysing trend previous days demand. However, for further tuning and better accuracy of load forecasting result, demand estimation from SLDCs are to be done at their end and same need to be shared with ERLDC for estimation of Eastern Region demand.

In 147th OCC, all the SLDCs were advised to share the relevant demand forecasting data to ERLDC.

ERLDC may update.

Item No. B.14: Implementation of Web based PSP report in ERLDC

ERLDC is currently preparing PSP report on daily basis which contains ISGS/IPP schedule & actual generated energy, inter-regional tie line energy exchange, energy consumption of states and energy generated by state generators (including DVC), voltages of important substations etc. The content in the report is being used by MOP, States and various other agencies for data compilation and preparation of other reports. This report is prepared during night shift hours as per the energy data submitted by all ISGS/IPPs, states, transmission licensees to ERLDC. Generally ERLDC received data from all users by 02:00 Hrs of night in different reporting formats(Ex-cell, Word, Mail, Over phone etc..) and prepared PSP report by 0400 hrs which is uploaded in ERLDC website and sent to MOP. However, due to submission of data in different formats by the users, it is very difficult compile and validates such data during night hours before preparation of the PSP report.

To improvise the data reporting system, a new web based PSP reporting portal has been developed, wherein generators, transmission licensees& states can log-in to the portal and submit their energy data. Beta version of this software is already installed at ERLDC and parallel testing is going on. The new PSP web based portal will be operationalized with effect from 00:00 hrs of 01st August, 2018.

In this regard all generators, transmission licensees& states are requested to nominate one nodal person to ERLDC in erldcso@posoco.in, who will co-ordinate with ERLDC nodal person and their nightshift executives to fill energy data. In the meantime it is requested to all generators, transmission licensees& states to instruct their night shift operators to enter the energy data using their user credential in ERLDC PSP web portal. Individual user id and password will be shared to respective nodal co-ordinators/ control room through mail.

Nodal Persons from ERLDC side:

1. Shri TusharRanjanMohapatra - (9433041873)
2. Shri Chandan Mallick – (9007059660)

In 147th OCC, ERLDC informed a new web based PSP reporting portal has been developed, wherein generators, transmission licensees& states can log-in to the portal and submit their energy data. Username and password will be issued to all the concern utilities. Beta version of this software is already installed at ERLDC and parallel testing is going on. The new PSP web based portal will be operationalized with effect from 00:00 hrs of 01st August, 2018.

OCC advised all the utilities to nominate a nodal officer to ERLDC vide mail: erldcso@posoco.in *and submit the relevant data in PSP reporting portal.*

Members may comply.

Item no. C.23: 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.

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 2017 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.

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

In 143rd OCC, WBSETCL informed that the air-conditioning and lighting in PDC control room at SLDC-Howrah by July 2018.

Regarding Patratu, NTPC and JUSNL informed that they would settle the issues in April, 2018.

POWERGRID may update the status.

Item no. C.24: 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.

In 144th OCC, DVC informed that an exercise to test 55% minimum load operationhad been conducted at DSTPS recently. The details of the test results, as and when received,would be shared with OCC members.

In 146th OCC, DVC informed that they could bring down their machine up to 60 % without oil support and with the available quality of coal.

In 38th TCC, DVC assured that the necessary demonstration to bring down their machine up to 55% would be done by July 2018.

DVC may update.

Item no. C.25: Issuance of TOC for DSTPS-RTPS OPGW link by DVC

In 19th SCADA O & M meeting held on 7th April 2017 at ERLDC, Kolkata, POWERGRID had informed that they were 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 had 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 was discussed in various forums but the solution could not be provided by DVC. DVC informed that they are not able to resolve the issue as this was an 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 was deliberated and DVC informed that they would try to resolve ROW issues by 31st October-2017. Otherwise they would provide the necessary certificate.

In 20th SCADA O&M meeting held on 15th December-2017, POWERGRID informed that DVC had 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.

In 38th TCC, DVC assured that the issue would be resolved by July 2018. In case the issue is not resolved MS, ERPC will take up the matter with DVC for early resolution of the issue.

In 147th OCC, DVC informed that they had taken up the issue with appropriate administration and the issue would be resolved soon.

DVC may update.

PART D:: OPERATIONAL PLANNING

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

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of September 18 were prepared by ERPC Secretariat on the basis ofProvisional 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**.

ERPC Secretariat has prepared the expected availability of generation and expected demand during ensuing Puja festival 2018, which is given at **Annexure-D.1.1**. All constituents requested to confirm.

Members may confirm.

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

Members may finalize the Shutdown proposals of transmission lines and generating stations for the month of September'18.

KhSTPP # Unit-5 shall be under overhaul from 05.09.2018 to 29.09.2018 and shall be available for operation for balance period of month, Sep'18

Shutdown proposals of generating stations:

System	Station	Unit	Size (MW)	Period		No. of Days	Reason
				From	To		
DVC	MTPS	2	210	16.09.18	16.10.18	31	AOH (Boiler acid cleaning + LPT)
ODISHA	TTPS	4	60	16.09.18	29.09.18	14	Boiler Overhaul
WBPDCL	Kolaghat TPS	6	210	01.09.18	10.09.18	10	Boiler License
BRBCL	Nabinagar TPP	2	250	05.09.18	30.09.18	26	Boiler OH incl. Turbine LP Rot., Gen. Rot. Checking etc.
IPP	GMR	3	350	01.09.18	24.09.18	24	Annual Boiler Overhauling

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

1. Overhauling/shutdown schedule of MTPS Units of KBUNL

The Overhauling Schedule of U1 (110 MW) MTPS of KBUNL was approved in 146th OCC for the period from 01.08.2018 to 25.08.2018 (25 days).

However, due to technical considerations, the above Planned Shutdown has been rescheduled for the period from 20.08.2018 to 13.09 2018 (25 days).

Members may approve.

2. Shutdown of 400kV Main Bus Drabhanga

400KV Main bus I (DMTCL): 10th September to 17th September 2018 – 8 days , 192 Hrs. For integration of Main Bus –I. Substation will remain charged on Main Bus – II

400KV Main bus II (DMTCL): 19th September to 26th September 2018 – 8 days, 192 Hrs. For integration of Main Bus –II. Substation will remain charged on Main Bus – I

400KV Main bus I (DMTCL) & 400KV Main bus II (DMTCL) : 28th September 2018 to 29th September 2018- 2 days , 48 Hrs. For integration of Bus Bar protection . Substation will remain in shut down for two days.

The above shut down is required for the augmentation of existing Drabhanga substation by Alipurduar Transmission Limited.

Alipurduar Transmission Limited may explain. Members may approve.

3. Emergency shutdown in 400kV KhSTPS Switchyard during Aug-Sep'18 for 400kV BUS splitting work

S.N.	Line Description	Date	Period	400 KV Bus details
1.	400 KV Kh-Lakhisarai#1 line	*22/08/2018*	09:30 hrs to 17:30 hrs	400 KV Bus#1
2.	400 KV Kh-Farakka#3 line	*24/08/2018*	09:30 hrs to 13:00 hrs	
3.	400 KV Kh-Maithon#2 line	*25/08/2018*	09:30 hrs to 13:00 hrs	
4.	400 KV Kh-Farakka#2 line	*25/08/2018*	13:00 hrs to 17:30 hrs	
5.	400 KV Kh-Banka#1 line	*27/08/2018*	09:30 hrs to 17:30 hrs	
6.	400 KV Kh-Barh#2 line	*30/08/2018*	09:30 hrs to 17:30 hrs	
7.	400KV/132KV ICT#2	*28/08/2018*	09:30 hrs to 17:30 hrs	400 KV Bus#2
8.	400KV/132KV ICT#1	*29/08/2018*	09:30 hrs to 17:30 hrs	
9.	400 KV Kh-Lakhisarai#2 line	*23/08/2018*	09:30 hrs to 17:30 hrs	
10.	400 KV Kh-Banka#2 line	*31/08/2018*	09:30 hrs to 17:30 hrs	
11.	400 KV Kh-Farakka#4 line	*24/08/2018*	14:30 hrs to 17:30 hrs	

Members may approve.

4. Shutdown of 400kV Vedanta -Mermundali line

OPTCL informed that the LILO arrangement of 400kV Vedanta - Meramundali line at upcoming 400/220kV,Lapanga substation has been completed. Necessary phase wise shutdown of Circuit-I and Circuit -II is required to put the LILO in to operation. Further, 400kV IBTPS and Lapanga line is scheduled to be completed by coming week and will be connected to Lapanga Grid Substation.

OPTCL may explain. Members may approve.

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

(i) Thermal Generating units:

S.No	Station	Location	Owner	Unit No	Capacity	Reason(s)	Outage
1	NABINAGAR	BIHAR	BRBCL	2	250	COAL SHORTAGE	29-Jul-18
2	NABINAGAR	BIHAR	BRBCL	1	250	COAL FEEDING PROBLEM	13-Aug-18

3	JITPL	ODISHA	JITPL	2	600	COAL SHORTAGE	26-Jun-18
4	APNRL	JHARKHAND	APNRL	1	270	LEAKAGE IN CONDENSER	9-Aug-18
5	FARAKKA	WEST BENGAL	NTPC	1	200	WIND BOX BOTTOM PORTION LEAKAGE	13-Aug-18
6	FARAKKA	WEST BENGAL	NTPC	3	200	GOVERNOR SYSTEM PROBLEM	12-Aug-18
7	GMR	ODISHA	GMR	2	350	CONVEYOR BELT PROBLEM	12-Aug-18
8	KBUNL STG-II	BIHAR	NTPC	2	195	FLAME FAILURE	10-Aug-18
9	VEDANTA	ODISHA	GRIDCO	2	600	PROBLEM IN BOILER	8-Feb-18
10	VEDANTA	ODISHA	GRIDCO	4	600	PROBLEM IN TURBINE CONTROL VALVE	10-Aug-18
11	KBUNL STG-I	BIHAR	BSPHCL	1	110	COAL SHORTAGE	28-Jul-18
12	TENUGHAT	JHARKHAND	JUVNL	2	210	COAL SHORTAGE	17-Jul-18
13	RAGHUNATHPUR	WEST BENGAL	DVC	2	600	COAL SHORTAGE	7-Aug-18
14	RAGHUNATHPUR	WEST BENGAL	DVC	1	600	COAL SHORTAGE	1-Jun-18
15	KOLAGHAT	WEST BENGAL	WBPDCL	6	210	COAL SHORTAGE	2-Aug-18
16	SAGARDIGHI	WEST BENGAL	WBPDCL	2	300	COAL SHORTAGE	4-Jul-18
17	MEJIA	WEST BENGAL	DVC	3	210	COAL SHORTAGE	12-Aug-18
18	MEJIA	WEST BENGAL	DVC	2	210	COAL SHORTAGE	6-Aug-18
19	BAKERSWAR	WEST BENGAL	WBPDCL	3	210	ECONOMISER TUBE LEAKAGE	12-Aug-18
20	IBTPS	ODISHA	GRIDCO	2	210	GENERATOR OIL LEAKAGE	10-Aug-18

(ii) Hydro Generating units:

Sr. No	Generating Station	UNIT NO	CAP(MW)	REASONS FOR OUTAGE	OUTAGE DATE
1	BURLA	ODISHA	OHPC	1	37.5
2	BURLA	ODISHA	OHPC	2	37.5
3	BURLA	ODISHA	OHPC	5	37.5

4	BURLA	ODISHA	OHPC	6	37.5
5	BALIMELA	ODISHA	OHPC	1	60
6	BALIMELA	ODISHA	OHPC	2	60
7	INDRAVATI	ODISHA	OHPC	3	150
8	INDRAVATI	ODISHA	OHPC	4	150

It is therefore seen that about 570 MW hydro capacity in Odisha is under forced outage / R&M and therefore not available for providing the much needed peaking support in summer peak. SLDC / OHPC may please indicate the capacity expected to be restored by 31/08/18.

(iii) Transmission elements

SL NO	Transmission Element / ICT	Agency	Outage Date	Reasons for Outage
1	220 KV BALIMELA - U' SILERU	OPTCL / APSEB	10.03.18	LINE ANTITHEFT CHARGED FROM UPPER SILERU ON 17-04-18
2	220 KV BUDHIPADAR - KORBA- II	OPTCL / POWERGRID	8.08.18	ANTI THEFT CHARGED FROM BUDHIPADER END.
3	400 KV BARH-MOTIHARI-I	POWERGRID	15.06.18	Y-N FAULT/CLEARNCE REDUCED AS WATER LEVEL IN GANDAK RIVER HAS INCREASED.
4	400 KV BARH-MOTIHARI-II	POWERGRID	28.06.18	SWITCHED OFF DUE TO INCREASE IN LEVEL OF GANDAK RIVER
5	400 KV IBEUL JHARSAGUDAD/C	IBEUL	29.04.18	TOWER COLLAPSE AT LOC 44,45
6	400 KV DIKCHU-RANGPO	TVTPL	6.07.18	INITIALLY S/D AVAILED BY TVTPL/LINE COULD NOT BE CLOSED AFTER S/D DUE TO LOCAL ISSUES.
7	400KV NEW PURNEA-BIHARSARIFF(PG)-D/C	ENICL	10.8.18	TOWER COLLAPSE AT LOC 47/0

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

** Transmission licensees whose line were out due to tower collapse/ bend, may please update the detail restoration plan and as on date work progress status in OCC.

Also Monthly progress report to be submitted to ERLDC/ERPC till restoration of the element.

Members may update.

Item no. D.4: Additional agenda

PART E::ITEMS FOR INFORMATION

The following agenda items are placed for information and necessary compliance:

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**.

Generators may update.

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.

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.

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

In 144th OCC, ERLDC informed that they have already conducted a workshop with the help of NPTI, Durgapur on 21st March 2018.

A workshop on cyber security was conducted by CEA at ERPC, Kolkataon 09-05-2018.

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-E2**.

OCC advised all the constituents to submit the information to ERPC as per Annexure-E2.

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

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.

TeestaUrja 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.

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

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	49	72.06
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 Powergridare 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: DATA FOR GEOSPATIAL ENERGY PORTAL OF NEETI AAYOG--CEA

NITI Aayog is developing a user friendly GIS based Energy Map of India, which would provide true locations of all energy resources in India including power plants, coal and oil reserves, transmission lines etc.

CEA sought the information of name, voltage level, capacity, longitude and latitude of 33kV and 66 kV substations and lines.

The information may be shared with CEA vide email: cedpd-cea@gov.in.

Members may comply.

Item No. E.8: Providing relevant data by Power Utilities I Stations in National Power Portal.

CEA vide letter dated 26th June 2018 informed that National Power Portal (NPP) (URL: npp.gov.in), has been launched by Hon'ble Minister of Power on 14th November, 2017. NPP is modified and more user-friendly data portal than the existing Information Management System (IMS) in CEA. Reports prepared from NPP are of vital importance for Power Sector data analytics in order to frame policies, regulations , future road-map for Power Sector etc. at Central as well as at State level. Accordingly, all power utilities have been issued user ID and password, either organisation-wise or station-wise, based on their request , for providing their data on NPP.

NPP has replaced IMS since 1st June, 2018. A Circular (which is available in Circular Section of CEA Website, i.e. cea.nic.in) has been issued by CEA to all power utilities/stations on 14.06.2018 for providing their data online in NPP only.

In this regard, letters/mails have been issued to Utilities to provide their data online through NPP. A letter dated 20.06.2018 was also issued to all SLDC, requesting them to direct the power utilities I stations under their purview for providing data on NPP.

Any issue/problem faced by utilities may kindly be communicated to itcea@nic.in, npp.support@gov.in, ceopm-cea@gov.in and if required, IT Division, CEA may be contacted on 011-26732368 or 011-26732303

CEA requested to pursue the power utilities *I* stations under their purview for providing data on NPP. Further, a workshop/presentation may be arranged if required in each region in which IT Division, CEA will provide a brief demonstration regarding data entering process and report generation into NPP.

Members may comply.

Item No. E.9: Commissioning of new transmission elements in Eastern Region

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

Monthly commissioning List of Tansmission element and generators: July 2018					
SL NO	**Element Name**	**Owner**	**Charging Date**	**Charging Time**	**Remarks**
1	STATCOM 150 MVAR VSC -2 AT NEW RANCHI	PG	03-07-2018	15:34	TEST COMPLETED AT 20:20 HRSWITH FULL CAPACITY (+/- 150 MVAR)
2	STATCOM 150 MVAR VSC -1 AT NEW RANCHI	PG	04-07-2018	15:52	During testing VSC reached max. MVAR (+150 MVAR) at 19:31 hrs and Min MVAR at 19:51 hrs (-150 MVAR) . +/-2 KV Voltage changed observed
3	132kV Daltonganj(PG)-Daltonganj(J'Khand)-I	JSUNL	27-07-2018	17:20	
4	400KV Sagardighi Farakka-2 Line including LILO portion	PGCIL	28-07-2018	21:23	
5	125 MVAR BR 4 at Durgapur	PGCIL	31-07-2018	17:14	
6	132kV Haldia-IOCL-II	WBSETCL	10-07-2018		

1st 315 MVA, 400/220kV ICT at 400/220kV Lapanga S/s in Odisha was test charged on 10.08.2018.

Item No. E.10: 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-E9**.

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 comply.

Item No. E.11: UFR operation during the month of July'18

System frequency touched a maximum of 50.24 Hz at 18:01 Hrs of 24/07/18 and a minimum of 49.61 Hz at 19:28 Hrs of 19/07/18. Hence, no report of operation of UFR has been received from any of the constituents.

Item No. E.12: Grid incidences during the month of July, 2018

Sl No	Date	Time	Affected System	Summary	Load loss (MW)	Gen loss (MW)

1	04-07-2018	10:52	ISTS	400 kV Motihari - Barh D/C and 400 kV Motihari - Gorakhpur - II were under breakdown. 400 kV Motihari - Gorakhpur - I tripped at 10:52 hrs on O/V resulting total power failure at Motihari S/S as there is no other source.	200	0
2	04-07-2018	19:00	WBSETCL	At 19:00 hrs 220 kV NJP - TLDP - III S/C tripped resulting total power failure at TLDP - III	0	136
3	10-07-2018	08:14	ISTS	At 08:14 hrs, 400 KV Binaguri Rangpo I tripped on RBN fault. 400 KV Teesta III Rangpo tripped at 08:14 hrs on SPS-2 operation. All running units of Teesta III and Dikchu tripped due to loss of evacuation path.	0	890
4	19-07-2018	13:31	BSPTCL	At 13:15 Hrs , 220 kV Madhepura-New Purnea-II tripped on BN fault. At 13:31 Hrs Purnea –Madhepura I also tripped duet to Y-B phase fault resulting total power failure at Madhepura S/S.	150	0
5	20-07-2018	09:10	JUSNL	At 13:15 Hrs , 220 kV Madhepura-New Purnea-II tripped on BN fault. At 13:31 Hrs Purnea –Madhepura I also tripped duet to Y-B phase fault resulting total power failure at Madhepura S/S.	150	0
6	20-07-2018	19:00	ISTS	At 08:44 hrs 220 kV Ranchi - Hatia - I tripped on B-N fault along with 220/132 kV ICTSs at Hatia resulting loss of power supply at nearby area. Power was restored back at 09:02 hrs by charging ICTs. But 220 kV Ranchi - Hatia - II along with 220 kV Patratu - Hatia D/C tripped at 09:10 hrs resulting total power failure at Hatia S/S as well as nearby area.	78	0
7	21-07-2018	07:11	ISTS	400 kV Motihari - Barh D/C and 400 kV Motihari - Gorakhpur - II were under breakdown. 400 kV Motihari - Gorakhpur - I tripped at 19:00 hrs on gas compartment zone protection due to mal-operation of gas monitoring relay which shows low indication despite proper level being maintained.	280	0
8	27-07-2018	01:42	DVC	400 kV Motihari - Barh D/C and 400 kV Motihari - Gorakhpur - II were under breakdown. 400 kV Motihari - Gorakhpur - I tripped at 07:11 hrs on gas compartment zone protection due to mal-operation of gas monitoring relay which shows low indication despite proper level being maintained.	110	0
9	28-07-2018	21:07	DVC	220 kV main bus II at Kalyaneswari and Mejia tripped resulting tripping of all elements connected to these buses due to	0	328

				LBB operation after non-opening of breakers at both ends on R-N fault at 220 kV Mejia - Kalyaneswari - I		
10	30-07-2018	20:48	ISTS	400 kV Andal – Jamshedpur D/C tripped at 21:07 hrs on R-N fault. At same time, unit II at Andal tripped on stator E/F protection.	0	360

Item No. E.13: 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 July18.

****

Annexure-B12

S.No.	Name of Utility	Location	Name of Station	Unit No.	Capacity (MW)	COD Date (DD/MM/YYYY)	Boiler Make	Turbine Make	Mills Type	Coal Source (s)	Grade of Coal	ECR (Rs./kWh)	Average PLF of last one year	Average Heat Rate (kcal/kWh)	Average APC (%)	Minimum Load (MW) capability	Minimum Load (%) capability	Maximum Ramp Rate (MW/min) capability
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Annexure-B13

Generation Projection (Oct 2018 - Dec 2018)

				Generation declared Commercial from 1st Jan'18 to 30th June'18					Generation declared/expected to be declared Commercial from 1st July'18 to 30th Sep'18								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/ PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)
1	West Bengal	ER	4847											4847			4847
2	Odisha	ER	2628											2628			2628
3	Bihar	ER	186						Brauni Extn	8	250	164	164	350			350
4	Jharkhand	ER	428											428			428
5	Sikkim	ER	0											0			0
6	Chujachan	ER	109											109			109
7	DVC	ER	3736											3736			3736
8	Durgapur Steel	ER															
9	Koderma TPP	ER															
10	Bokaro TPS	ER															
11	Raghunathpur	ER															
12	MPL	ER	955											955			955
13	Teesta V	ER	533											533			533
14	Kahalgaon	ER	2205											2205	As per NTPC	2178	2178
15	Farakka	ER	1912											1912		1968	1968
16	Talcher	ER	959											959			959
17	Rangit	ER	62											62			62
18	Adhunik Power	ER	256											256			256
19	Barh	ER	1255											1255	As per data givrn by NTPC	1057	1057

Generation Projection (Oct 2018 - Dec 2018)

				Generation declared Commercial from 1st Jan'18 to 30th June'18					Generation declared/expected to be declared Commercial from 1st July'18 to 30th Sep'18								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/ PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)
20	**Kamalanga TPP (GMR)**	**ER**	629											629			629
21	**JITPL**	**ER**	938											938			938
22	**Jorethang**	**ER**	73											73			73
23	**Bhutan**	**ER**	851											851			851
24	**Teesta-III**	**ER**	962											962			962
		ER															
		ER															
		ER															
		ER															
		ER															
25	**Dikchu HEP**	**ER**	100											100			100
26	**Nabinagar BRBCL**	**ER**	273	Nabinagar BRBCL	2	250	164	164	Nabinagar BRBCL	3	250	164	164	600			600
27	**Tashiding HEP**	**ER**	83											83			83
	TOTAL		**23980**					**164**					**327**	**24471**			**24302**

Note:

1. Projections are based on monthly maximum injection in the last 3 years from actual metered data.
2. Generation forecast has been done based on the following criteria
(i) If there is an increasing trend then last year average generation has been considered
(ii) Otherwise average of past three year average generation has been considered
3. In case of new generators where past data was not available following has been assumed
(i) 0.8 plf for hydro generators
(ii) 0.7 plf for thermal generators.
(iii) 0.3 plf for gas stations

DEMAND FORECAST USING PAST 3 YEARS DATA (Oct 2018 - Dec 2018)

	2015-16			2016-17			2017-18			1	2	3	4	Data given by DICs	Comments
	Oct'15	Nov'15	Dec'15	Oct'16	Nov'16	Dec'16	Oct'17	Nov'17	Dec'17	2015-16 Average	2016-17Average	2017-18 Average	Projected Demand for (Oct 2018 - Dec 2018) before normalization		
Bihar	3,435	3,313	3,407	3,702	3,759	3,534	4,515	3,917	4,038	3,385	3,665	4,157	4,507		
DVC	2,324	2,310	2,321	2,450	2,357	2,507	2,573	2,731	2,737	2,318	2,438	2,680	2,841		
Jharkhand	1,103	1,127	1,101	1,172	1,168	1,194	1,206	1,245	1,200	1,110	1,178	1,217	1,275		
Odisha	4,015	3,884	3,759	3,920	3,788	3,837	4,370	4,108	4,151	3,886	3,848	4,210	4,305		
West Bengal	7,755	6,935	6,478	7,886	7,402	6,207	7,777	6,610	6,045	7,056	7,165	6,811	6,765		
Sikkim	95	95	108	92	92	91	90	96	94	99	92	93	89		

Notes

1. Projections are based on the past 3 years' monthly Peak Demand Met data available on the website of CEA
2. The above projections are being done for financial year 2018-2019 (Q3) i.e Oct 2018 to Dec 2018
3. Projections are being done based on the forecast function available in MS Office Excel
4. CEA Reports can be accessed from the following links:

http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-10.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-11.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-12.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-10.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-11.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-12.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-10.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-11.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2015/psp_peak-12.pdf

Eastern Regional Power Committee, Kolkata

Summary of the Study Committee Report on Review of Talcher-Kolar SPS

As decided in 37th TCC and ERPC meeting of Eastern region held on 16th& 17thMarch 2018, a special meeting was convened at ERPC, Kolkata to discuss the issues associated with HVDC Talcher-Kolar SPS on 6thApril 2018. The meeting focused on the issue of 400 MW generation reduction at GMR and JITPL in case of any pole tripping of HVDC Talcher-Kolar. During the meeting, it was decided to constitute a Committee with the members from NLDC, ERLDC, ERPC, Odisha, JITPL and GMR to conduct a detailed study and find out a possible solution.

Accordingly, a small group was formed by ERPC and its first meeting was held at ERPC, Kolkata on 18thApril 2018. Detailed report of the study committee is enclosedat **Annexure-A**. Highlights of the findings are given as follows:

1. Two case studies were simulated in PSS/E software considering the updated network of the all India grid as follows:

   Case study 1: Limiting case of SR import (Power flow of around 2500 MW from WR to ER direction) for analyzing the contingency impact on Vemagiri ICTs.

   Case Study 2: Power Flow from ER to WR direction of around 1300 MW to analyze the contingency impact on 400 kV Talcher-Meramundali.

2. The following contingencies were simulated in order to check the network security:

   Contingency1: Tripping of HVDC Talcher-Kolar one pole and other pole in the Metallic return mode

   Contingency2: Tripping of HVDC Talcher-Kolar one pole and other pole in ground return mode (HVDC power Order 150 MW) or HVDC Talcher-KolarBipole tripping.

   Contingency 3: Tripping of one 765/400 kV 1500 MVA ICT of Vemagiri

   Contingency 4: Tripping of 400 kV Talcher-Angul circuit

3. Major observations derived from the study results are as follows:

   i. After commissioning of new transmission elements in NEW as well as in SR grid, the sensitivity of Talcher-Kolar pole tripping on 765 kV Solapur-Raichur

D/C(WR→SR corridor)hasbeen reduced andshifted to 765 kV Angul-Srikakulam-Vemagiri D/C(ER→SR corridor). ER-SR path forms the weak link in power transfer to SR.

ii. The limiting constraint in import of Southern Region is loading on 2x1500 MVA, 765/400 kV Vemagiri ICTs which is not satisfying N-1 reliability.The flow on 765/400 kV Vemagiri ICTs exceeds the n-1 security limit under both the contingencies (Contingency 1 & 2 as mentioned above) andneed corrective actions.

iii. Key sensitivities as observed from study are as below:
   a. N-1 sensitivity (distribution factor) of 765/400 kV Vemagiri ICTs = 82%
   b. Sensitivity to loading on Vemagiri ICTs :
      - Reduction of Talcher generation = 9%
      - Reduction of GMR and JITPL generation = 12% on each
      - Reduction of load in SR with corresponding frequency response = 19%

iv. Normally the power flow in ER-WR corridor is from WR to ER. Under such condition, it is observed that
   a. In case of single pole tripping of Talcher – Kolar, generation reduction of atleast 600 MW is required in Eastern region at Talcher /GMR / JITPL along with load reduction of 875 MW (Group-1 load) in Southern Region to satisfy N-1 reliability of 765/400 kV Vemagiri(PG) ICTs.
   b. In case of bipole tripping of Talcher – Kolar, generation reduction of at least 1600 MW is required in Eastern region at Talcher / GMR / JITPL alongwith load reduction of 1655 MW in Southern Region (Group-1 and Group-2 loads) to satisfy N-1 reliability of 765/400 kV Vemagiri(PG) ICTs.

v. When the Power Flow is in ER to WR direction (Case Study 2), the limiting constraint is the loading of 400 kV Talcher-Meramundali which is not satisfying the N-1 reliability after the contingency 2. To bring the line loadings within thermal limits, at least 800 MW of generation reduction is required at Talcher /GMR /JITPL in Eastern region. Power flows are within the safe limit in the Eastern Region Network post this quantum of generation reduction. On 16th May event of HVDC one pole tripping and other pole going to ground return mode , the existing quantum of generation reduction were found to be insufficient to reduce the loading on these circuits (refer detailed report).

4. Committee observed that the loading of 765/400 kV Vemagiri ICTs is significant even during normal operating conditions of peak load in Southern Region because of number of 400 kV outlets connected from 765/400 kV Vemagiri S/s. As per the SCADA data, Power flow through 2 x 1500 MVA, 765/400 kV ICTs at Vemagiri S/s was above 1000 MW for a large duration of time during March 2018 which is not satisfying N-1 reliability (refer Fig. 4 of detailed report).

The committee noted that loading on 765/400 kV Vemagiri(PG) ICTs were close to N-1 limits in peak hours of 12th April 2018 and 16th April 2018. On these two

occasions mentioned, prevailing low voltages in Southern region prevented utilization of additional overload margins on the Talcher – Kolar HVDC link to control loading on 765/400 kV Vemagiri(PG) ICTs. Any contingencies on HVDC Talcher – Kolar link would have severely compromise grid security.

5. Committee observed that existing load Shedding scheme of Talcher-Kolar SPS in Southern Region need to have higher sensitivity on *7651400* kV Vemagiri ICTs to reduce its loading during pole contingency. Therefore the existing load shedding scheme needs to be re-distributed. This will help in ensuring the higher reliability margin for N-1 security at 2 x 1500 MVA, 765/400 kV ICTs at Vemagiri. The issue may be discussed with SRPC and SRLDC.
The existing generation reduction schemes at Talcher / GMR / JITPL in Eastern Region need to be in service to ensure frequency balance in All India grid and prevent injection of additional power through WR-SR path.

6. During the review meeting regarding SPS on Talcher-Kolar, NLDC intimated that 765 kV Vemagiri – Chilikaluripeta D/C lines alongwith downstream 400 kV network from Chilikaluripeta, and HVDC Raigarh – Pugalur have been put on fast track, and are expected by April 2019. These additional corridors may relieve the constraint on Vemagiri ICTs in case of tripping of HVDC Talcher – Kolar.

7. Based on the report and discussion held , It is recommended to adopt the remedial action as proposed below:

- **a.** For single-pole tripping and other pole in metallic return: Faster generation reduction in Eastern Region at Talcher Stage 2, GMR and JITPL to the tune of 600 MW along with load shedding of 875 MW in Southern Region. (Sensitivity of Generation reduction for relieving the loading of Vemagiri ICTs is GMR: 12 % ; JITPL 12 %: ; Talcher Stage 2 : 9 %)
- **b.** For bipole tripping or One pole tripping and other pole going to ground return mode: Generation reduction required in Eastern Region is 1600 MW at Talcher stage 2, GMR and JITPL with 1655 MW Load Shedding in Southern Region. In this case, it is desirable to trip two units at Talcher Stage 2 to get the instantaneous reduction of more than 800 MW followed by faster backing down at other units of Talcher stg-II, GMR and JITPL.
- **c.** Redistribution of Loads in the existing load shedding scheme of Talcher-Kolar SPS in Southern Region in order to have higher sensitivity on loading of 1500 MVA, 765/400 kV ICTs at Vemagiri as it provides the low impedance path for power transfer for any contingencies in ER-SR Path.

The above proposal will help in safeguarding the grid by ensuring the N-1 reliability under all contingencies. Further, the proposal is simple yet a comprehensive and effective System for taking care of HVDC Talcher-Kolar bipole contingency under various scenarios.

The committee thus proposes that the SPS schemes related to tripping of one pole or both poles of HVDC Talcher – Kolar bipole may modified as per observation no. 7.a, 7.b and 7.c above, and implemented in place of existing SPS 450 / SPS 1000 after discussion in ERPC and SRPC fora.

A. West Bengal

Date	Time	West Bengal O/D (MW)	Frequency (Hz)	ADMS Optd (Y/N)	Relief (MW)
06-07-18	06:13 to 06:15	170-180	49.69		
06-07-18	20:25 to 20:26	180-200	49.68		
10-07-18	19:27 to 19:32	188-224	49.68		
18-07-18	19:13 to 19:17	336-348	49.65		
19-07-18	**19:25 to 19:33**	**395-495**	**49.62**		

B. DVC

Date	Time	West Bengal O/D (MW)	Frequency (Hz)	ADMS Optd (Y/N)	Relief (MW)
25-07-18	19:19-19:20	170	49.69		

C. Odisha

Date	Time	West Bengal O/D (MW)	Frequency (Hz)
10-07-18	19:27 to 19:32	158-230	49.68
10-07-18	**19:55 to 19:56**	**314-331**	**49.68**
18-07-18	**19:15 to 19:17**	**247-307**	**49.65**
18-07-18	19:40 to19:45	160-263	49.65
27-07-18	06:14 to 06:18	160-235	49.68

D. Bihar

Date	Time	West Bengal O/D (MW)	Frequency (Hz)
10-07-18	19:27 to 19:32	180-275	49.68
10-07-18	19:55 to 19:56	314-331	49.68
18-07-18	19:15 to 19:17	247-307	49.65
18-07-18	19:40 to19:45	160-263	49.65
27-07-18	06:14 to 06:18	160-235	49.68

E. Jharkhand

Date	Time	West Bengal O/D (MW)	Frequency (Hz)
18-07-18	19:40 to19:45	109-111	49.65

Annexure-C17

Installation of Meters at ICTs at PGCIL substations in ER & Odhisa Project

Location	Bay	S No	Time Drift	Whether drifted Meter replaced (Y/N)	Status of meters on both side at ICTs
ALIPURDUAR(PG)	220 KV SIDE ICT-1	ER-1463-A	-	-	
ALIPURDUAR(PG)	400 KV SIDE OF 400/220 ICT-2	ER-1469-A	-	-	
ALIPURDUAR(PG)	220 KV SIDE OF 400/220 ICT-2	ER-1467-A	-	-	
ALIPURDUAR(PG)	400 KV SIDE OF 400/220 ICT-1	ER-1465-A	-	-	All done
ARA(PG)	220 KV SIDE OF 160 MVA ICT-3	NP-8860-A	11	NO	
ARAH(PG)	220/132 KV ICT-1	NP-6055-A	11	NO	
ARAH(PG)	220/132 KV ICT-2	NP-6059-A	-	-	IV side Pending
BANKA(PG)	400 KV SIDE 400/132 200 MVA ICT-1	ER-1349-A	-	-	
BANKA(PG)	400 KV SIDE 400/132 200 MVA ICT-2	ER-1347-A	-	-	IV side Pending
BARIPADA(PG)	220KV SIDE OF BARIPADA 220/132 KV ICT -1	NP-5911-A	13	NO	
BARIPADA(PG)	220KV SIDE OF BARIPADA 220/132 KV ICT -2	NP-5905-A	-	-	IV side Pending
BARIPADA(PG)	400 KV SIDE OF 500 MVA ICT-3	NP-8074-A	-	-	IV side Pending
BIHARSHARIFF(PG)	400/220 KV ICT-1	NP-6063-A	-	-	
BIHARSHARIFF(PG)	400/220 KV ICT-2	NP-6069-A	-	-	
BIHARSHARIFF(PG)	400/220 KV ICT-3	NP-6068-A	-	-	All done
BINAGURI(PG)	220 KV SIDE OF 400/220 KV ICT-1	NP-5883-A	8	NO	
BINAGURI(PG)	220 KV SIDE OF 400/220 KV ICT-2	NP-5890-A	-	-	
BINAGURI(PG)	400 KV SIDE OF 400/220 KV ICT-1	NP-8805-A	-	-	
BINAGURI(PG)	400 KV SIDE OF 400/220 KV ICT-2	ER-1539-A	-	-	All done
BIRPARA(PG)	220 KV SIDE OF 220/132 160 MVA ICT-2	NP-5891-A	-	-	
BIRPARA(PG)	220 KV SIDE OF 220/132 160 MVA ICT-1	NP-6474-A	Meter Incor	NO	IV pending
BOLANGIR(PG)	400 KV BOLANGIR ICT-II	NP-7536-A	19	NO	
BOLANGIR(PG)	400 KV BOLANGIR ICT-I	NP-7560-A	20	NO	IV pending
CHAIBASA(PG)	400 KV SIDE OF 400/220 ICT-2	NP-8678-A	-8	NO	
CHAIBASA(PG)	400 KV SIDE OF 400/220 ICT-1	NP-8637-A	-	-	IV pending
DALTONGANJ(PG)	400 KV SIDE OF 315 MVA DALTONGANJ ICT-1	ER-1197-A	-	-	
DALTONGANJ(PG)	220 KV SIDE OF 160 MVA 220/132 DALTONGANJ ICT-1	ER-1196-A	-	-	
DALTONGANJ(PG)	220 KV SIDE OF DALTONGANJ 220/132 ICT-2	ER-1191-A	-	-	IV pending
DARBHANGA(DMTCL)	400 KV SIDE OF DARBHANGA 500 MVA ICT-1	ER-1274-A	-	-	
DARBHANGA(DMTCL)	400 KV SIDE OF DARBHANGA 500 MVA ICT-2	ER-1275-A	-	-	
DARBHANGA(DMTCL)	220 KV SIDE OF DARBHANGA 500 MVA ICT-1	ER-1271-A	-	-	
DARBHANGA(DMTCL)	220 KV SIDE OF DARBHANGA 500 MVA ICT-2	ER-1276-A	-	-	All done
DURGAPUR(PG)	400/220 KV ICT -1	NP-8803-A	-	-	
DURGAPUR(PG)	400/220 KV ICT -2	NP-8804-A	-	-	
DURGAPUR(PG)	220 KV SIDE OF 400/220 315 MVA ICT-1	ER-1491-A	-	-	
DURGAPUR(PG)	220 KV SIDE OF 400/220 315 MVA ICT-2	ER-1496-A	-	-	All done
GANGTOK(PG)	132KV SIDE 132/66 KV ICT-1	NP-6029-A	8	NO	
GANGTOK(PG)	66KV SIDE 132/66 KV ICT-1	NP-6030-A	9	NO	
GANGTOK(PG)	132KV SIDE 132/66 KV ICT-2	NP-6028-A	17	NO	
GANGTOK(PG)	66KV SIDE132/66 KV ICT-2	NP-6025-A	18	NO	All done
GAYA(PG)	400 KV SIDE 500 MVA GAYA ICT-2	NP-7858-A	7	NO	
GAYA(PG)	400 KV SIDE 500 MVA GAYA ICT-1	NP-7453-A	13	NO	IV pending
JAMSHEDPUR(PG)	400/220 KV ICT-1	NP-6106-A	-	-	
JAMSHEDPUR(PG)	400/220 KV ICT-2	NP-6105-A	6	NO	
JAMSHEDPUR(PG)	400/220 KV ICT-3	ER-1297-A	-	-	All done
JEYPORE(PG)	400/220 KV ICT -1	NP-5955-A	11	NO	
JEYPORE(PG)	400/220 KV ICT -2	NP-5956-A	16	NO	
JEYPORE(PG)	220 KV SIDE OF 315 MVA JEYPORE-ICT-1	ER-1566-A	-	-	
JEYPORE(PG)	220 KV SIDE OF 315 MVA JEYPORE-ICT-2	ER-1570-A	-	-	All done
KEONJHAR(PG)	HV SIDE OF 315 MVA 400/220 ICT-1	NP-7546-A	17	NO	
KEONJHAR(PG)	HV SIDE OF 315 MVA 400/220 ICT-2	NP-7549-A	13	NO	IV pending
KISHANAGNJ(PG)	400 KV SIDE OF 500 MVA ICT-1	NP-7013-A	-	-	
KISHANGANJ(PG)	400 KV SIDE OF 500 MVA ICT-2	NP-8858-A	-	-	IV pending
LAKHISARAI(PG)	400 KV SIDE OF 200 MVA ICT-2	NP-7889-A	-	-	
LAKHISARAI(PG)	400 KV SIDE OF 200 MVA ICT-1	NP-7429-A	-	-	IV pending
MAITHON(PG)	400/220 KV ICT -1	NP-6453-A	7	NO	
MAITHON(PG)	400/220 KV ICT -2	NP-6449-A	16	NO	
MAITHON(PG)	400 KV SIDE OF 500 MVA ICT-3	NP-7401-A	-	-	
MAITHON(PG)	220KV SIDE OF 400/220 500 MVA ICT-1	ER-1045-A	-	-	
MAITHON(PG)	220KV SIDE OF 400/220 500 MVA ICT-2	ER-1010-A	-	-	All done
MALDA(PG)	220 KV SIDE OF 400/220 MALDA ICT-1	NP-7925-A	18	NO	
MALDA(PG)	220 KV SIDE OF 160 MVA ICT-1	NP-7978-A	17	NO	
MALDA(PG)	220 KV SIDE OF 160 MVA ICT-2	ER-1103-A	-	-	
MALDA(PG)	220 KV SIDE OF 400/220 ICT-2	NP-7926-A	18	NO	
MALDA(PG)	400 KV SIDE OF 400/220 315MVA ICT-3	ER-1086-A	-	-	
MALDA(PG)	400 KV SIDE OF 400/220 315MVA ICT-5	ER-1472-A	-	-	
MALDA(PG)	220 KV SIDE OF 220/132 160MVA ICT-1	ER-1466-A	-	-	
MALDA(PG)	220 KV SIDE OF 220/132 160MVA ICT-2	NP-7977-A	15	NO	
MALDA(PG)	220 KV SIDE OF 220/132 50MVA ICT-4	ER-1082-A	-	-	
MALDA(PG)	220 KV SIDE OF 50 MVA 220/132 MALDA ICT-3	ER-1511-A	-	-	All done
MOTIHARI(DMTCL)	HV SIDE OF 400/132 ICT-1	ER-1247-A	-	-	
MOTIHARI(DMTCL)	HV SIDE OF 400/132 ICT-2	ER-1243-A	-	-	

MOTIHARI(DMTCL)	LV SIDE OF 400/132 ICT-1	ER-1174-A	-	-	
MOTIHARI(DMTCL)	LV SIDE OF 400/132 ICT-2	ER-1179-A	-	-	All done
MUZAFFARPUR(PG)	400/220KV ICT-2	NP-5073-A	-	-	
MUZAFFARPUR(PG)	400/220KV ICT-1	NP-9983-A	-	-	
MUZAFFARPUR(PG)	400 KV SIDE OF 500 MVA ICT-3	NP-8874-A	-	-	IV pending
MUZAFFARPUR(PG)	220 KV SIDE OF 220/132 100 MVA ICT-1 &2 (M)	NP-8871-A	-	-	
MUZAFFARPUR(PG)	220 KV SIDE OF 220/132 100 MVA ICT-1&2©	NP-8873-A	-	-	
PANDIABILI(PG)	400 KV SIDE OF PANDIABIL 500 MVA ICT-1	NP-7438-A	6	NO	
PANDIABILI(PG)	400 KV SIDE OF PANDIABIL 500 MVA ICT-2	NP-7407-A	6	NO	
PANDIABILI(PG)	220 KV SIDE OF 500 MVA PANDIABILI-ICT-1	ER-1098-A	-	-	
PANDIABILI(PG)	220 KV SIDE OF 500 MVA PANDIABILI-ICT-1	ER-1591-A	-	-	All done
PATNA(PG)	400KV SIDE OF PATNA ICT-1	NP-5270-A	9	NO	
PATNA(PG)	220KV SIDE OF PATNA ICT-1	NP-5271-A	12	NO	
PATNA(PG)	400KV SIDE OF PATNA ICT-2	NP-5839-A	11	NO	
PATNA(PG)	220KV SIDE OF PATNA ICT-2	NP-5866-A	10	NO	
PATNA(PG)	400 KV SIDE OF 500 MVA 400/220 PATNA ICT-3	ER-1231-A	-	-	All done
PATNA(PG)	220 KV SIDE OF 500 MVA 400/220 PATNA ICT-3	ER-1232-A	-	-	
PURNEA(PG)	400 KV SIDE 315 MVA ICT-1	NP-6087-A	7	NO	
PURNEA(PG)	400/220 KV ICT-2	NP-6086-A	-	-	IV pending
PUSAULI(PG)	400/220KV ICT-2	NP-6516-A	-	-	
PUSAULI(PG)	400/220KV ICT-1	NP-6513-A	-	-	IV pending
PUSAULI(PG)	765 KV SIDE OF 1500 MVA 765/400 ICT-1	NP-7411-A	11	NO	
PUSAULI(PG)	400 KV SIDE OF 1500 MVA 765/400 ICT-1	NP-7410-A	10	NO	All done
RANCHI NEW(PG)	765 KV SIDE 765/400 MVA ICT-1	NP-7875-A	-	-	
RANCHI NEW(PG)	765 KV SIDE OF 765/400 ICT-1	NP-7846-A	-	-	All done
RANCHI(PG)	400KV SIDE ICT-2	NP-5873-A	-	-	
RANCHI(PG)	220KV SIDE ICT-2	NP-5872-A	-	-	
RANCHI(PG)	400KV SIDE OF RANCHI ICT-1	NP-5878-A	-	-	
RANCHI(PG)	220KV SIDE OF RANCHI ICT-1	NP-5870-A	-	-	All done
RANGPO(PG)	220 KV SIDE OF 220/132 100 MVA ICT-1	NP-7933-A	-	-	
RANGPO(PG)	400 KV SIDE OF 400/220 315 MVA ICT-4	NP-7955-A	-	-	
RANGPO(PG)	400 KV SIDE OF 315 MVA ICT-3	NP-7922-A	-	-	
RANGPO(PG)	400 KV SIDE OF 315 MVA ICT-5	NP-7923-A	-	-	
RANGPO(PG)	220KV SIDE OF 100 MVA ICT-2	NP-7924-A	-	-	
RANGPO(PG)	220KV SIDE OF 100 MVA ICT-3	ER-1101-A	-	-	
RANGPO(PG)	400 KV SIDE OF 315 MVA ICT-2	ER-1148-A	-	-	
RANGPO(PG)	400 KV SIDE OF 315 MVA ICT-1	ER-1039-A	-	-	All done
RENGALI(PG)	400/220 KV ICT -1	ER-1598-A	-	-	
RENGALI(PG)	400/220 KV ICT -2	ER-1595-A	-	-	
RENGALI(PG)	220 KV SIDE OF 400/220 ICT-1	ER-1593-A	-	-	
RENGALI(PG)	220 KV SIDE OF 400/220 ICT-1	ER-1581-A	-	-	All done
ROURKELLA(PG)	400/220 KV ICT -1	NP-8806-A	-9	NO	
ROURKELLA(PG)	400/220 KV ICT -2	NP-5930-A	16	NO	
ROURKELLA(PG)	220 KV SIDE OF 315 MVA 400/220 ICT-1	ER-1580-A	-	-	
ROURKELLA(PG)	220 KV SIDE OF 315 MVA 400/220 ICT-2	ER-1579-A	-	-	All done
SILIGURI(PG)	132 KV SIDE OF SILIGURI ICT -1	NP-5951-A	11	NO	
SILIGURI(PG)	132 KV SIDE OF SILIGURI ICT-2	NP-7979-A	14	NO	
SILIGURI(PG)	220 KV SIDE OF 220/132 160 MVA ICT-1	ER-1493-A	-	-	
SILIGURI(PG)	220 KV SIDE OF 220/132 160 MVA ICT-1	ER-1500-A	-	-	All done
SUBHASGRAM(PG)	400KV SIDE ICT-1	NP-5848-A	9	NO	
SUBHASGRAM(PG)	400KV SIDE ICT-2	NP-5845-A	9	NO	
SUBHASGRAM(PG)	400 KV SIDE 315 MVA SUBHASGRAM ICT-3	NP-7545-A	10	NO	
SUBHASGRAM(PG)	400 KV SIDE OF SUBHASHGRAM 400/220 ICT-4	NP-7939-A	12	NO	
SUBHASGRAM(PG)	220 KV SIDE 400/220 315 MVA ICT-4	NP-7566-A	19	NO	
SUBHASGRAM(PG)	220 KV SIDE 400/220 315 MVA ICT-3	NP-7996-A	14	NO	
SUBHASGRAM(PG)	400 KV SIDE OF 500 MVA SUBHSGARAM ICT-5	NP-8718-A	8	NO	
SUBHASGRAM(PG)	220 KV SIDE OF 500 MVA SUBHSGARAM ICT-5	NP-8717-A	11	NO	All done
SUNDERGARH(PG)	765 KV SIDE OF 1500 MVA 765/400 ICT-2	NP-7906-A	-	-	
SUNDERGARH(PG)	765 KV SIDE OF 1500 MVA ICT-1	NP-7907-A	-	-	All done
SUBHASGRAM(PG)	220KV SIDE OF 400/220 315 MVA ICT-1	ER-1544-A	-	-	
SUBHASGRAM(PG)	220KV SIDE OF 400/220 315 MVA ICT-2	ER-1478-A	-	-	All done

Annexure:C21

Flash Report

1. **Date and time of the Incident:**
2. **Antecedent Conditions:**
   - **i. Frequency:**
   - **ii. Demand Met:**
     Pre incidence Demand Met:
   - **iii. Lines/units/elements under shutdown :**
   - **iv. Weather condition:**

3. **Details of tripping (Along with cause of the event and relay flag, whatever available)**:

Sl. No.	Area/ Region	LOSS OF LOAD(MW)	LOSS OF GENERATION (MW)
1			

4. **Action Taken/Remedial measures taken:**
5. **Restoration details:**
6. **Duration of the disturbance:**
7. **Amount of energy unserved:**

Copy to : MS, ERPC

SCE

Annexure-D.1

Anticipated Power Supply Position for the month of
Sep-18

SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	4650	2678
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	362	184
		- Central Sector	3171	1881
	iii)	SURPLUS(+)/DEFICIT(-)	-1118	-613
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1280	760
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	386	181
		- Central Sector	818	471
	iii)	SURPLUS(+)/DEFICIT(-)	-76	-108
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	2900	1760
	ii)	NET POWER AVAILABILITY- Own Source	4960	2644
		- Central Sector	322	211
		Long term Bi-lateral (Export)	1511	1088
	iii)	SURPLUS(+)/DEFICIT(-)	871	7
4		**ODISHA**		
	i)	NET MAX DEMAND	4300	2520
	ii)	NET POWER AVAILABILITY- Own Source	3210	1843
		- Central Sector	1245	723
	iii)	SURPLUS(+)/DEFICIT(-)	155	46
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	6185	3588
	ii)	CESC's DRAWAL	0	0
	iii)	TOTAL WBSEDCL's DEMAND	6185	3588
	iv)	NET POWER AVAILABILITY- Own Source	3373	1984
		- Import from DPL	195	0
		- Central Sector	2823	1611
	v)	SURPLUS(+)/DEFICIT(-)	206	7
	vi)	EXPORT (TO B'DESH & SIKKIM)	10	7
5.2		**DPL**		
	i)	NET MAX DEMAND	270	169
	ii)	NET POWER AVAILABILITY	465	187
	iii)	SURPLUS(+)/DEFICIT(-)	195	18
5.3		**CESC**		
	i)	NET MAX DEMAND	2010	1064
	ii)	NET POWER AVAILABILITY - OWN SOURCE	750	486
		FROM HEL	540	337
		FROM CPL/PCBL	0	0
		Import Requirement	720	241
	iii)	TOTAL AVAILABILITY	2010	1064
	iv)	SURPLUS(+)/DEFICIT(-)	0	0
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	8465	4821
	ii)	NET POWER AVAILABILITY- Own Source	4588	2657
		- Central Sector+Others	4083	1948
	iii)	SURPLUS(+)/DEFICIT(-)	206	-217
7		**SIKKIM**		
	i)	NET MAX DEMAND	85	34
	ii)	NET POWER AVAILABILITY- Own Source	2	0
		- Central Sector+Others	159	102
	iii)	SURPLUS(+)/DEFICIT(-)	76	68
8		**EASTERN REGION** **At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	21048	12573
		Long term Bi-lateral by DVC	1511	1088
		EXPORT BY WBSEDCL	10	7
	ii)	**NET TOTAL POWER AVAILABILITY OF ER** **(INCLUDING C/S ALLOCATION)**	23306	12844
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER** **(ii)-(i)**	736	-824

Annexure-D1.1

Generation Availability During Puja-2018

Expected Peak Hours Generation

System	Plants	Th. Unit Considered	Gross MW				Net MW			
			Therm.	Hydro+RES	Import Captive	Total	Therm.	Hydro	Captive	Total
BSPHCL	BTPS	1X110	60							
	MTPS	2X110	120							
TOTAL			180	90	50	320	155	90	50	295
JUVNL	TTPS	2x210	355	130	60	545	300	130	60	490
DVC	BTPS-A	1X500	450							
	BTPS-B	1x210	150							
	CTPS	2x250	500							
	DTPS	1X210	180							
	MTPS	4x210+2X250+2X500	2100							
	Durgapur STPS	2X500	950							
	Kodarma TPS	2X500	980							
	RTPS	2X600	600							
	TOTAL		5910	100	10	6020	5378	100	10	5488
ODISHA	IB TPS	2x210	400							
	TTPS	4x60+2x110	460							
	TOTAL		860	1450	900	3210	783	1443	900	3125
WBPDCL	BTPS	4x60+1X210	300							
	STPS	2X250	450							
	KTPP	6x210	850							
	BkTPP	5x210	1000							
	Sag TPS	2X300+2X500	1500							
	TOTAL		4100		105	4205	3690	0	105	3795
WBSEDCL	(JAL.+RAMAM+TISTA)HPS+PPSP+TLDP		0	1250	0	1250	0	1250		1250
DPL	DPPS	+1*110+1*300+1X250	480			480	422			422
CESC	TTPS	4x60	0							
	STPS	2x67.5	135							
	B.BUDGE TPS	3x250	750							
	HEL	2X300	570							
	TOTAL		1455			1455	1324			1324
NTPC	FSTPP	3x200+3x500	1900							
	KhSTPP	4x210+3X500	2100							
	TSTPP	2x500	1000							
	TSTPS Stg-II		*150*							
	Barh STPS	2X660	*1260*							
	MTPS Stg-II	2X195	*300*							
	TOTAL		6710			6710	4591	*		4591
NHPC	RHPS	3x20		60		60		60		60
	Teesta HEP	3x170		510		510		510		510
IPP	MPL (U#1&2)	2X525	1000							
	APNRL (U#1,2)	1X270	250							
	GMR (2x350)	2X350	650							
	JITPL (2X600)	2X600	850							
	BRBCL U #I,2	2X250	480							
	Total IPP TH		3230			3230	2955	0		2955
	CHUZACHEN** (2x55)			100		100		100		100
	JORETHANG (2x48)			90		90		90		90
	TEESTA URJA St III (6x200)			830		830		830		830
	Tashilding (2x48.5)			90		90		90		90
	DICKCHU (2X48)			90		90		90		90
	Total IPP HY			1200		1200	0	1200		1200
Import from BHUTAN	Chukha HPS,BIR. Receipt			250		250		250		250
	KHPS			60		60		60		60
	Tala HEP			850		850		723		723
	Dagachu HPS			126		126		100		100
TOTAL				1286		1286		1133		1133
GRAND TOTAL			23280	6076	1125	30481	19598	5915	1125	26638

* for Eastern Region only .

EASTERN REGIONAL POWER COMMITTEE
PUJA LOAD FORECAST '2018

DEMAND IN NET MW AND AT 50.0 HZ

		WEST BENGAL								
PUJA		WBSEDCL	CESC	DPL	TOTAL WEST	BSPHCL	JUVNL	DVC	ODISHA	REGION
DAYS					BENGAL*					
	MAX	6570	1840	280	8690	5130	1275	2875	4425	22058
SASTHI										
15-Oct-18	MIN	4341	974	229	5627	2891	983	2386	3340	15980
MONDAY	AVG	5225	1352	250	6827	3843	1096	2584	3783	18134
	MAX	6280	1535	267	8080	4935	1228	2920	4432	21026
SAPTAMI										
16-Oct-18	MIN	4026	897	207	5404	3458	903	2281	3559	16391
TUESDAY	AVG	5225	1148	241	6614	4174	1054	2619	3919	18380
	MAX	5420	1530	239	7080	4851	1218	2634	4204	19588
ASTAMI										
17-Oct-18	MIN	3701	906	180	4968	3615	912	2188	3388	15717
WEDNESDAY	AVG	4561	1171	223	5955	4249	1092	2456	3749	17501
	MAX	5300	1404	236	6893	4570	1183	2500	4349	19215
NAVAMI										
18-Oct-18	MIN	3436	879	173	4679	2927	775	2172	3405	14537
THURSDAY	AVG	4200	1110	203	5513	3787	1005	2359	3756	16419
	MAX	5145	1302	225	6671	4188	1108	2235	3980	17459
DASHMI										
19-Oct-18	MIN	3182	798	179	4175	2868	647	1900	3137	13384
FRIDAY	AVG	4122	1031	199	5352	3607	858	2128	3462	15408

There would be around 660 MW shortfall in West Bengal System w.r.t its availability during peak hours on Sasthi day(i,e 15.10.2018 Monday)

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	Indravati	1	150	No	
			SS		2	150	No	

			SS	Indravati	3	150	No	
			SS		4	150	No	
			64					
Central Sector	Thermal	DVC	CS	Bokaro-A	1	500	Yes	
			CS	Bokaro-B	3	210	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			CS	CTPS	3	130	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			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 would not be possible for
			CS		2	40	No	
	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	
			42					
IPP	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	
			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		1	200	No	could be put in RGMO

	Hydro	IPP	PS	Teesta Urja	2	200	No	could be put in RGMO mode but because of transmission evacuation constraint RGMO/FGMO is disabled
			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	

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 – 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	

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
1	Durgapur, ER-II	1 Set (8 towers)
2	Rourkela, ER-II	3 towers incomplete shape
3	Jamshedpur, ER-I	15 towers (10 nos Tension tower and 5 nos suspension tower)

2) The present status of ERS towers in OPTCL system is as follows:

Sl. No.	Name of S/S	No. of ERS towers available
1	Mancheswar	2 nos, 400 kV ERS towers
2	Mancheswar, Chatrapur & Budhipadar	42 nos, 220 kV ERS towers

- 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) The present status of ERS towers in WBSETCL system is as follows:

Sl. No.	Name of S/S	No. of ERS towers available
1	Gokarna	2 sets
2	Arambag	2 sets

4) The present status of ERS towers in BSPTCL system is as follows:

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**	

- 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 currently available in BSPTCL system (as mentioned in above table with remarks “New”).
- Same ERS tower is used in both 220 kV and 132 kV circuits.

5) In 25th ERPC meeting held on 21.09.2014, E R P C 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.

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:

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

नई रांची / Ranchi New			जमशेदपुर / Jamshedpur			मुजफ्फरपुर / Muzaffarpur		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
790	754	0.00	423	406	2.64	416	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)
421	398	0.13	416	396	0.00	419	375	0.14

राउरकेला / Rourkela			जयपोर / Jeypore			कोडरमा / Koderma		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
414	399	0.00	424	397	0.17	418	399	0.00

मैथन / Maithon			तीस्ता / Teesta			रांगपो / Rangpo		
MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)	MAX	MIN	VDI (% of Time)
421	404	0.81	409	396	0.00	408	395	0.00