Agenda

for

164th OCC Meeting

Date: 23.12.2019
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

Eastern Regional Power Committee

Agenda for 164th OCC Meeting to be held on 23rd December, 2019 at ERPC, Kolkata

Item no. 1: Confirmation of minutes of 163rd OCC meeting of ERPC held on 15.11.2019

The minutes of 163rd OCC meeting were uploaded in ERPC website and circulated vide letter dated 04.12.2019 to all the constituents.

Members may confirm the minutes.

PART A : ER GRID PERFORMANCE

Item no. A1: ER Grid performance during November, 2019

The average consumption of Eastern Region for November - 2019 was 360.3 Mu. Eastern Region energy consumption reached a monthly maximum of 394 Mu on 01st November - 2019. Total Export schedule of Eastern region for November - 2019 was 3020.6 Mu, whereas actual export was 2972.1 Mu.

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

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

To review the performance of FGMO/RGMO of ER generating units, the event of 1644 MW load loss due to fault at Akal S/S on 01st November 2019 at 11:16hrs is analyzed. During the event frequency decreased from 50.03 Hz to 49.91 Hz. As per SCADA data recorded at ERLDC, actual FRC of ER was around only 21% of the ideal response, which is non-satisfactory.

Table 1: performance of FGMO/RGMO of regional units and FRC of states during the event of frequency drop event on 01st November 2019

Satisfactory (>70% of ideal response)	Below Satisfactory (30% to 70% of ideal response)	Non Satisfactory (<30% of ideal response)
GMR (ramping during governor response needs to be increased)	**KhSTPP** stage II and **TSTPP** Stage II. **GRIDCO** control area FRC was below satisfactory	**FSTPP** Stage I, II & III, **KhSTPP** stage I, **Barh**, **BRBCL, MPL, JITPL** and **APNRL**. **WB, Jharkhand and DVC** control area FRC was non-satisfactory

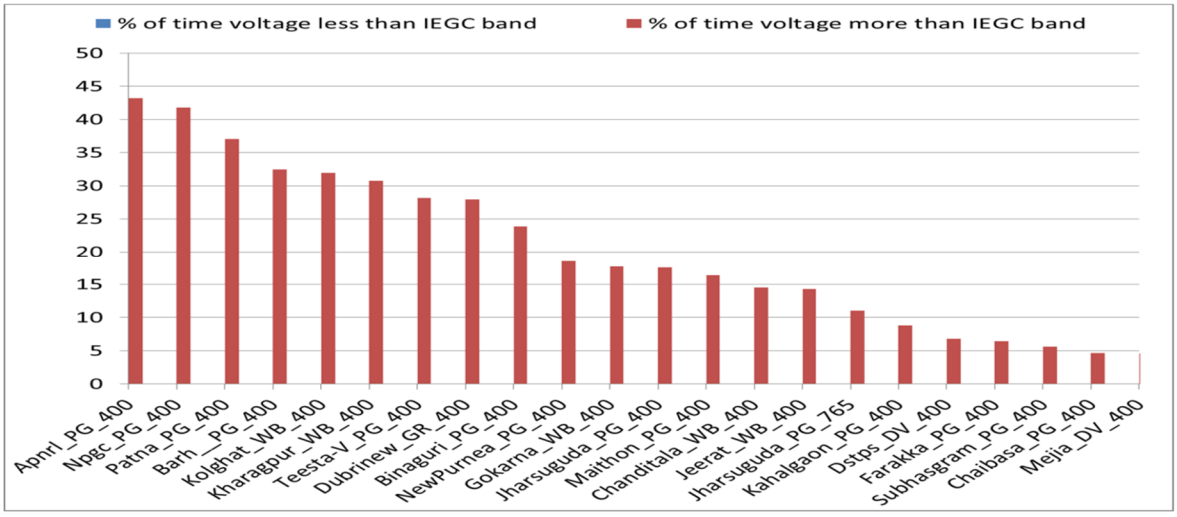
- Generation end data from **NTPC Farakka, NTPC Kahalgaon, NTPC Talcher, NTPC Barh, BRBCL & JITPL** and FRC data from **SLDC Jharkhand and SLDC GRIDCO** are **yet to be received** (as on 03-12-19). ERLDC SCADA data and PMU data are used to analyze the performance.

The detailed Report on poor governor response from the generators in the Eastern Region for the event in November 2019 is attached in **Annexure-A1.6.**

A two day Training on Frequency Control and Reserves scheduled to be organized at ERLDC on 16th and 17th January 2020. All SLDCs are requested to nominate one or two executives involved in dealing with frequency response performances.

7. Over Voltage issue in ER substations

High voltage is observed at different nodes in Eastern Region during the month of November and first week of December. Some of the nodes where voltage is beyond IEGC upper limit for significant amount of time during the first week of December are shown below:



PART B: ITEMS FOR DISCUSSION

Item No. B.1: Review of implementation of PSDF approved projects of Eastern Region.

NLDC (POSOCO) being the Nodal Agency for PSDF schemes, is carrying out PSDF Secretariat function under directions of MoP. Recently NLDC is directed by MoP to disburse the PSDF sanctioned funds as early as possible as its non-utilization is being viewed seriously by MoP on various fora.

In view of the above, status review of the projects being executed under PSDF funding in Eastern Region, is required to be carried out on regular basis for expediting the projects.

A Detailed statement of the Eastern Region project entities approved in PSDF is enclosed as **Annexure-B1**.

All the constituents are requested to furnish/update the status of their respective project in every OCC and also requested to submit requisition for disbursement to NLDC at the earliest by 1st February 2020, so that amount may be released by 31st March 2020.

Members may update.

Item No. B.2: Automatic Under Frequency Load Shedding (AUFLS) Scheme

In the 2nd meeting of NPC held on 16th July 2013, the following AUFLS scheme with 4 stages of frequency viz. 49.2 Hz, 49.0 Hz, 48.8 Hz & 48.6 Hz had been decided to implement in all the regions:

AUFLS	Frequency (Hz)	Load relief in MW					
		NR	WR	SR *	ER	NER	Total
Stage-I	**49.2**	2160	2060	2350	820	100	7490
Stage-II	**49.0**	2170	2070	2360	830	100	7530
Stage-III	**48.8**	2190	2080	2390	830	100	7590
Stage-IV	**48.6**	2200	2100	2400	840	100	7640
	Total (MW)	**8720**	**8310**	**9500**	**3320**	**400**	**30250**

*SR grid not integrated with NEW grid at that point of time.

The scheme had been implemented throughout the country.

In 7th NPC meeting held on 08thSeptember 2017, it was agreed that there is need for review of the quantum of load shedding. The RPCs were to deliberate on additional slabs of frequency as well as raising the set frequency for UFR operation and inform the outcome to NPC.

In 8thNPC meeting, held on 30.11.2018, members agreed for the AUFLS scheme with 4 stages and raising the frequency by 0.2 Hz viz. 49.4, 49.2, 49.0 & 48.8 Hz. It was further decided that the quantum for AUFLS would be reworked by NPC Secretariat considering the requirement of load shedding to increase the frequency to 50 Hz in each stage of AUFLS operation.

In 9th NPC meeting held on 22.11.2019, it was decided to implement the AUFLS scheme with 4 stages and raising the frequency by 0.2 Hz viz. 49.4, 49.2, 49.0 & 48.8 Hz by keeping the quantum for AUFLS same as decided in 2nd NPC Meeting. It was also decided that a committee with all RPCs and NLDC would study and review the required quantum for each slab of AUFLS and submit a report to NPC. Minutes of the meeting are awaited.

The total load quantum for ER constituents is given below:

Control Area	Stage –I (49.4 Hz) (MW)	Stage –II (49.2 Hz) (MW)	Stage–III (49.0Hz) (MW)	Stage–IV (48.8Hz) (MW)	Total Relief by Control Area
Bihar	98	99	99	101	397
Jharkhand	61	62	61	62	246
DVC	134	135.5	136	137	542.5
Odisha	181.5	183.5	184	186	735
WB & CESC	345.5	350	350	354	1399.5
Total	**820**	**830**	**830**	**840**	**3320**

In 42nd TCC, all the constituents were advised to implement the revised AUFLS scheme as per the NPC decision within a month and submit a report to ERPC Secretariat and ERLDC.

TCC decided to review the implementation status in the next OCC Meeting.

Members may update.

Item No. B.3: Implementation of Automatic Generation Control in Eastern Region

In compliance to CERC's direction in order dated 06/12/2017 in petition no 79/RC/2017, AGC was commissioned in NTPC Barh on 01st August 2019 and operationalized since 23rd August, 2019.

Vide order dated 28th August 2019, CERC in Petition No.: 319/RC/2018 directed that all the ISGS stations whose tariff is determined or adopted by CERC shall be AGC-enabled and the ancillary services including secondary control through AGC be implemented as per the following direction:

I. All thermal ISGS stations with installed capacity of 200 MW and above and all hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC are directed to install equipment at the unit control rooms for transferring the required data for AGC as per the requirement to be notified by NLDC. NLDC shall notify the said requirements within one month of this order.
II. All such ISGS stations whose tariff is determined or adopted by CERC shall have communication from the nearest wide band node to the RTU in the unit control room.
III. The Central Transmission Utility (CTU) is directed to have communication availability from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication.
IV. The NLDC is also directed to commission the required communication infrastructure.
V. The expenditure as a result of compliance of the above directions may be claimed as per relevant regulations or provisions of the PPA.
VI. The NLDC is directed to monitor implementation of the above directions so that all the ISGS stations whose tariff is determined or adopted by CERC are AGC-enabled within six months of this order.
VII. The framework regarding compensation for AGC support and deviation charges as stipulated in the Commission's Order in Petition no. 79/RC/2017 dated 06.12.2017 shall apply to the five pilot projects as also to other ISGS as and when they are AGC enabled. This arrangement shall remain in place till the relevant regulations inter alia on compensation for AGC services are framed by the Commission.
VIII. NLDC/RLDCs are allowed to operate the AGC system for enabling the signals to the power plants at the earliest.
IX. All new thermal ISGS stations with installed capacity of 200 MW and above and hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC shall mandatorily have the capability to provide AGC support.

All concerned plants may please ensure taking necessary action for arranging the communication (through redundant and alternate paths) from the existing nearest wideband communication node to their unit control rooms through two fiber optic cables, in coordination with CTU. It may please be noted that all the ISGS stations whose tariff is determined by or adopted by CERC should be AGC-enabled before 28th February 2020, as per order of CERC.

A. Status of implementation of AGC for ISGS stations

The list of plants identified for AGC operation by NLDC in Eastern Region are as given below:

S. No.	Power Plant	Thermal/Hydro	Cap (MW)
1	Farakka STPS – I & II	Thermal	1600
2	Kahalgaon STPS – II	Thermal	1500
3	Barh STPS	Thermal	1320
4	Maithon Power Limited	Thermal	1050
5	Talcher STPS – I	Thermal	1000
6	Kahalgaon STPS – I	Thermal	840
7	Nabinagar Thermal Power Project	Thermal	750
8	Teesta – V	Hydro	510
9	Farakka STPS – III	Thermal	500
10	MTPS Stage - II	Thermal	390
11	Rangit	Hydro	60

In 161st OCC, all the ISGS stations were advised to implement the AGC within 6 months as per the above CERC order.

In 163rd OCC, NHPC and NTPC informed that they are in process of implementation of AGC at their stations in coordination with NLDC. The technical specifications have been prepared.

This issue was further deliberated in the 2nd TeST meeting held on 26.11.2019 at ERPC, Kolkata.

MS, ERPC raised concerns about the present reporting of AGC data signal from generating stations to NLDC and concerned RLDC is getting data through NLDC over ICCP protocol.

NLDC informed that, as a part of pilot project of AGC, all generating stations' AGC data would be directly reporting to NLDC for first 3 years and the same would be diverted to respective RLDCs after SCADA upgradation.

NTPC raised the concern about the bandwidth requirement, list of signals and cable requirement for implementation of AGC.

NLDC informed that all generating stations must make arrangement for extending the AGC data signals to the nearest POWERGRID node and POWERGRID shall make available two Ethernet ports (main & its redundant) so that AGC signal from generating stations should reach to NLDC.

*NLDC further informed that requirement for AGC implementation like list of signals, bandwidth requirement, hardware, software & cable requirement etc. are made available at POSOCO website (*https://posoco.in/spinning-reserves/*).*

ERLDC suggested that firewalls should be available at both end i.e. at Generator end as well as NLDC end. NLDC informed that they have a firewall at their end in their system.

All generating stations agreed to install adequate level of firewall at their end for extending the AGC signals.

ERLDC raised concern about AGC implementation of Nabinagar (BRBCL) as OPGW communication link from generating station to nearest POWERGRID S/S i.e. 400 kV Sasaram is not available.

ERPC advised NLDC to add NPGC, Nabinagar (2x660 MW) in AGC implementation list as this station is commissioned in November 2019. NLDC agreed for the same.

It was decided to take the above issue to the next TCC/ERPC meeting for further deliberation.

In 42nd TCC, NTPC and NHPC informed that they would place the order by March 2020 and implement the AGC by June 2020. MPL informed that AGC would be implemented by February 2020.

Powergrid informed that only single communication connectivity is available at MPL, Teesta V and Rangit. Other generating stations are having dual communication connectivity.

TCC advised all generating stations to make arrangement for extending the AGC data signals to the nearest POWERGRID node.

It was decided to include Darlipalli STPS and NPGC in list of the plants for implementation of AGC.

B. Status of implementation of AGC as a pilot project in states

In 162nd OCC, WBPDCL submitted that Bakreswar TPP is planning to implement AGC but there is no clarity on the source from where to receive the AGC control signal (from SLDC/ERLDC). This aspect needed to be clarified first.

In the meeting, it was clarified that AGC signal for intra-state generating stations would be generated by the concerned SLDC and the relevant communication path is to be established between SLDC to plant. For ISGS stations, the AGC signal would be sent from NLDC.

OCC advised SLDC, WB to establish the required hardware for generating AGC signal at SLDC.

In 163rd OCC, OPGC and SLDC, Odisha were advised to formulate the plan jointly for implementation of AGC. OCC advised them to submit the schedule of implementation of AGC to ERPC and ERLDC within a week.

All SLDCs and their respective state sector generators were advised to visit Barh STPS as well as to NLDC to have a first-hand knowledge on the implementation and functioning of AGC at control centre level as well as at generating station level.

Summary of status of implementation:

State	Station/Unit	Action plan
DVC	Mejia unit#8	• Finalization of technical specification, vendors and estimation: 30th November 2019 • NIT 31st January 2020 • Order placement 30th March 2020 • Commissioning of AGC 31st July 2020
West Bengal	Unit-5 of Bakreswar TPP	SLDC, WB to establish the required hardware for generating AGC signal at SLDC.
Odisha	Unit#3 of OPGC	SLDC, Odisha and OPGC agreed to submit their plan by 1st week of November 2019

In 42nd TCC, DVC intimated that AGC shall be implemented in unit 7 and 8 of Mejia as per the given schedule by 31st July 2020.

Odisha informed that SLDC and OPGC will sit together and finalise the scheme.

WBPDCL informed that they have already collected offer from Siemens for implementation of AGC and they are awaiting the concurrence from SLDC.

SLDC, WB informed that they are not in a position to implement AGC unless a clear direction is given by WBERC. Further, implementation of intra state DSM is a prerequisite for implementation of AGC in the state.

It was decided to request CERC to include this as an issue in the Agenda for discussion in the meeting of Forum of Regulators.

C. Issues related to AGC at Barh Stage-II (both units)

NTPC informed that AGC at Barh Stage-II (both units) had been implemented on 23rd August 2019. But they are facing following issues related to AGC Implementation:

1. AGC Down schedule during Technical Minimum SG (Effective Ex Bus Schedule less than Technical Minimum- 680.63 MW)
2. AGC UP Schedule during full SG (Effective Ex Bus Schedule more than full capacity- 1237.5 MW)
3. Ramp Rate more than declared Ramp Rate (90 MW in a 15 Min block) due to AGC Schedule.
4. Violation of sign change regulation due to AGC schedule

In 42nd TCC, NLDC confirmed that ramping issue has already been addressed.

NTPC and NLDC agreed to interact and settle the remaining issues.

Members may update.

Item No. B.4: Cold Spare transformer requirement for Eastern Region

CERC had set up a Committee on dated 15.03.2018 consisting of representatives from CERC, NLDC, CEA & POWERGRID under the Chairmanship of the Chief (Engineering) of the CERC to assess the requirement of regional spares including bus reactors, line reactors, ICTs, etc. This would ensure reliability of the grid and reduce downtime in case of any failure/outage.
Based on CERC Committee recommendation, following spare transformers will be needed for Eastern Region:

MVA Rating and Phase	**Voltage Rating**	**Qty Required as per norms**	**Available Regional Spare**	**Qty proposed for procurement**	**Spare requirement**
3Ø-500MVA	400/220	3	0	3	Bihar, Odissa and West Bengal
3Ø-160MVA	220/132	4	2	2	Jharkhand and Odissa
3Ø-100MVA	220/132	2	0	0**	
Total		**9**	**2**	**5**	

***As per CERC committee recommendation, for 3-phase,220KV and below rated equipment, one 3-phase transformer is needed with highest MVA rating in each state.*

OCC may consider for approval of 05 nos of cold spare transformers of various ratings as per CERC committee recommendation as mentioned above. The Tariff for the investment made is to be shared by all constituents as per CERC notification.

Members may discuss.

Item No. B.5: Outage of important transmission lines

1. 400 kV Kishenganj-Patna D/C lines:

In 162nd OCC, Powergrid informed that one circuit of 400 kV Kishenganj-Patna D/C line would be restored through ERS by December 2019. Powergrid added that permanent restoration of both the circuits of 400 kV Kishenganj-Patna D/C lines would be completed by March 2020.

MS, ERPC submitted that Powergrid had repeatedly changed their schedule of restoration of the line. He advised Powergrid to give a report on restoration schedule committed till date in chronological order along with the reason for changing the scheduled dates.

He added that a Committee would visit the site once again in 2nd week of November 2019 to assess the situation.

In 163rd OCC, Powergrid informed that both circuits of 400 kV Kishenganj-Patna D/C line would be restored through ERS by December 2019. Powergrid added that permanent restoration of both the circuits of 400 kV Kishenganj-Patna D/C lines would be completed by March 2020.

2. 400 kV Purnea-Biharshariff D/c lines:

In 161st OCC, ENCIL informed that they were planning for the permanent restoration of the line using special high-performance conductor (HPC with ACCC conductor) between tower AP46/9A and AP47/1. 400 kV Purnea-Biharshariff D/c would be restored by end of November 2019.

In 162nd OCC, ENICL informed that 400 kV Purnea-Biharshariff D/c would be restored by 30th November 2019.

MS, ERPC submitted that ENICL had repeatedly changed their schedule of restoration of the line. He advised ENICL to give a report on restoration schedule committed till date in chronological order along with the reason for changing the scheduled dates.

He added that a Committee would visit the site once again in 2nd week of November 2019 to assess the situation.

In 163rd OCC, ENICL informed that 400 kV Purnea-Biharshariff D/c would be restored by 30th November 2019.

3. 400 kV Barh-Motihari D/C and 400 kV Barh-Gorahkpur D/C lines

In 161st OCC, ERLDC informed that 400 KV Gorakhpur –Motihari(DMTCL) –D/C were out since 13/08/2019 on tower collapse at LOC 27/0 and 400 KV Barh–Motihari(DMTCL) –D/C were out since 04/09/2019 on tower collapse at LOC 26/0.

After detailed deliberation, it was emerged that one circuit of 400 KV Barh–Motihari(DMTCL) –D/C line could be restored as 400 KV Barh–Motihari(DMTCL) line and other circuit could be directly connected to Gorakhpur as 400 KV Barh-Gorakhpur line so that Barh STPS generation could be evacuated safely.

Subsequently it has been reported that on 7th Oct 2019 tower no 25/5 of Motihari-Barh got collapsed due to which temporary restoration of 400kV Barh-Motihari line as planned, now seems in-feasible.

Under the circumstances POWERGRID is requested to furnish a detailed plan for restoration of 400kV Barh – Gorakhpur D/C (by passing the LILO point) on urgent basis to maintain reliability of ER – NR inter regional corridor and safe evacuation of Barh STPS power.

Restoration plan submitted by DMTCL as follows:

Activity	Start Date	End Date	Days
Design for foundation including all studies	Initiated	30-Sep-19	Completed
Vendor for foundation work	Initiated	15-Nov -19	Final Negotiation
Access road preparation# & Mobilization	15-Nov-19	15-Dec-19	
Foundation Work completion (Motihari- Gorakhpur -3 Foundations)	15-Dec-19	30-April -20	120
Tower Erection (3 tower erection)	5-May-20	20-June-20	45
Foundation Work completion (Motihari- Barh – 3 foundations)	25-Jan-20	25-May-20	120
Tower Erection (3 tower erection)	30-May-20	15-July-20	45
Stringing (Motihari- Gorakhpur) 2.8 kms	21-June-20	31-July-20	40
Stringing* (Motihari- Barh) 2.7 kms	16-July-20	25-Aug-20	40

Note:
1. Above Schedule is subject to safe and favorable working conditions especially water depth in river; any changes from the above shall be intimated to ERPC and ERLDC
2. # Access road preparation and readiness is very critical for mobilization of Hydraulic rigs
3. Support from RLDC required for ensuring that the Motihari SS (which is Available) is back charged on periodic basis to ensure that there is no need for refiltration and resulting delays once the lines are ready for commissioning

In 163rd OCC, DMTCL informed that the restoration work would start from 15th December 2019 after completion of approach road for carrying the construction material and mobilization of gangs.

DMTCL added that restoration of 400 kV Barh-Motihari D/C line would take five months and restoration of 400 kV Motihari -Gorahkpur D/C line would take six months.

OCC agreed for charging of elements at Motihari S/s on periodic basis. OCC advised DMTCL to interact with ERLDC and Bihar for necessary charging code.

OCC advised Powergrid to make direct connectivity i.e. 400 kV Barh- Gorahkpur D/C line, till restoration of the LILO portion of Motihari.

Powergrid agreed to make direct connectivity with Twin Moose conductor but DMTCL has to do the necessary destringing of the conductor of the LILO section with the original line to enable PGCIL to establish the direct connectivity.

OCC advised DMTCL to complete the destringing work at the earliest so that Powergrid could start the bypass arrangement.

Bihar informed that they are facing severe power shortage at Motihari due to outage of above lines and requested DMTCL to accelerate the restoration work. Bihar requested DMTCL to complete the restoration work before summer.

Members may update.

Item No. B.6: Evacuation of Dikchu HEP Generation during any Transmission Constraint--Dikchu

Teesta Urja Limited (TUL) vide letter dated 23rd September 2019 informed that LILO of one circuit of 400kV D/C Teesta III-Kishanganj line at Dikchu was allowed by CERC as an interim arrangement depending upon margin available in the transmission system. TUL added that the construction of permanent evacuation path for Dikchu HEP was not yet awarded.

TUL requested ERPC Secretariat to take up the issue of construction of permanent evacuation path for Dikchu HEP with Sneha Kinetic Power Projects Pvt. Ltd. TUL also requested to ensure evacuation Teesta III HEP generation over Dikchu HEP generation during any transmission constraint.

The issue was communicated to Dikchu vide letter dated 3rd October 2019 and Dikchu was advised to attend 162nd OCC Meeting.

In 162nd OCC Meeting, Dikchu was not present in the meeting.

OCC agreed to accord higher priority to scheduling of generation from Teesta-III HEP of TUL than scheduling of generation from Dikchu in the event of any transmission constraint in ISTS corridor of Sikkim.

In 163rd OCC, Dikchu submitted that they did not receive the communication from ERPC. Hence they could not attend 162nd OCC Meeting.

Dikchu requested to place their views in this meeting.

OCC agreed.

Dikchu informed that 400kV Teesta III-Rangpo and 400kV Rangpo-Kishanganj lines are ISTS lines and not the dedicated transmission lines. The power flow in these lines shall be governed by CERC regulations of connectivity and regulations governing open access. Therefore the decision of OCC in prioritizing the evacuation of power from TUL might be violating CERC regulations.

Dikchu added that the connectivity was granted to Dikchu as an interim arrangement till Govt. of Sikkim make 132kV system from Dikchu to Rangpo as per CERC order.

TUL informed that the 132kV system was planned around 3 years back and construction work of 132kV bays at Dikchu power station was not yet started.

After detailed deliberation, OCC agreed to keep the decision taken in the 162nd OCC Meeting at abeyance and scrutinize the issue raised by Dikchu in light of CERC regulations.

Member Secretary, ERPC informed that the issue would be discussed once again in details with ERLDC and CTU. The details will be placed in next OCC Meeting.

Dikchu was advised give a detail schedule of construction of 132kV bays at Dikchu along with the 132kV connectivity.

Members may discuss.

Item No. B.7: 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	They would place the order to Chemtrol for implementation.	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	In service from 21st August 2019.	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. It was informed that tender for the work has been floated.	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 42nd TCC, Bihar informed that the testing of ADMS would be done by end of December 2019.

Odisha informed that ADMS would be implemented by May 2020.

Sikkim informed that installation of OPGW is in progress, ADMS would be implemented after the installation of OPGW & renovation of sub-station tentatively by 2020.

TCC advised Odisha and Sikkim to implement ADMS at the earliest.

After detailed deliberation, TCC opined that uniform logic and settings are to be implemented for all the states. TCC advised to discuss the issue in next OCC Meeting to formulate uniform logic and setting of ADMS.

Members may discuss.

Item No. B.8: Testing and Calibration of Special type Energy Meter

Availability Based Tariff, Interface Meters (Special Energy Meters) have been installed by CTU at the points of interconnection with Inter-State Transmission System (ISTS) for energy accounting and billing. As per Central Electricity Authority (CEA) notification no. 502/70/CEA/DP & D dated 17.03.2006, all interface meters shall have to be tested at least once in five years using NABL accredited mobile laboratory or at any accredited laboratory. In this regard Clause 18(1) (b) of CEA (Installation and Operation of Meters) Regulations, 2006 state that:

Quote……

All interface meters shall be tested at least once in five years. These meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters. Whenever there is unreasonable difference between the quantity recorded by interface meter and the corresponding value monitored at the billing center via communication network, the communication system and terminal equipment shall be tested and rectified. The meters may be tested using NABL accredited mobile laboratory or at any accredited laboratory and recalibrated if required at manufacturer's works.

……Unquote

Presently, POWERGRID have installed about 1310 nos. of Special Energy meters of 0.2 class accuracy in 765/400/220/132kV substations at about 189nos of locations in Eastern Region covering states of Orissa, West Bengal, Sikkim, Bihar and Jharkhand.

Out of 1310 no of meters installed in ER, around 768 meters (all L&T make) at 157 locations are more than five years old. Moreover, Testing and calibration of around 307 Interface meters in ER was last carried out in year 2013 i.e. more than 6 years ago. A list of 140 no of meters which are severely drifted in time is already communicated to POWERGRID for replacement and accordingly, replacement work has started. In view of the above, remaining 628 meters may be tested and calibrated as per the provision of aforesaid regulation. Further Time correction of meters of drifted meters may also be done (under testing and calibration).

In 162nd OCC, Powergrid submitted that out of 768 L&T meters, 140 would be removed from service by November 2019. Testing will be done for the remaining meters and the detailed plan for the same including cost of testing would be submitted in the upcoming OCC. Powergrid clarified that in case of any abnormal results found during the testing, those L&T meters would be replaced by Genus meters and the defective L&T meters would be sent for calibration.

In 163rd OCC Meeting held on 15.11.19, POWERGRID informed that they received the offer of 68 Lakhs (approx.) for testing and calibration of said 628 L&T meters.

OCC referred the issue to Commercial Sub-Committee for concurrence.

In 41st CCM, POWERGRID representative informed that the testing and calibration of 628 L&T meters is required as per the provisions of existing metering regulation since they were tested and calibrated a long back. Further, if any, time correction is necessary that would also be done.

However, ERPC and ERLDC opined that CEA is coming up with new metering regulation along with technical specifications (5 min & 15 min provision) of meters for future requirement of grid. Since the testing and calibration of the proposed meters has cost implication, it was agreed that the same may kept in abeyance till issuance of further guidelines or regulations by competent authority.

The Matter was referred to forthcoming TCC/ERPC meeting.

In 42nd TCC, TCC decided the followings:

- *50 % of total old L&T Meters shall be tested and calibrated.*
- *ERLDC shall prepare the priority list for SEMs to be tested which are old and highly time drifted.*
- *Powergrid shall carry out testing and calibration for the old L&T meters as per the list.*

ERLDC and Powergrid may update.

Item No. B.9: Splitting of peak hours generation of Teesta V HEP --NHPC

NHPC vide letter dated 19th December 2019 informed that during lean season, Teesta-V Power Station generates minimum 3 hrs peaking during evening peak hours since after commissioning of the project. During the unprecedented flash flood occurred in the month of June 2019, the Highway passing along the upstream of the reservoir tail end was damaged badly , which is the only Highway to the North Sikkim. The local administration was continuously asking Teesta-V Power Station to restore the Highway so that connectivity to the people of North Sikkim is maintained throughout the year. NHPC has assured that the work of reservoir rim treatment of damaged portion for protection of Highway in reservoir area shall be carried out during lean season when water in the river remains minimum.

It is clarified that the work will be carried out during day hours from first week of January 2020 till April 2020. During execution of the work , reservoir level of Teesta-V Power Station will have to be lowered down up to MDDL, i.e. 568.50M at 09:00 hrs. after making possible generation during morning peak hours. Simultaneously , Teesta-V Power Station has requested Teesta-III Power Station through District Administration , not to generate any power during 09:00 hrs. to 16:00 hrs. Since Teesta-III is also requested not to generate during day hours, therefore , sufficient reservoir level of Teesta-V will not be built up. Consequently , Teesta-V Power Station may not be able to generate 3 hrs continuous peaking during evening peak hours.

In such a situation , 3 hrs evening peaking hours of Teesta-V Power Station may be splitted suitably for morning peak as well as for evening peak as the restoration of the road is highly essential for mass people travelling to North Sikkim side. During splitting of peaking hours, Teesta- V Power Station may be given full PAF on the basis of availability of Generating Units.

Members may discuss.

Item No. B.10: Regarding Auxiliary Power Consumption by Powergrid Substations -- GRIDCO

As per decision of Commercial sub-committee meeting of ERPC , Kolkata held on 02.08.2017 against agenda item No. 17 “Accounting of Tertiary Loading Arrangement at PGCIL Grid Substation in ER” and subsequent rectification in 36th TCC & ERPC meeting held on 13th & 14th September 2017 against item No. 20 it was decided that the drawl of Auxiliary Power from tertiary winding of different Power grid and the States would make back to back commercial arrangements for this power.

In this regard a special meeting was held at ERPC, Kolkata on 10.07.2018 to resolve this issue where the decisions taken were as follows:

1. Drawl of auxiliary power through tertiary winding by powergrid substations shall be treated as drawl by powergrid from the DISCOMs.
2. For this, Powergrid shall approach the concerned DISCOMs and shall complete all the necessary formalities to become a consumer of the concerned DISCOM.
3. For Odisha system, Power Grid may approach GRIDCO for necessary help in completing the formalities.
4. For Odisha system, while calculating the DSM liability, drawl of auxiliary power by Powergrid substations shall be treated as drawl by GRIDCO. Total power drawn in a month as auxiliary power shall be treated as drawl by DISCOM from GRIDCO and shall be accordingly commercially settled between DISCOM and GRIDCO.
5. This methodology of settlement shall be effective from 23rd October,2017.

6. This procedure of settlement shall be continued for the coming few months. Therefore, if necessary, this methodology of settlement shall be review at ERPC.

In compliance to the above decision Powergrid did not become the consumer of Odisha DISCOMs observing all sorts of formalities as per OERC Supply Code, 2004.

This matter was again put forth in 161st OCC meeting, where Powergrid informed that Odisha DISCOMs are charging for registration and security fees. These fees are not payable by Powergrid as DISCOMs don't have to construct any infrastructure for this power. In other States, Powergrid had not paid these charges.

GRIDCO informed that DISCOMs were raising the bills as per the OERC regulations.

To the above submission of GRIDCO, it was decided to resolve this issue in 163rd OCC meeting to be held on 15.11.2019 in Odisha in presence of Powergrid and Odisha DISCOMs.

Again the above issue was deliberated in 163rd OCC meeting held at Puri, Odisha on 15.11.2019, wherein Powergrid informed that DISCOMS (WESCO & CESU) are asking POWERGRID to pay for the Security Deposit, Maximum Demand charges and Meter rent etc. Powergrid stressed that, as the entire infrastructure for auxiliary power consumption through tertiary was provided by POWERGRID only and not by the DISCOMs, these charges are not applicable in this case. Powergrid further informed that they are not paying such charges for other states.
DISCOMs informed that they are requesting for the payment of Security Deposit, Maximum Demand charges and Meter rent etc. in line with the OERC regulations.

DISCOMs informed that they would not have any objection in case OERC allows any exemption to Powergrid in this matter.

After detailed deliberation, OCC advised Powergrid to file a petition before OERC for exemption of Security Deposit, Maximum Demand charges and Meter rent etc.

Now WESCO Utility (DISCOM) vide letter dated 16/11.2019/ 12.12.2019 requested GRIDCO to withdraw the quantum of energy billed to DISCOM towards auxiliary power consumption of Powergrid through its tertiary winding of ICT till finalization of Petition to be filed by PGCIL in OERC.

In view of the above, GRIDCO suggest that DISCOMs need to raise the bill to Powergrid on the quantum of energy billed to DISCOMs by GRIDCO on monthly basis till finalization of the issue of Security deposit, Maximum demand charges & Meter rent. A copy of the bill should be marked to GRIDCO every month.

GRIDCO may explain.

Item No. B.11: Conversion of Line Reactor as Bus reactor with NGR bypass Scheme - ERLDC

A mail was circulated by ERLDC for collecting the switchability information of the Line reactors and the availability of the required NGR bypass arrangement for converting the line reactor to Bus reactor. So far following response received from the corresponding owner:

1. 400 kV Kishanganj-Darbhanga D/C at Darbhanga end (owned by ATL) – Switchable but no NGR by pass arrangement.
2. 400 kV Barh-Motihari D/C at Barh end (Owned by Barh) – Switchable but no NGR by pass arrangement.

All the other utilities are requested to submit the details at the earliest so that RLDC can do operational planning for better reactive power management.

Also, Barh and ATL are request to do necessary by pass arrangement of NGR as early as possible so that during winter season these resources could be used for maintaining better voltage profile in the grid.

In 163rd OCC, OCC advised all the utilities to submit the details to ERLDC and ERPC at the earliest (not later than 30/11/2019) so that ERLDC can do operational planning for better reactive power management.

OCC advised Barh and ATL to do the necessary by pass arrangement of NGR at the earliest.

Members may discuss.

Item No. B.12: Additional agenda

PART C: ITEMS FOR UPDATE

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

UFR Healthiness Certification for the month of November 2019 has been received from OPTCL, CESC, WBSETCL, DVC, BSPTCL and JUSNL.

Members may note.

UFR Inspection Report of BSPTCL substations on 22.08.2019:

The ERPC UFR inspection group visited 132/33kV Digha, 132/33kV Mithapur and 132/33kV Gaighat substations of BSPTCL for UFR Audit on 22.08.2019. The team physically inspected the feeders which are connected with UFRs at the above sub-stations. The report of the inspection is furnished below:

Sl. No.	Name of the substations	Feeder connected with UFR	Voltage rating (kV)	Adopted UFR setting (Hz)	Tested initiated frequency (Hz)	UFR make
1	132/33kV Digha	Pataliputra	33	49.0	49.0	AREVA Micom P127
2		Excise Colony	33	49.2	-	RMS 2H34K2
3		Digha-I	33	48.6	-	RMS 2H34K2
4		Digha-II	33	48.6	-	RMS 2H34K2
5	132/33kV Mithapur	Pesu-IV	33	48.8	48.8	AREVA Micom P142
6		Pesu-V	33	48.8	48.8	AREVA Micom P142
7	132/33kV Gaighat	Saidpur	33	48.6	48.59	SEL-351A
8		City Feeder	33	48.6	48.59	SEL-351A

The above UFR setting were tested with help of Secondary injection Kit owned by BSPTCL. During the inspection, the followings were observed:

Substation	Observation
132/33 kV Digha	For 33 kV Pataliputra feeder, the UFR is provided with direct trip wiring and the relay tripped at desired frequency. **For all other three feeders, The UFR relays were not working as the relays got burned due to some DC fault in substation.**
	33 kV Excise colony feeder consists of emergency loads like supply to Airport & Hospital etc.
132/33 kV Mithapur	The UFRs are provided with direct trip wiring and tripped at desired frequency.
	33 kV Pesu-V feeder was charged on no-load. It was found that the feeder was being used only in case of contingency.
132/33 kV Gaighat	The UFRs are provided with direct trip wiring and tripped at desired frequency

In 161st OCC, Bihar was advised to review the UFR feeders as per the revised system configuration and suggested to shift the UFRs to unimportant radial loads.

In 42nd TCC, BSPTCL informed that they had already replaced the defective UFR. BSPTCL added that they are in process of reviewing the UFR list.

Bihar may explain.

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
6. Bandel Islanding Scheme, WBPDCL

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 November, 2019 has been received from CTPS, DVC, NTPC, West Bengal, JUSNL, WBPDCL and CESC.

In 163rd OCC, DVC informed that since all units of CTPS-A would be retired shortly, instead of Chandrapura TPS islanding scheme, they are planning to implement an islanding scheme with units 5 & 6 of Mejia TPS (old).

OCC advised DVC to submit the detailed draft plan of the islanding scheme to ERPC and ERLDC.

DVC may update.

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

The Status of healthiness certificate for November, 2019 is given below:

Sl. No.	Name of the SPS	Healthiness certificate received from	Healthiness certificate not received from
1.	*Talcher HVDC*	*NTPC,GMR,*	*JITPL, Powergrid,*
2.	SPS in CESC system	*CESC*	*Nil*

Members may update.

Item no. C.4: Review of the PSS Tuning of Generators in Eastern Region --ERLDC

On 31st January 2019, PSS Tuning Meeting was held at ERPC. All generating utilities were advised to complete the PSS tuning of their plant at earliest for improvement of damping in the grid during transients. In addition, the tuning reports have also to be submitted to ERLDC/ERPC for their validation.

In line with this ERLDC has communicated to following utilities in view of the recent oscillation observed during various events.

In 42nd TCC, members updated the status as follows:

Generating Power Plant	Observation	Status of Action Plan to be informed to OCC
All Units of DVC Generating Plant	Oscillation Observed at DSTPS on 24th April 2019 and other Oscillation events in the past.	DVC gave consolidated plan for its units in 162nd OCC

All Units of OPGC and OHPC, Sterlite	PSS are tuned long back and in many units PSS have not been tuned but are in service.	OPGC units—Feb 2020 OHPC informed that they will submit the plan in January 2020.
Sikkim Hydro Complex (Teesta-III, Teesta-V, Chujachen, Dikchu, Tashiding, Jorethang)	In view of Oscillation during the 16th April 2019 events and changes in Network configuration in Sikkim hydro Complex with augmentation of lines	Teesta-III: PSS Tuned on 21 Oct. 2019. Dikchu: Done on 23rd Nov. 2019. Jorethang: Jan. 2020 Chujachen and Tashiding: Feb 2020 Teesta-V: March 2020
MPL Plant	Due to Change in Network configuration during to bus splitting at Maithon.	MPL Unit-2: 14th June-2019 during AOH. MPL Unit-1: Planned during AOH in Jan-2020.
APNRL Plant	Oscillation with Low Damping during transient and switching observed at the plant.	APNRL attempted in Nov 2019 but not successful.
Farakka NTPC Power Plant	With Augmentation of new lines and changes in network configuration with upcoming bus split at Kahalgaon.	PSS Tuning of Unit 4, 5 and 6 has been done. Unit 1&2 are planned in December 2019. Unit 3 after overhauling.
NPGC/BRBCL/KBUNL NTPC Power Plant	The new units have been commissioned however there are no details on the PSS tuning activity in line with Indian Electricity Grid Code and CEA Grid Connectivity Standards	NPGC: December 2019 BRBCL: Unit 2 completed.
GMR	Was done in 2013 and retuning is required with change in the network at Angul.	During overhauling in Dec 2020
Sterlite 4 X 600 MW	Due to network changes.	Plan not yet submitted (Orissa SLDC)

TCC advised all the concerned generating stations to take appropriate action to carry out PSS tuning of their units as per the schedule and submit the report to ERPC and ERLDC.

Members may update.

Item no. C.5: Transfer capability determination by the states

Latest status of State ATC/TTC declared by states for the month of April-2020

Sl No	State / Utility	TTC import(MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	5300	--	100	--	5200	--	Jan-20
2	JUSNL	1168	--	36	--	1132	--	Mar-20
3	DVC	1465	2873	63	50	1402	2850	Apr-20
4	OPTCL	3107	818	87	62	3020	756	Mar-20

5	WBSETCL	4086	--	400	--	3686	--	Dec-19
6	Sikkim	295	--	2.5	--	292.5	--	Dec-19

As per the "Detailed Procedure for Relieving Congestion in Real Time Operation" Following has also been mandated for monitoring of Congestion in Real Time :

1. As all SLDCs of Eastern region are now declaring ATC/TTC, so, now it would be desirable to have the display for Eastern region where ATC/TTC calculated by states will be monitored in real time with actual drawal. Status of ATC/TTC Weblinks maintained by SLDCs is given below :

SLDC	ATC/TTC Weblink
Orissa	Dynamic Link for each month (Static Location for All months ATC/TTC to be kept for easy access)
Jharkhand	Web Link to be prepared by SLDC
Sikkim	Web Link to be prepared by SLDC

2. Utility wise present status of declaration of assumptions and LGBR used for ATC/TTC calculation and constraints in arriving at the TTC/ATC value based on the available online information are as follows**:**

SLDC	ATC/TTC Review
West Bengal	Constraints and Load/gen Assumption needs to be mentioned
Bihar	Constraints and Load/gen Assumption needs to be mentioned
Sikkim	Constraints and Load/gen Assumption needs to be mentioned

In 162nd OCC, OCC advised all the SLDCs to provide/display the ATC/TTC figures in their respective websites along with the actual flows in their websites import / export in real time. The assumptions for TTC/ATC calculations and limiting constraint details should also be made available.

West Bengal and Bihar informed that they are placing the details of constraints and load/gen assumption details for recent months.

ERLDC may explain. Members may update.

Item no. C.6: Mock Black start exercises in Eastern Region – ERLDC

Mock black start date for financial year 2019-20 is as follows:

Sl no	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I		Test-II	
1	U.Kolab	Last week of May, 2019	Done on 19th July 2019	Last Week of January 2020	
2	Maithon	1st week of June 2019	Taken up only after replacing the governing systems of the units	1st Week of February 2020	
3	Rengali	2nd week of June 2019	Done on 27th June 2019	Last week of November 2020	
4	U. Indarvati	3rd week ofJune 2019	Done on 7th November 2019	2nd week of February 2020	

5	Subarnarekha	1st week of October 2019	Done 20th August 2019	1st week of January 2020	
6	Balimela	3rd week of October 2019	Done on 17th July 2019	1st week of March 2020	*Dec 2019*
7	Teesta-V	2nd week of May 2019	27th Nov 2019	Last week of February 2020	
8	Chuzachen	Last Week of Dec 2019		Last week of February 2020	
9	Burla	Last Week of June 2019	Done on 20th July 2019	Last week of February 2020	December 2019
10	TLDP-III	1st Week of June 2019	November-19	2nd Week of January 2020	
11	TLDP-IV	Last Week of June 2019	December-19	1st Week of February 2020	
12	Teesta-III	Last Week of Oct 2019		First Week of March 2020	
13	Jorthang	First Week of May 2019		First Week of Feb 2020	
14	Tasheding	2nd Week of May 2019		2nd Week of Feb 2020	
15	Dikchu	Sep 2019		3rd Week of Feb 2020	

Members may update.

Item no. C.7: Mock Blackstart and controlled separation exercise at Teesta III--ERLDC

As per IEGC each blackstart capable power plant needs to demonstrate its blackstart capability twice every year. Further as per the schedule the mock black start of Teesta-III is scheduled in the end of October 2019. Thus to carryout mock black start exercise with radial load of Bihar at Kishanganj and nearby substations a two steps procedure is proposed.

Step-1:- Controlled separation of one running unit at Teesta-III with loads at Kishanganj (Bihar) for formation of Island

A controlled island will be formed in first step by taking some local load at 220 kV Kishanganj (Bihar), this requires bus split arrangement at Teesta-III, 400 kV/220 kV Kishanganj (PG) and 220 kV Kishanganj(Bihar). Once island is formed, system is expected to run in islanded mode for 15-20 minutes. After Tessta-III unit will be switched off resulting in collapse of island.

Step-2:- Blackstart of one unit at Teesta-III and extension of power to Kishanganj
Then after tripping the machine blackstart needs to be initiated from DG set and after successful synchronisation of one of the unit power will be extended to the loads of already created island, the island may be operated with the loads for 15-20mins, before synchronising with grid at 400 kV Kishanganj(PG)

Teesta III is a pelton turbine so it may operate on any load. However, Minimum requirement of 20 MW has been known by telephonic conversation with station personnel.

In 162nd OCC, ERLDC informed that it is a preliminary scheme, the detailed scheme would be prepared and it will be circulated to concerned utilities. The scheme would be finalized after receiving the suggestions from concerned utilities.

Members may discuss.

Item no. C.8: Summary of Status Update on Previous agenda items in OCC

OCC	Agenda	Decision	Status Update
152	**Item No. B3: Installation of PMUs for observation of the dynamic performance of STATCOMs**	Powergrid informed that M/s GE had agreed to supply and install of 4 no's PMUs for 4 STATCOMs in the Eastern Region within the quantity variation clause under the existing URTDSM Project.	In 159th OCC Meeting Powergrid informed that the work would be completed by 15th August 2019. Powergrid informed that material supplied at Ranchi and Kishanganj were damaged. New material would be supplied by November 2019. **Powergrid May update**
155	**C.22: Collection of modeling data from Renewable as well as conventional energy generators: ERLDC**	OCC advised all the constituents to submit the details of renewable power plants of 5 MW and above.	157th OCC advised all the SLDCs to submit the details to ERPC and ERLDC. Format along with an explanation for collection of Wind and Solar Data has been shared by ERLDC to all SLDC. **Bihar/ West Bengal and Orissa are having Solar Plant with more than 5 MW capacity. However, details were recived only from some of the plants in Odisha.**
156	**Low frequency Oscillation at MTDC BNC-ALP-Agra**	OCC Advised ERTS-2 to submit the analysis report to ERLDC/ERPC	159th OCC Powergrid informed that the issue was referred to ABB, Sweden. The report is yet to be received from ABB. **PGCIL may update on Report submission to OCC.**
156	**Item no. C.20: Updated Black Start and Restoration procedure of State--ERLDC**	Bihar, Jharkhand, DVC, West Bengal and Orissa have submitted the updated restoration procedure.	Restoration procedure form Sikkim is yet to be received. Mail has been given by ERLDC to SLDC for early submission.
156	**Item No. B.12: Status of Auto-Reclosure on Lines from Tala and Chukha Hydro Power Plant (Bhutan)**	DGPC informed that an Expert Committee was constituted to enable the autorecloser for transmission lines connected to Tala and Chuka hydro stations. The Committee had recommended for implementation	In 159th OCC meeting DGPC informed that they are implementing autorecloser at Tala also. The A/R is implemented at Binaguri end and there have been various cases where successful A/R has

		of the autorecloser at Tala and Chuka. DGPC added that they are planning to implement the autorecloser scheme for the transmission lines connected at Chuka by May 2019. Based on the experience gained, they would implement the autorecloser scheme for the transmission lines connected at Tala.	occurred at Binaguri but due to no A/R attempt Tala has a blackout in June 2019. In addition, in month of Aug also many times 400 kV lines successfully reclosed from Binaguri end. The experience on 220 kV Chukha-Birpara in the form of successful A/R has been observed on 25th June 2019. DGPC has informed that after the deliberation in their group, they would be implementing the A/R at Tala by the end on August 2019. **DGPC may kindly appraise the status of A/R on lines from Tala and Malbase.**
160 OCC	**Bypassing arrangement of LILO of 400kV Lines at Angul**	Powergrid informed that bypass arrangement would be completed by end of August 2019. OPTCL informed that 2nd circuit of 400kV Meramundali-Mendhasal line would be commissioned by end of August 2019.	Powergrid informed that the bypassing arrangement would be completed by **November 2019.**

Members may update.

Item no. C.9: Transmission Constraint in the 220 kV System in Eastern Region—ERLDC

Constituents	**Constraint list**	**Issues based on ATC/TTC case submission by States**	**Action Plan by Utilities/ SLDC**
West Bengal, DVC	220 kV Waria-Bidhan Nagar D/C	N-1 Contingency	
CESC, PGCIL	220 kV Shubhasgram-EMSS D/C	N-1 Contingency	
WBSETCL, PGCIL	220 kV Newtown-Rajarhat D/C	N-1 Contingency	
WBSETCL	220 kV Howrah-New-Chanditala D/C	N-1 Contingency	
DVC, PGCIL	220 kV Durgapur (PG)-Parulia D/C	N-1 Contingency	
Jharkhand, PGCIL	220 kV Hatia-Ranchi D/C	N-1 Contingency	

Bihar	220 kV Mujaffarpur-Hazipur D/C	N-1 Contingency	A New 400/220/132 kV sub-station at Chhapra(2x500+2x200 MVA) has been proposed to meet the nearby growing power demand. The 220 kV connectivity of the proposed GSS as follow:- • Chapra(new)-Amnour DCDS • Chhapra(new)-Goplaganj DCDS
Bihar	220 kV Hazipur-Amnour D/C	N-1 Contingency	
Bihar, PGCIL	220 kV Patna-Sipara T/C	N-1 Contingency	Two nos. of 400/220/132 kv Jakkanpur GSS and Naubarpur GSS are proposed in nearby area which is already approved in 13th Plan
Bihar, PGCIL	220 kV Khagaul-Sipara S/C	Overlaod of 220 kV Khagaul-Sipara	Already resolved by addition of 02 mor lines i.e. 220 kV Khagaul-Patna(PG) D/C (Ckt 2 &3)
Bihar	220 kV Bodhgaya-Gaya D/C	N-1 Contingency	A new 400/220/132 kV sub-station at Chandauti has been proposed with connectivity at 220 kV by LILO of both circuits of Gaya(PG)-Sonenagar(new)

OCC advised all the utilities to share their short term and long term action plans to remove the constraint to ERLDC. However till date action plan from none of the constituent is received.

Input received from BSPTCL vide letter dated 06-November-2019 are as shown above. All proposed action plans are long term in nature. Further the time line for the implementation of action plan is missing.

In 163rd OCC, DVC and WBSETCL agreed to submit the action plan by next month.

OCC advised other constituents to submit the action plan at the earliest.

DVC, JUSNL, WBSETCL and CESC may update.

Item no. C.10: Monitoring of Next Six-Month New Element Integration in OCC and Its Update on Monthly Basis --ERLDC

It has been observed that many elements are getting interconnected into the system and beforehand details are not available with the system operator resulting in difficulty in carrying our operational planning activity. In view of this, as a regular agenda all ISTS and ISGS/IPP to update the OCC regarding any new elements at 220 kV and above which will be integrated in next six month with the grid. For State Grid, SLDC will be submitting the details on behalf of its intrastate Generation and transmission system. The format is given below:

Transmission Elements	Agency/ Owner	Scheme (ERSS/ TBCB/ Standing Committee/State	Schedule Completion	Projected Month for Completion	Issue Being Faced

In previous several OCC, Transmission licensees and SLDCs are requested to submit RLDC/RPC following details on monthly basis

- List of transmission element /generators of State and ISTS licensees synchronised in the last month.
- List of transmission element /generators expected to be synchronised during next month or in near future

Some SLDCs are submitting the list of intrastate and interstate line on regular basis, however transmission element /generators expected to be synchronised during next month or in near future is not submitted by any SLSC/Transmission licensee to RLDC/RPC.

In 162nd OCC, OCC advised all the constituents, SLDCs and ISTS licensees to submit the details the list of transmission elements / generators already synchronized / charged in the previous month as well as those expected to be commissioned in the near future (as per the format specified) to ERLDC

In 163rd OCC, OCC advised all the constituents, SLDCs and ISTS licensees to submit the details to erldcprotection@posoco.co.in as per the format.

Members may update.

Item no. C.11: Reconductoring work of 400 kV Rangpo-Binaguri D/C lines

In 162nd OCC, Powergrid informed that SPS at Rangpo is ready and it can be put in service as and when required.

Powergrid explained that reconductoring work of both 400 kV Rangpo-Binaguri D/C lines would take 1 year time approximately and they are ready to take shutdown of both the circuits from 01.11.2019.

ED, ERLDC advised Powergrid to complete the reconductoring work of one circuit by end of February 2019. He added that after February 2019, shutdown of both lines is not possible in view of the likelihood of rise in hydro generation in Sikkim.

MS, ERPC submitted that there is a need for reviewing the progress of the work by field visit. In this regard a Committee shall be formed comprising the members from ERPC Secretariat, ERLDC, WBSETCL, PGCIL, TVTPL etc. The Committee will visit the site and check the preparedness of the work. Also, periodic inspection will be done to assess the progress of the work.

In 42nd TCC, Powergrid updated that reconductoring of 11 km of both the circuits out of 110 km line had been completed (9.3 km in West Bengal and 1.7 km in Sikkim).

Powergrid further informed that they are facing severe ROW issues in Sikkim and requested Power and Energy Department, Govt. of Sikkim to support in resolving the ROW issues.

Powergrid added that they are putting all the efforts to complete the reconductoring work of both 400 kV Rangpo-Binaguri D/C lines by April 2020.

TCC advised Powergrid to complete the work as per the schedule so that evacuation of hydro power from Sikkim would not get affected in the coming monsoon season.

TCC requested Sikkim to help Powergrid in resolving the ROW issues for smooth completion of the reconductoring work.

ERPC Secretariat informed that a Committee with members from ERPC Secretariat, WBSETCL, PGCIL, TVPTL has been formed to monitor the progress of the work and the Committee would visit the site in every two months.

PGCIL was requested to furnish the status of progress to ERPC Secretariat every month for discussion in the OCC meeting.

Powergrid may update.

Item no. C.12: Submission of Thermal Loading of Transmission line and associated terminal equipment by ISTS licensee

Thermal Loading of Transmission line and associated terminal equipment is one of the most vital data which is utilized for Operation Purpose, calculation of ATC/TTC and various other studies. This information has to be submitted by the transmission utilities. However even after regular follow-up in past several OCC meetings, significant delay has been observed in submission. Status of submission of data upto first week of December 2019 is as follows:

Name of Utility	**Whether End Equipment Rating Submitted or Not?**
PGCIL ERTS-1 and ERTS-2	Partial Details (Final Complete details yet to be received)
DMTCL	NA
POWERLINKS	NA
Sterlite (ENICL, OGPTL, PKTCL)	NA
TVPTL	NA
Alipurduar Transmission Limited	NA
Powerlink	NA
CBPTCL	NA
OPTCL	Submitted (Revised list given to OPTCL for submission)
WBSETCL	Submitted
BSPTCL	Submitted
DVC	Submitted
JUSNL	NA

Members may update.

PART D:: OPERATIONAL PLANNING

Item no. D.1: Anticipated power supply position during January 20

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of January 20 were prepared by ERPC Secretariat on the basis of LGBR for 2019-20 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc. is at **Annexure-D.1**.

Members may confirm.

Item no. D.2: Shutdown proposal of transmission lines and generating units for the month of January 20

Generator shutdown for January 20:

System	Station	Unit	Capacity (MW)	Period		No. of Days	Reason
				From	To		
DVC	Koderma TPS	1	500	16.01.20	19.02.20	16	COH (Blr,Turb,Gen.)
WBPDCL	BkTPS	4	210	01.01.20	07.02.20	31	COH
CESC	Southern TPS	1	67.5	01.01.20	15.01.20	15	Not Specified
		2	67.5	17.01.20 to 20.01.20		4	
	Titagarh TPS	1	60	02.01.20 to 05.01.20		4	

Chuzachen vide mail dated 18th December 2019 informed that 2X55 MW Chuzachen HEP will be under periodical maintenance of the Dam and turbine components& remain unavailable to the Grid with effect from 04/02/20 to 18/02/20.

DPL vide mail informed that DPL #8, will be taken out of bus at 0000 Hrs of 20/12/19 as per schedule shutdown programme for necessary Overhauling of Boiler and Turbine for a period of 30 days.

ERLDC may place the list transmission line shutdown discussed on 19th December 2019 through VC.

Members may confirm.

Item no. D.3: Prolonged outage of Power System elements in Eastern Region as on 12-12-2019

(i) Thermal Generating units:

S.No	Station	Owner	Unit No	Capacity	Reason(s)	Outage Date
1	BARH	NTPC	4	660	ANNUAL OVERHAULING	26-Nov-19
2	KOLAGHAT	WBPDCL	1	210	POLLUTION CONTROL PROBLEM	10-May-18
3	CTPS	DVC	3	130	TURBINE BLADE DAMAGE	30-Jul-17
4	BARAUNI	BSPHCL	7	110	MAINTENANCE WORK	3-Nov-19

5	SANTALDIH	WBPDCL	5	250	ANNUAL OVERHAULING	03-Dec-19
6	BUDGE BUDGE	WBPDCL	2	250	ANNUAL OVERHAULING	04-Dec-19
7	TTPS	GRIDCO	5	110	ANNUAL OVERHAULING	9-Nov-19
8	JITPL	JITPL	2	600	DESYNCHRONISED DUE TO PA FAN LUBE OIL PUMP ABNORMAL SOUND	06-Dec-19
9	KOLAGHAT	WBPDCL	3	210	Bottom ash evacuation problem	24-Nov-19
10	KOLAGHAT	WBPDCL	4	210	HIGH DRAFT PRESSURE	17-Nov-19
11	KOLAGHAT	WBPDCL	5	210	OVER VOLTAGE PROTECTION TRIP	1-Oct-19
12	KOLAGHAT	WBPDCL	6	210	LOW SYSTEM DEMAND	24-Oct-19
13	BAKRESWAR	WBPDCL	1	210	COAL SHORTAGE	1-Nov-19
14	DPL	WBPDCL	7	300	COAL SHORTAGE	6-Nov-19
15	BOKARO A	DVC	1	500	PROBLEM IN ASH POND	15-Oct-19
16	BOKARO B	DVC	3	210	PROBLEM IN ASH POND	12-Sep-19
17	MUZAFFARPUR TPS ST-1	BSPHCL	2	110	LOW SYSTEM DEMAND	19-Oct-19
18	MEJIA	DVC	4	210	LOW SYSTEM DEMAND	26-Oct-19
19	MEJIA	DVC	1	210	LOW SYSTEM DEMAND	31-Oct-19
20	MEJIA 'B'	DVC	8	500	Rotor Earth Fault	19-Nov-19
21	KODERMA	DVC	1	500	PROBLEM IN ASH POND	25-Oct-19
22	STERLITE	GRIDCO	2	600	DUE TO PROBLEM IN OLTC SYSTEM OF Unit Transformer	10-Apr-19
23	STERLITE	GRIDCO	1	600	MAINTENANCE WORK	19-Nov-19
24	OPGC	DVC	4	660	ASH HANDLING PROBLEM	09-Dec-19
	Sub Total (SS)			7770		

Generators/ constituents are requested to update the expected date of revival of the units.

(ii) Hydro Generating units:

Sl. No.	Station	Unit No.	Capacity (MW)	Reason (s) of outage	Outage date
1	Balimela	Unit- 1	60	Renovation & Modernization work (Planned)	05-08-2016
		Unit- 2	60	Renovation & modernization work (Planned).	20-11-2017
		Unit- 4	60	ANNUAL MAINTENANCE	14-09-19

2	Burla	Unit-1	49.5	Turbine & Generator coupling cover water leakage (Forced)	14-03-2018
		Unit-5	37.5	Renovation. Modernization & up rating work (Planned)	25-10-2016
		Unit-6	37.5	Renovation, Modernization & up rating work (Planned)	16-10-2016
3	Chiplima	Unit-3	24	Renovation & Modernization work (Planned)	15-10-2015
4	Rengali	Unit-2	50	Capital Maintenance (Planned)	12-12-2018
5	U.KOLAB	Unit-4	80	Repair of MIV & Draft tube gate leakage	01-02-2019

It is seen that about 468.5 MW hydro capacities in Odisha is under forced outage / planned outage in the period of peak monsoon and therefore not available for providing the much needed peaking support during evening peak. SLDC / OHPC may please indicate restoration plan of the units.

(iii) Transmission elements

SL NO	Transmission Element / ICT	Agency	Outage DATE	Reasons for Outage
1	220 KV BALIMELA - U' SILERU	OPTCL / APSEB	10-03-2018	LINE ANTITHEFT CHARGED FROM UPPER SILERU ON 17-04-18
2	400 KV IBEUL JHARSUGUDA D/C	IBEUL	29-04-2018	TOWER COLLAPSE AT LOC 44,45
3	400KV NEW PURNEA-BIHARSARIFF(PG)-D/C	ENICL	10-08-2018	TOWER COLLAPSE AT LOC 47/0
4	400 KV PATNA KISHANGANJ- I	POWERGRID	01-09-2018	TOWER COLLAPSE AT LOC 129. PILING DAMAGED
5	400 KV PATNA KISHANGANJ- II	POWERGRID	06-07-2019	EMERGENCY HAND TRIPPED DUE TO FRUSTUM OF LOCATION NO: 129A/0 (A LEG) HAS BEEN EXPOSED ON SOIL EROSION.
6	220 KV PANDIABILI - SAMANGARA D/C	OPTCL	03-05-2019	49 NOS OF TOWER COLLAPSED.AS REPORTED BY SLDC OPTCL, TOTAL 60 NOS OF TOWER IN BETWEEN 220KV PANDIABILI – SAMANGARA LINE IN WHICH 48 NOS TOWERS FULLY DAMAGED AND 12 NOS TOWERS PARTIALLY DAMAGED. WORK UNDER PROGRESS.
7	400/132 KV, ICT II (200 MVA) AT KAHALGAON	NTPC	02-08-2019	Y PHASE BUSHING BURSTED
8	132 KV KhSTPP-KAHALGAON(BSPTCL)	BSPHCL	23-09-2019	TO RESTRICT LOADING ON 400/132 KV KAHALGAON(NTPC) ICT 1 /LOAD OF KAHALGAON SHIFTED TO NEW SABOUR(GORADIH).
9	400 KV MOTIHARI(DMTCL)-GORAKHPUR-I	POWERGRID/DMTCL	13-08-2019	LINE SWITHED OFF DUE TO ANTICIPATED TOWER COLLAPSE AT LOC 27/0(132) DUE TO CHANGE OF COURSE OF GANDAK RIVER.TOWER COLLAPSED REPORTED AT LOC 27/0(132) ON 15/08/19 AT 07:00 HRS.
10	400 KV MOTIHARI(DMTCL)-GORAKHPUR-II	POWERGRID/DMTCL	13-08-2019	
11	400 KV BARH-MOTIHARI(DMTCL) -I	POWERGRID/DMTCL	04-09-2019	TOWER COLLAPSE AT LOCATION 26/0 AND 25/5

12	400 KV BARH-MOTIHARI(DMTCL) -II	POWERGRID/DMTCL	04-09-2019	TOWER COLLAPSE AT LOCATION 26/0 AND 25/5
13	220KV BEGUSARAI-NEW PURNEA-I	BSPTCL	13-10-2019	Repeated Earth Fault. Line will not to be charged till: 1)sag/clearance issue is resoved 2)Healthiness certificate from independent third party obtained 3)ensure auto reclosure healthiness.
14	220KV BEGUSARAI-NEW PURNEA-II	BSPTCL	14-10-2019	
15	400 KV BINAGURI-RANGPO-1	POWERGRID	01-11-2019	S/D AVAILED FOR RECONDUCTORING WORK TILL 31/12/19
16	400 KV BINAGURI-RANGPO-2	POWERGRID	01-11-2019	
17	400 KV MPL-MAITHON II	POWERGRID	20-11-2019	RECONDUCTORING WORK
18	400 KV TALA - BINAGURI -IV	POWERGRID/BHUTAN	26-11-2019	Approved S/D till 05.01.2020
19	400KV-NEW PPSP-ARAMBAGH-D/C	WBSETCL	13-12-2019	Tower collapse reported at TL NO 285/286

(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.

PART E::ITEMS FOR INFORMATION

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

Item No. E.1: Submission of data in MERIT Order portal--CEA

CEA vide mail dated 9th July 2019 informed that the MERIT Order portal had been launched on 23rd June, 2017 by Honourable Minister of Power. One of the most important advantages of "Merit" Portal is Transparent information dissemination pertaining to marginal variable cost and source wise purchase of electricity and indication of supply side reliability, adequacy, and cost of power procurement.

However, it has been observed that many of the states are not filling the data regularly and sometimes the data filled varies widely from the data available on the respective RLDCs daily reports.

It is requested that the states may be advised to fill the data regularly and check that correct data is filled on the MERIT Portal.

In 159th OCC, all the SLDCs were advised to fill the correct data in MERIT portal on regular basis.

Item No. E.2: 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.

Item No. E.3: Commissioning of new transmission elements in Eastern Region

The details of new units/transmission elements commissioned in the month of November-2019 based on the inputs received from beneficiaries

SL NO	Element Name	Owner	Charging Date	Charging Time	Remarks
1	765 KV Bus Sectionalizer I (Bus I & Bus III) at Jharsuguda	PGCIL	07-11-2019	12:58	
2	400KV New Purnea-Gokarno S/C	PGCIL	10-11-2019	11:56	

3	400 KV Farakka -New Purnea S/C	PGCIL	10-11-2019	14:34	
4	765 kV Main Bay (725) of ICT #3 at Jharsuguda	PGCIL	18-11-2019	17:20	
5	400kV Tie bay of Darbhanga II and Future II (Bay no 433) at Kishangunj	PGCIL	18-11-2019	18:28	
6	Main Bay of future II (Bay no 434) at Kishangunj	PGCIL	18-11-2019	18:52	
7	765 kv Main bay (727) of future 1 at Jharsuguda	PGCIL	19-11-2019	13:20	
8	765kV Tie bay (726) of future 1 and ICT 3 at Jharsuguda	PGCIL	19-11-2019	13:21	
9	765kv tie bay (729) of 765/400kv 1500MVA ICT-4 & Future-2 at Jharsuguda	PGCIL	19-11-2019	15:19	
10	765kv main bay (728) of 765/400kv 1500MVA ICT-4 at Jhasuguda	PGCIL	19-11-2019	15:20	
11	765kv main bay (730) of Future-2 at Jhasuguda	PGCIL	19-11-2019	15:30	
12	765kV/400/33 kV, 1500 MVA ICT3 at Jharsuguda	PGCIL	27-11-2019	12:55	
13	765KV/400/33KV, 1500 MVA ICT4 at Jharsuguda	PGCIL	23-11-2019	14:02	

Item No. E.4: UFR operation during the month of November'19

System frequency touched a maximum of 50.27 Hz at 22:00hrs of 26/11/19 and a minimum of 49.65 Hz at 06:21hrs of 18/11/19. Hence, no report of operation of UFR has been received from any of the constituents.

****

Report on poor governor response from the generators in the Eastern Region for the event in November 2019

(For submission in 164th OCC meeting)

Objective: Analysis of Governor Response (RGMO/FGMO) of Eastern Region Generators for FRC reported events in Indian Grid **for the Month of November 2019.**

Reference: In the 38th TCC/ERPC meeting, it was decided that ERLDC would analyze the governor response of generators and submit a report on the performance of RGMO/FGMO in the Units to ERPC/TCC committee for deliberation.

Relevant Regulatory Provision:

- **IEGC 5.2.f. i:** All Coal/lignite based thermal generating units of 200 MW and above, Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each and all hydro units of 25 MW and above shall be operated under restricted governor mode of operation.
- **IEGC 5.2.g:** Facilities available with/in load limiters, Automatic Turbine Run-up System (ATRS), Turbine supervisory control, coordinated control system, etc., shall not be used to suppress the normal governor action in any manner and no dead bands and/or time delays shall be deliberately introduced. Provided that periodic checkups by third party should be conducted at regular interval once in two years through independent agencies selected by RLDCs or SLDCs as the case may be. The cost of such tests shall be recovered by the RLDCs or SLDCs from the Generators. If deemed necessary by RLDCs/SLDCs, the test may be conducted more than once in two years.
- **IEGC 5.2.i :** The recommended rate for changing the governor setting, i.e., supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1.0) per cent per minute or as per manufacturer's limits. However, if frequency falls below 49.8 Hz, all partly loaded generating units shall pick up additional load at a faster rate, according to their capability
- **CERC order in 84/MP/2015 dated 31st July 2017 :** Para 23 (a) of the order state that "the Commission, starting from the month of September, 2017 shall be closely watching the primary response of ISGSs as reported by POSOCO/NLDCs. At the State level, SLDCs shall report the frequency response of intra-State generators to the concerned SERCs."

  Para 23 (c) of the order state that "All ISGSs are directed to provide primary response compulsorily in terms of Regulation 5.2 (f), (g), (h) and (i) of the Grid Code failing which we would not hesitate in initiating action under Section 142 of Electricity Act, 2003 for not providing desired RGMO/FGMO response without any valid reasons."

- **CERC Terms and conditions of Tariff regulation 2019:**
  - **Regulation 30(2)-(i):** In case of a new project, the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC; **Regulation 30(2)-(ii):** in case of existing generating station, as and when any of the requirements under (i) above of this Regulation are found lacking based on the report submitted by the concerned RLDC, rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;

- **Decision taken in OCC meeting:**

As per decision taken in 145th OCC meeting, generating station is to send 1 sec or higher resolution data to ERLDC/SLDC as the case may be.

- **Decision taken in special meeting on RGMO/FGMO on 31st January 2019 at ERPC and 12th July 2019:**

All the ISGS and state generating stations eligible for RGMO/FGMO as per IEGC 5.2 (f) are to take action in order to provide satisfactory primary response in line with IEGC 5.2 (f), (g), (h) and (i). **Details of action plans to be taken by generating stations and SLDCs are summarized in Table 2 & 3.**

Introduction: During the Month of November 2019, **one** event has occurred for which Frequency Response Characteristic has been analyzed pan India. The details of the event and the overall response of Eastern region have been summarized in the below Table 1.

Table 1: Region Wise Frequency Response Characteristic (FRC) for the event

Event	Frequency Change	ER FRC
On 01st November 2019 , at 11:16hrs 1644 MW load loss occurred due to tripping of all connected 220 kV transmission lines in Akal S/S	50.03 Hz to 49.91 Hz	**21%**

The Frequency Plot for the event is given in Annexure-I for reference. It can be observed from the above table that during the event, the FRC of Eastern Region was unsatisfactory.

Despite of repeated reminders to generating stations in previous OCC meetings, generation output data recorded at generating end are yet to be received from many generating stations

like NTPC Farakka, NTPC Kahalgaon, NTPC Talcher, NTPC Barh, BRBCL & GMR for the event occurred in November 2019. It has been observed response was not satisfactory for FSTPP stage I, II & III, KhSTPP stage I & II, TSTPP stage II, Barh stage II, BRBCL, MPL, JITPL and APNRL. Though response was satisfactory for GMR, ramping during governor response needs to be increased. As per FRC received from WB SLDC and DVC SLDC, response was not satisfactory. FRC is yet to be received from Jharkhand and GRIDCO SLDC.

Table 2: Response Based on ERLDC SCADA Data for the events in the month of November 2019

Generating Station	Remarks	Action plans to be taken by generating stations/SLDCs as per decision taken in special meeting on 12-07-19 at ERLDC and the meeting on 31-01-19 at ERPC
FSTPP	**Non-Satisfactory**	**Stage I**: Old system to be replaced with new BHEL make MAX DNA DCS system during the AOH, as per latest LGBR. RGMO tuning to be completed after such up gradation. **Stage II & III**: Further fine-tuning to be carried out.
KhSTPP	**Below-satisfactory** for stage II and **Non-Satisfactory for stage I**	The performance of Unit 4 is not good due to the control valve issue. During the next AOH, issue of Unit 4to be rectified for better response. Unit 6 and 7 will be tuned by mid of August 2019, for which no shutdown would be required. Other than unit 3 & unit 7, response was not satisfactory for KhSTPP units.
TSTPP	No generation at stage I. **Below-satisfactory** for stage II	There are plans to attend to the governor problems of unit II during the next overhauling in November 2019. The oscillatory response observed for unit III to be rectified in the AOH. Unit IV, V and VI response will be tuned by the end of Mid Sept 2019.
Barh	**Non-Satisfactory**	NTPC Barh intimated RGMO logic has been tuned during AGC commissioning in Aug'19. Its response is being observed and deviations are being taken up with NTPC CC- Engg and with OEM. The planned modification in Boiler will be done during annual overhauling starting from 10-Nov-19.
BRBCL	**Non Satisfactory**	BRBCL to implement the new logic for RGMO within 2 weeks and to share the response with high-quality data for analysis.
GRIDCO	**Below-satisfactory**	GRIDCO SLDC to calculate FRC observed at the boundary of the control area and reason for non-satisfactory response. Format for calculation of FRC has been circulated.
Jharkhand	**Non- Satisfactory**	Jharkhand SLDC to calculate FRC observed at the boundary of the control area and reason for non-satisfactory response. Format for calculation of FRC has been circulated.

Table 3: Response from High-Resolution Data recorded at generating stations / SLDCs / ERLDC for the events in the month of November 2019*

Generating Station / SLDC	Responses observed	Action plans to be taken by generating stations/SLDCs as per decision taken in special meeting on 12-07-19 at ERLDC the meeting on 31-01-19 at ERPC
MPL	**Below Satisfactory**, response did not last for more than 1 min	MPL intimated that they have changed the settings for sliding pressure curve which has provided better response and the units are being operated in throttled valve condition rather than VWO to give the response as per IEGC.
GMR	**Satisfactory,** But ramping during governor response needs to be increased.	GMR to fine-tune and improve the logic for detection of frequency event.
JITPL	**Non satisfactory**, duration of governor response need to be increased.	JITPL representative was not present in both the meetings. From the response, it is suspected JITPL units are kept in FGMO mode rather than RGMO condition as RGMO influence was high prior to the event. **JITPL to put their units in RGMO and run their units not in VWO condition.**
Teesta V	Sufficient margin was not available during the event	Teesta V to check the RGMO software and remove any delay in the governor control to provide an adequate response.
APNRL	**Non Satisfactory,** ramping during governor response needs to be increased	APNRL intimated that frequency influence detection and associated action were intentionally having a delay to check the RGMO logic. The delay has now been removed and better response can be observed from now onwards.
WB	**Non-Satisfactory**	WB SLDC to take action to improve the frequency response characteristics of state control area.
DVC	**Non-Satisfactory**	DVC SLDC to take action to improve the frequency response characteristics of state control area.

**** Based on data received on or before 03-12-2019***

In view of the above Generating Power Plants of Eastern Region and SLDC may kindly explain the following points:

1. Inadequate RGMO/FGMO response for such critical Contingency and Large Frequency Drop in the grid in line with IEGC5.2.f to 5.2.i.

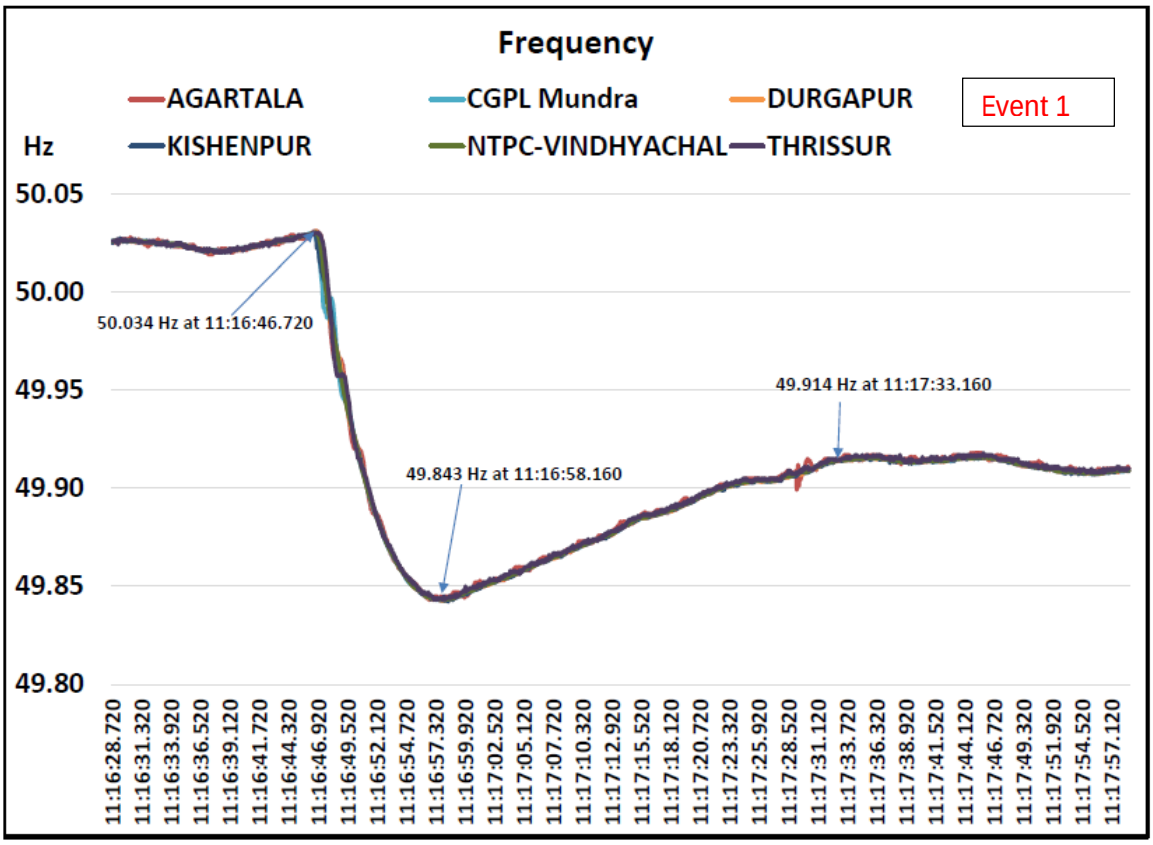
2. Non-submission of data for RGMO Response in line with IEGC 5.2.r , IEGC 5.9.4.b, CEA Technical standards for connectivity to the Grid Regulation 6.4.d, CEA Grid Standard 15.3. Generation data/FRC is only received from Adhunik, MPL, Budge Budge and DVC SLDC. Other regional generating stations/SLDCs may furnish the reason for not sharing high resolution generation data/FRC at their control area. Even resolution of shared data may be increased in order to improve analysis of governor operation. In case of data shared by APNRL, no oscillatory response has not been observed, which is clearly visible in PMU data.
3. Non-Receipt of Computed FRC from SLDC for their Control Areas as per the Approved FRC procedure by CERC (In line with CERC order 84/MP/2015 dated 31-07-17)
4. Status of action plans taken as per decision taken in special meeting on 31-01-19. After the meeting, overhauling has been taken for following units:

Unit Name	Overhauling date
CTPS #7	09-02-19
KhSTPP #1	12-03-19
Barh #4	17-02-19
Mejia #2	08-05-19
KhSTPP #7	21-04-19
GMR #1	26-05-19
FSTPP #6	07-06-19
MPL #2	20-06-19
KhSTPP #4	11-07-19
Mejia #7	03-07-19
DSTPS #1	26-08-19
SEL #4	31-07-19
KhSTPP #2	10-11-19
Barh #4	25-11-19

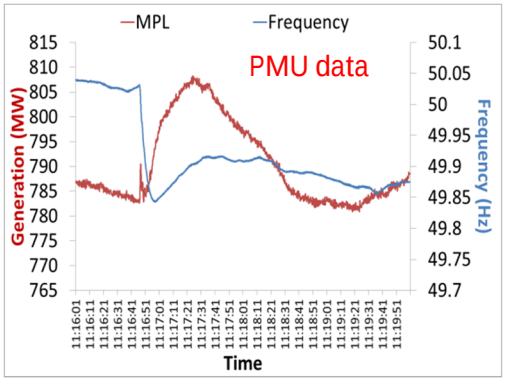
In Addition, many units are kept out for Low Demand/RSD for longer duration and for these also the governor response can be tuned. In view of this, ERPC may kindly enforce the tuning of the Governor in line with IEGC FGMO/RGMO regulations.

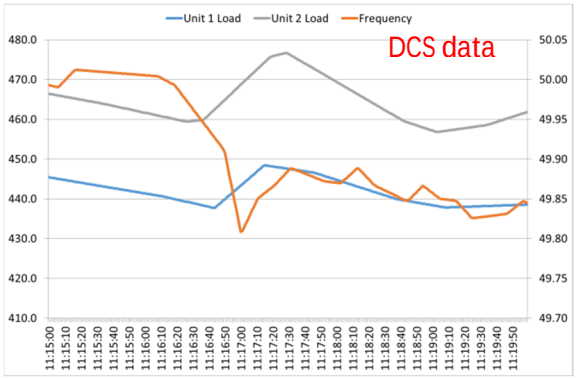
Even after so many discussions over Governor Response in the OCC and ERPC board meeting, there has not been any significant improvement of performance of Eastern Region Generating Station which resulted non-satisfactory primary frequency response at regional boundary of ER grid.

Frequency

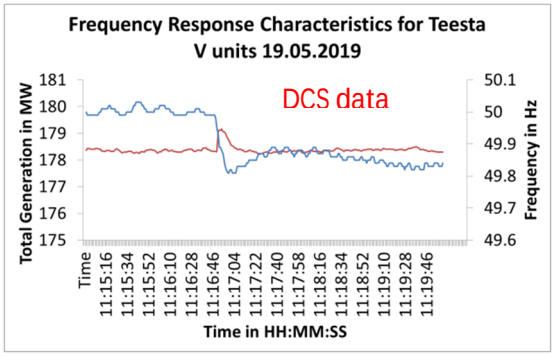


1. Response observed in ERLDC PMU data and DCS data for MPL

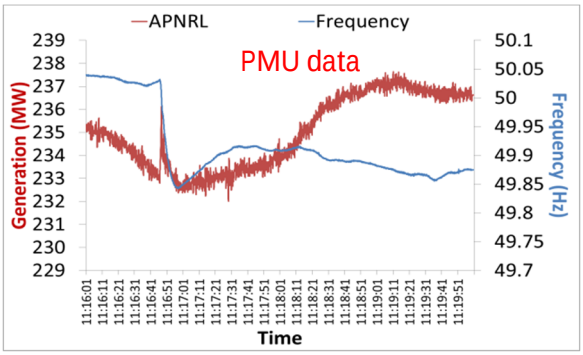


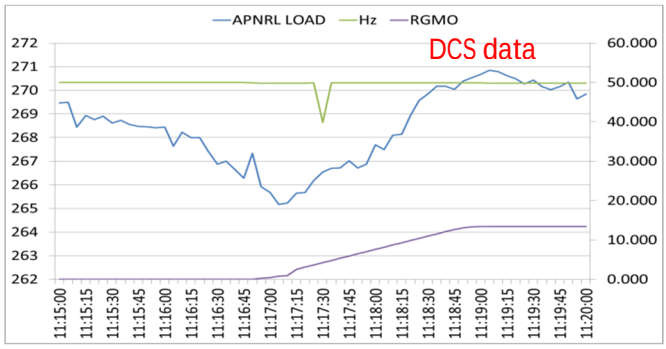


2. Response observed in DCS data for Teesta V

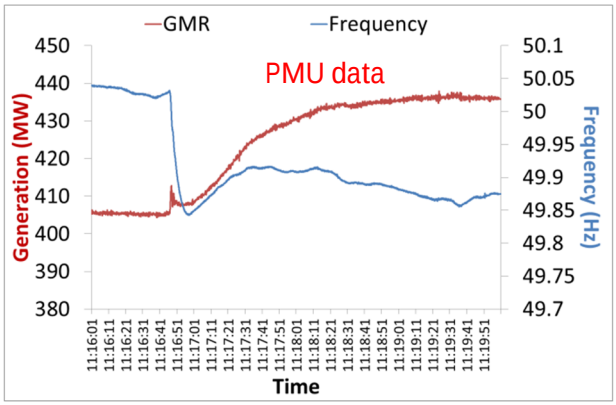


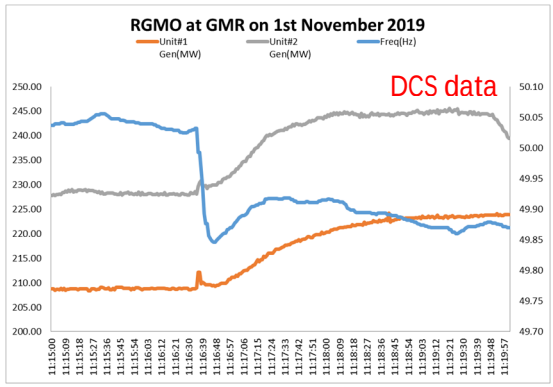
3. Response observed in ERLDC PMU data and DCS data for APNRL



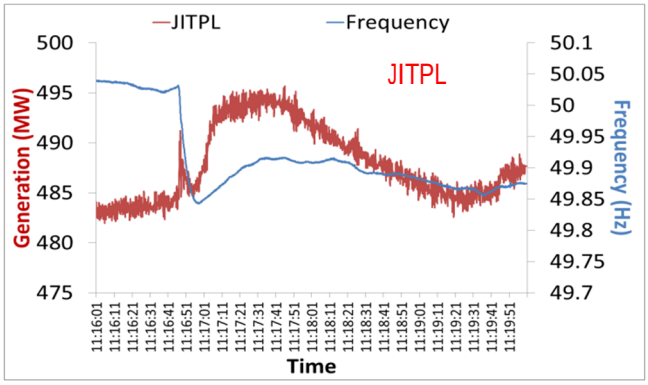


4. Response observed in ERLDC PMU data and DCS data for GMR

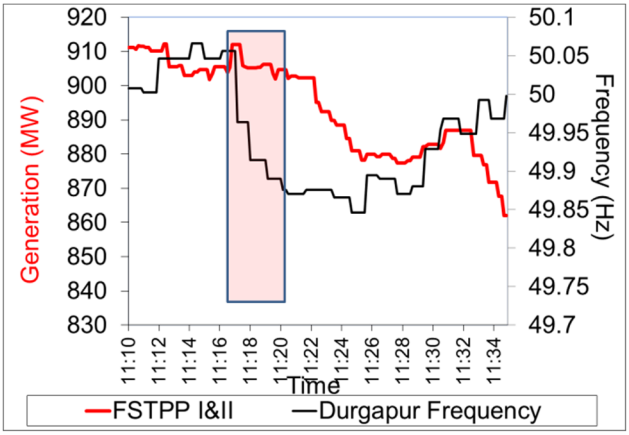


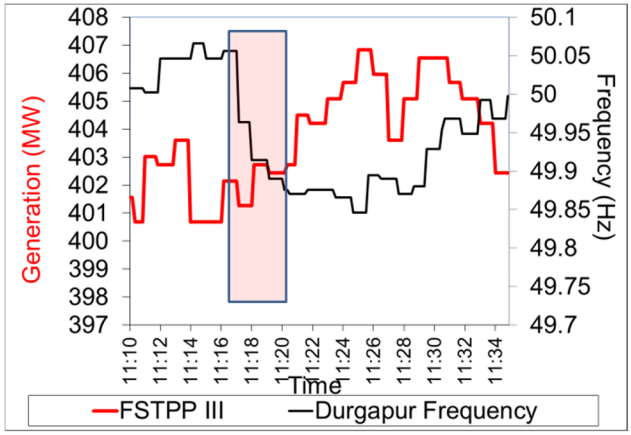


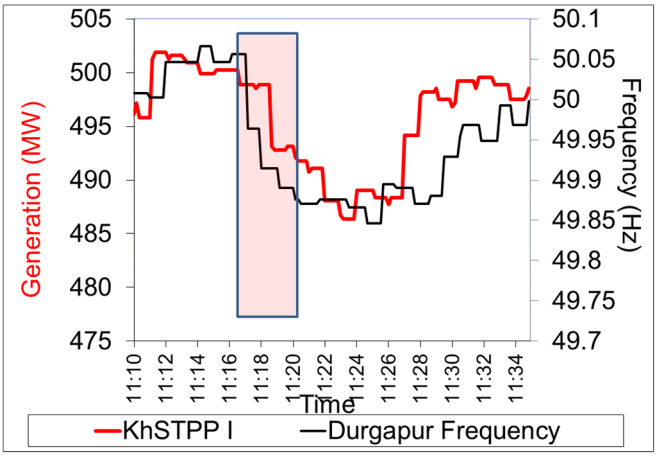
5. Response observed in ERLDC PMU data for JITPL

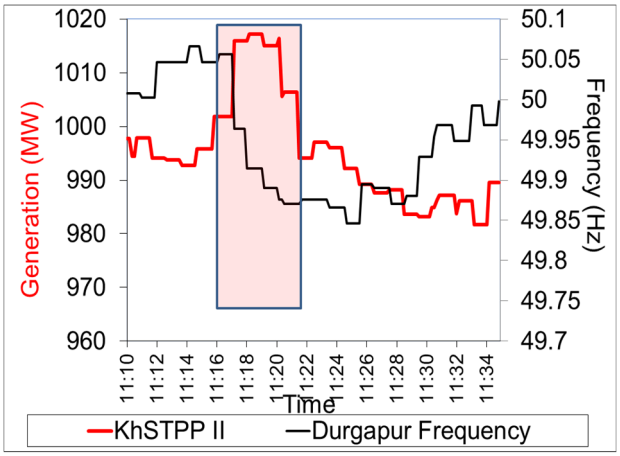


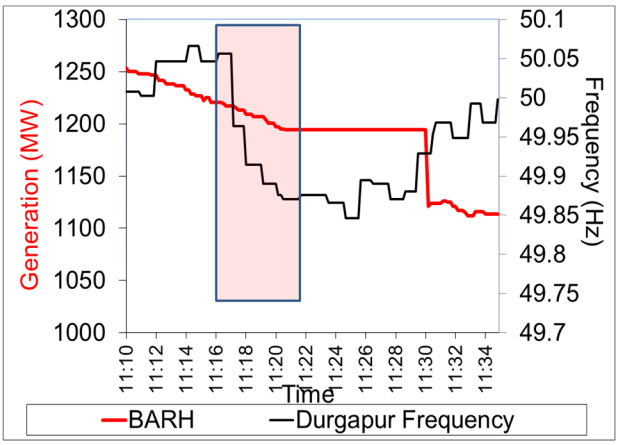
6. Response observed in ERLDC SCADA data

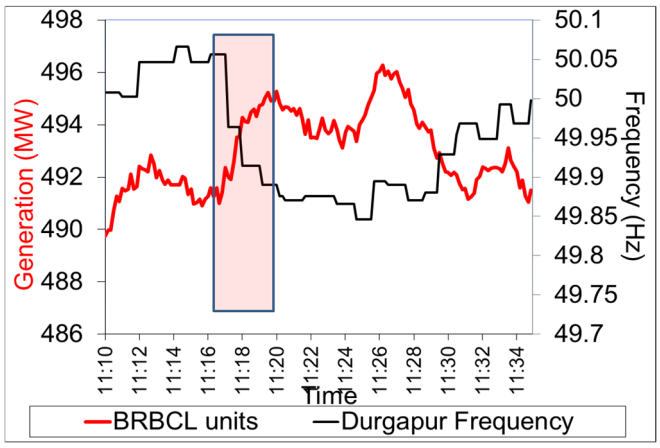





Generation (MW)
Frequency (Hz)
Time
KhSTPP I
Durgapur Frequency


Generation (MW)
Frequency (Hz)
Time
KhSTPP II
Durgapur Frequency


Generation (MW)
Frequency (Hz)
Time
BARH
Durgapur Frequency


Generation (MW)
Frequency (Hz)
Time
BRBCL units
Durgapur Frequency

POWER SYSTEM DEVELOPMENT FUND

Status of the Projects approved in Eastern Region

Sl No	State	Entity	Name of the Proposal & No	Date of Sanction	Approved DPR cost	Sanctioned Grant	Date of signing of Agreement	Date of First Disbursment	Completion Schedule (in months)	Grant Disbusred till date	% Grant disbursed	Under process of disbusrement	Total Awards amount placed till date	Remarks
1	Bihar	BSPTCL	Renovation and Upgradation of protection system of substations. (18)	11-May-15	71.35	64.22	3-Dec-15	16-May-16	24	56.04	87.26%		69.20	Final 10% not yet claimed
2			Installation of Capacitor bank in 20 Nos of Grid Sub Station. (74)	5-Sep-16	20.98	18.88	14-Mar-18	26-Mar-19	24	16.99	89.98%		20.98	Final 10% not yet claimed
3			Renovation and Upgradation of the protection and control system of 12nos 132/33 Grid Sub Station. (73)	2-Jan-17	54.69	49.22	Agreement not signed		24	0.00	0.00%			Agreement not signed
			Total		**147.02**	**132.32**				**73.03**	**55.19%**		**90.18**	
4	Jharkhand	JUSNL	Renovation & Upradation of protection system of Jharkhnad. (161)	15-Nov-17	153.48	138.13	3-Jul-18	28-Mar-19	16	39.03	28.26%	75.65	140.09	60% grant under process of disbusrement
5			Reliable Communication & data acquisition system upto 132kV Substations ER. (177)	24-May-19	46.82	22.36	Agreement not signed				0.00%			Agreement not signed
			Total		**200.3**	**160.49**				**39.03**	**24.32%**	75.65	**140.09**	
6	Odisha	OPTCL	Renovation and Upgradation of protection system of substaions. (08)	11-May-15	180.56	162.50	5-Aug-15	22-Mar-16	24	46.04	28.33%		60.26	Final 10% not yet claimed
7			Implementation of OPGW based reliable communication at 132 kv and above substations.	15-Nov-17	51.22	25.61	3-Jan-18	29-Mar-19	36	7.68	29.99%		51.22	60% grant not yet requested
8			Installation of 125 MVAR Bus Reactor along with construction of associated by each at 400kV Grid S/S of Mendhasal, Meramundali & New Duburi for VAR control & stabilisation of system voltage. (179)	27-Jul-18	30.26	27.23	21-Sep-18	1-Apr-19	18	2.72	9.99%			Awards not yet placed & 20% not yet requested
9			Implementation of Automatic Demand Management System (ADMS) in SLDC, Odisha. (196)	24-May-19	3.26	2.93	Agreement not signed		10		0.00%			Agreement not signed
10			Protection Upgradation and installation os Substation Automatic System (SAS) for seven nos of 220/132/33kV Substations (Balasore, Bidanasi, Budhipadar, Katapali, Narendrapur, New Bolangir & Paradeep). (209)	24-May-19	40.7	36.63			18		0.00%			Agreement is under execution
11		OHPCL	Renovation and Upgradation of protection and control system of OHPC. (109)	22-May-17	24.83	22.35	19-Sep-17	25-May-18	24	2.67	11.95%		10.17	60% grant not yet requested
			Total		**330.83**	**277.25**				**59.11**	**21.32%**		**121.66**	
12	West Bengal	WBSETCL	Renovation and Upgradation of protection system of substations. (07)	31-Dec-14	120.67	108.60	10-Feb-15	4-Feb-16	15	46.10	42.45%		51.23	Project Completed. Short closed
13			Installation of switchable reactor & shunt capacitor for voltage improvement. (88)	22-May-17	48.19	43.37	10-Aug-17	22-Jun-18	19	11.69	26.95%		28.30	60% not yet claimed
14			Renovation & Modernisation of Transmission System. (87)	22-May-17	93.51	70.13	10-Aug-17	25-Jun-18	25	63.12	90.00%		93.51	Final 10% not yet claimed
15			Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid. (210)	24-May-19	79.71	71.74	24-Jun-19	23-Oct-19	19		0.00%	7.17		10% under process of disurement
16			Project for establishment of reliable communication and data acquisition at different substation at WBSWTCL. (222)	24-May-19	62.39	31.19	24-Jun-19	23-Oct-19	25	3.12	10.00%			Awards not yet placed & 20% not yet requested

POWER SYSTEM DEVELOPMENT FUND														
Status of the Projects approved in Eastern Region														
Sl No	**State**	**Entity**	**Name of the Proposal & No**	**Date of Sanction**	**Approved DPR cost**	**Sanctioned Grant**	**Date of signing of Agreement**	**Date of First Disbursment**	**Completion Schedule (in months)**	**Grant Disbusred till date**	**% Grant disbursed**	**Under process of disbusrement**	**Total Awards amount placed till date**	**Remarks**
17		WBPDCL	Renovation and Modernization of 220/ 132 kV STPS switch yard and implementation of Substaion Automation System. (72)	5-Sep-16	26.09	23.48	29-Dec-16	18-May-17	18	7.05	30.02%			60% not yet claimed
18			Implementation of Islanding scheme at Bandel Thermal Power Station. (97)	16-May-17	1.54	1.39	10-Aug-17	14-Dec-17	8	1.39	100.00%			Project Completed
19			Renovation and Modernization of switchyard and related protection system of different power stations (BTPS, BKTPS and KTPS) of WBPDCL (155)	27-Jul-18	50.18	45.16	20-Dec-18	27-Mar-19	12	4.52	10.01%			60% not yet claimed
			Total		**482.28**	**395.06**				**136.99**	**34.68%**		**173.04**	
20	DVC	DVC	Renovation and Upgradation of the protection and control system of Ramgarh Sub Station. (81)	2-Jan-17	28.85	25.96	11-Apr-17	31-May-17	24	22.95	88.41%		28.27	Final 10% not yet claimed
21			Renovation and Modernization of control and protection system and replecement of equipment at Parulia, Durgapur, Kalyanewari, Giridhi Jamsedpur, Barjora, Burnpur, Dhanbad and Bundwan substation. (106)	16-May-17	156.11	140.50	21-Jun-17	14-Dec-17	24	36.06	25.67%		122.75	60% not yet claimed
			Total		**184.96**	**166.46**				**59.01**	**35.45%**		**151.03**	
22	Sikkim	ENPD, Sikkim	Drawing of optical ground wire (OPGW) cables on existing 132kV & 66kV transmission lines and integration of leftover substations with State Load Despatch Centre, Sikkim. (173)	24-May-19	20.00	10.00	4-Dec-19				0.00%			Initla 10% not yet claimed
					20.00	**10.00**				**0.00**	**0.00%**		**0.00**	
23	PGCIL	PGCIL	Installation of STATCOMs in ER at Ranchi-New, Rourkela, Kishanganj and Jeypore substations of POWERGRID. (56)	5-Jan-16	700.31	630.28	29-Sep-16	31-Mar-17	30	571.69	90.70%		651.52	Project Completed
24	ERPC	ERPC	Creation and Maintenance of web based protection database management. (67)	17-Mar-16	20	20.00	26-Apr-16	28-Jun-16	18	14.83	74.15%		16.48	Final 10% not yet claimed
25			Study Programme on power trading at NORD POOL Academy for Power System Engineers of Eastern Region. (122)	27-Jul-18	5.46	5.46	21-Sep-18	27-Mar-19	60	4.61	84.43%		5.37	Final 10% not yet claimed
26			Traning Program for Power system Engineers of various constituents of Eastern Region. (117)	27-Jul-18	0.61	0.61	21-Sep-18	11-Apr-19	60	0.18	29.51%		0.61	60% not yet claimed
			Total		**726.38**	**656.35**				**591.31**	**90.09%**		**673.98**	
			GrandTotal		**2,091.77**	**1,797.94**				**958.48**	**53.31%**	**75.65**	**1349.96**	

Annexure-D.1

Anticipated Power Supply Position for the month of
Jan-20

SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	5300	2810
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	422	343
		- Central Sector	4060	1984
	iii)	SURPLUS(+)/DEFICIT(-)	-818	-484
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1440	820
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	341	163
		- Central Sector	873	457
	iii)	SURPLUS(+)/DEFICIT(-)	-226	-200
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	3135	1890
	ii)	NET POWER AVAILABILITY- Own Source	5193	2861
		- Central Sector	487	216
		Long term Bi-lateral (Export)	1671	1243
	iii)	SURPLUS(+)/DEFICIT(-)	874	-57
4		**ODISHA**		
	i)	NET MAX DEMAND	4950	2705
	ii)	NET POWER AVAILABILITY- Own Source	3673	1533
		- Central Sector	1527	755
	iii)	SURPLUS(+)/DEFICIT(-)	250	-417
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	5910	2940
	ii)	CESC's DRAWAL	0	59
	iii)	TOTAL WBSEDCL's DEMAND	5910	2999
	iv)	NET POWER AVAILABILITY- Own Source	4768	1858
		- Import from DPL	289	0
		- Central Sector	2294	1176
	v)	SURPLUS(+)/DEFICIT(-)	1441	35
	vi)	EXPORT (TO B'DESH & SIKKIM)	1077	-51
5.2		**DPL**		
	i)	NET MAX DEMAND	0	195
	ii)	NET POWER AVAILABILITY	289	114
	iii)	SURPLUS(+)/DEFICIT(-)	289	-81
5.3		**CESC**		
	i)	NET MAX DEMAND	1450	703
	ii)	NET POWER AVAILABILITY - OWN SOURCE	700	452
		FROM HEL	268	155
		Import Requirement	482	96
	iii)	TOTAL AVAILABILITY	1450	703
	iv)	SURPLUS(+)/DEFICIT(-)	0	0
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	7360	3838
	ii)	NET POWER AVAILABILITY- Own Source	5757	2423
		- Central Sector+Others	3044	1331
	iii)	SURPLUS(+)/DEFICIT(-)	1441	-84
7		**SIKKIM**		
	i)	NET MAX DEMAND	125	62
	ii)	NET POWER AVAILABILITY- Own Source	2	1
		- Central Sector+Others	143	62
	iii)	SURPLUS(+)/DEFICIT(-)	20	2
8		**EASTERN REGION** **At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	21660	12125
		Long term Bi-lateral by DVC	1671	1243
		EXPORT BY WBSEDCL	1077	-51
	ii)	**NET TOTAL POWER AVAILABILITY OF ER (INCLUDING C/S ALLOCATION)**	25523	12129
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER (ii)-(i)**	1115	-1188